GeoJournal of Tourism and Geosites

Year XVI

2023 / no. 4

vol. 50

Editura Universității din Oradea

GTG

GeoJournal of Tourism and Geosites

Oradea University Press

ISSN 2065-1198, E-ISSN 2065-0817

The Journal is issued under aegis and with financial support of:

University of Oradea, Romania
Department of Geography, Tourism and Territorial Planning
Territorial Studies and Analysis Centre
1 University St., 410087, Oradea, Romania

Gdansk University of Physical Education and Sport, Poland
Faculty of Tourism and Recreation
ul. Kazimierza Górskiego 1, 80-336 Gdańsk, Poland

GTG
GeoJournal of Tourism and Geosites

Year XVI, no. 4, vol. 50

Oradea - Gdańsk
2023

PUBLICATION REQUIREMENTS OF ARTICLES IN THE GEOJOURNAL OF TOURISM AND GEOSITES

The Editorial Board goes trough each article, which in then submitted to two referees' judgment. Names of referees are confidential to the Editorial Board. Authors may be asked to make revisions to their manuscript. If substantial revision is required manuscripts may be re-reviewed before a decision to accept/publish is made. Final acceptance of manuscripts for publication is at the discretion of the Editors.

Authors alone are responsible for the opinions expressed in their papers.

The GeoJournal of Tourism and Geosites
is indexed in:

SCOPUS: http://www.scopus.com/

GEOBASE: https://www.elsevier.com/

INDEX COPERNICUS: http://journals.indexcopernicus.com/karta.php?action=masterlist&id=3947
IC Value: **134.41** - 2022; **134.64** - 2021; **132.41** - 2020; **121.20** - 2019; **121.25** - 2018; **109.97** - 2017; **88.82** - 2016; **84.53** - 2015; **68.79** - 2014; **6.59** - 2013; 2012; **4.84** - 2011; **4.83** - 2010; **4.15** - 2009; **3.91** - 2008

Review accredited by **C.N.C.S.I.S.,** "**C**" Categoryhttp://vechi.cncsis.ro/cenaposs/2008/Arhiva/reviste_cat_C_08.pdf

---

ULRICHSWEB – GLOBAL SERIALS DIRECTORY
http://www.ulrichsweb.com/ulrichsweb/ulrichsweb_news/uu/newTitles.asp?uuMonthlyFile=uu201003/new_titles.txt&Letter=G&navPage=9&

WORLDCAT: http://www.worldcat.org/search?q=GeoJournal+of+Tourism+and+Geosites&qt=owc_search

---

SCIPIO: http://www.scipio.ro/web/geojournal-of-tourism-and-geosites

---

EBSCO: http://www.ebscohost.com/titleLists/hjh-subject.pdf

HOSPITALITY & TOURISM COMPLETE: https://www.ebscohost.com/titleLists/hjh-coverage.xls

---

HOSPITALITY & TOURISM INDEX: https://www.ebscohost.com/titleLists/hoh-coverage.htm

---

CAB Abstracts: https://www.cabi.org/SerialsCited/1429.txt

ERIH PLUS: https://dbh.nsd.uib.no/publiseringskanaler/erihplus/periodical/info.action?id=495196

DOAJ - DIRECTORY OF OPEN ACCES JOURNALS: https://doaj.org/search

---

Price of journal:

Individual	10 €
Institutional	15 €
Annual subscription	20 €

Address of the Editorial Office:
University of Oradea Department of Geography,
Tourism and Territorial PlanningTerritorial Studies and Analysis Centre 1 Universităţii St.,
410087, Oradea, Romania, Phone/fax: +40 259 408 475 e-mail: gtg.uoradea@yahoo.com

On line version:
http://gtg.webhost.uoradea.ro

CONTENTS

* * * * * *

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1212-1223
DOI 10.30892/gtg.50401-1119

INVESTIGATING TOURISTS' ONLINE TRAVEL AGENCY SELECTION INTENTION: AN EMPIRICAL ANALYSIS ON BANGLADESH

Zaber HOSSAIN*

Department of Business Administration, Faculty of Business Studies, Bangladesh
Army University of Science and Technology, Saidpur, Bangladesh, e-mail: hossain.zaber478@gmail.com

Mahbubar RAHMAN

Department of Marketing, Faculty of Business Studies, University of Rajshahi, Rajshahi, Bangladesh, e-mail: mmr.iium@gmail.com

Kamal HOSSAIN

Department of Business Administration, Faculty of Business Studies, Pabna University of Science and Technology, Pabna, Bangladesh, e-mail: hossain.kamal7523@gmail.com

Subrata KUMAR

Department of Business Administration, Faculty of Business and Economics,
Central Women's University, Dhaka, Bangladesh, e-mail: sbrtds88@gmail.com

Citation: Hossain, Z., Rahman, M., Hossain, K., & Kumar, S. (2023). INVESTIGATING TOURISTS' ONLINE TRAVEL AGENCY SELECTION INTENTION: AN EMPIRICAL ANALYSIS ON BANGLADESH. *GeoJournal of Tourism and Geosites*, 50(4), 1212–1223. https://doi.org/10.30892/gtg.50401-1119

Abstract: Online travel agency (OTA) attributes are significant to travelers in deciding which travel agency to select for their trip since different attributes represent different levels of perceived value to the travelers. The study aims to investigate the OTA attributes generated perceived value effect on OTA selection intention by Bangladeshi tourists. Data were collected by following a purposive sampling technique from 307 tourists of Bangladesh who buy from OTA and analyzed by utilizing SPSS version 24 integrated with AMOS version 26, applying structural equation modeling (SEM). Information quality, price, privacy and security, ease of use and online review are considered the features of OTA that influence perceived value and perceived value influence OTA selection intention. The result showed that the information quality, price, privacy and security, and ease of use significantly and positively influence perceived value, while online reviews were found to have no significant relationship. The perceived value also positively influences the OTA selection intentions of tourists. This study will provide important directions for OTA service providers in developing better strategies to improve OTA performance.

Key words: online travel agency, perceived value, OTA selection intention, price, privacy and security, online review

* * * * * *

INTRODUCTION

The world has been going through a dramatic change because of the progression of up-to-date technology. The travel and tourism sector is no exception in this regard. The advent of the online revolution in the tourism industry throughout the 1990s changed how travel products are advertised, marketed, and sold and how tourists behave as consumers and make travel arrangements (No and Kim, 2015; Rianthong et al., 2016). Travellers' involvement in online tourism has been accelerated by advancements in mobile technology and rising mobile usage. Traditional travel agencies are becoming obsolete because OTA is easily accessible as people use personal computers and mobile devices to research tourist spots and travel options. (Min and Lee, 2020). Online travel agencies (OTAs) are travel intermediaries that offer travel-related products to the target market through the online platform. These products include airlifts, vacations, holiday packages, hotel accommodations, etc. Online travel agencies (OTAs) are also known as travel portals.

OTAs have already become a convenient way to plan and book tours since they ensure customer value by providing proper usability, available information, and security of money and transactions. Since the competition in the travel industry has increased, OTAs have been working on standing out in it by using tactics that appeal to consumers' preferences and their multi-criteria decision-making (Pinto and Castro, 2019). OTAs are facing severe completion from similar firms to hotels nowadays (Zhang et al., 2015). So, it is essential to identify the major value-generating attributes that influence the customer in selecting the best OTA. Since there hasn't been any research on how OTA attributes affect the perceived value and eventually impact OTA selection intention, this study aims to close that gap. Numerous hotels have joined OTAs like Priceline, Expedia, Ctrip, and others all across the globe. Customers book trips via OTA websites and hotels collaborate with OTAs by negotiating agency distribution agreements (Chivandi and Muchie, 2020). According to Airways.com (2021, May 18), OTAs now offer hotel reservations, visa processing, and other valuable services besides selling tickets. By 2025, the OTA market share is anticipated to surpass 45%. Bangladesh's tourism industry is quickly gaining growth day by day

* Corresponding author

(Roy and Roy, 2015). The number of online travel agencies in Bangladesh is increasing, and customer complaints about OTAs are also mounting. Therefore, assessing their unique features is crucial (Min and Lee, 2020). Recent research on online travel firms in Bangladesh focuses mainly on operations, adoption intentions, and obstacles (Laboni and Abdullah, 2019). Hence, it is essential to operate a study on the value-creating criteria of OTA that are essential to consider when choosing an OTA in the context of Bangladesh. Most current studies concentrate on identifying and analyzing the intentions and actions of visitors when they use the internet. Much research has been conducted on how tourists make decisions when looking for services online, including adopting e-tourism (Lama et al., 2019; Ukpabi and Karjaluoto, 2017; Stylos et al., 2021). Although Majó et al. (2021), Xu et al. (2021), and Wen et al. (2021) examined how factors including price, brands, and online reviews affect the choice of an online travel agency (OTA), they do not examine a number of aspects in a comparative perspective. So, this is another logic to justify the reason behind this study. Again, previous researchers separately investigated the dominance of particular factors like e-WOM (Hermawan, 2022; Kitcharoen, 2019); website quality (Albayrak et al., 2020; Nasution et al., 2019); Price (Kim et al., 2020); usability (Huang and Mou, 2021; Rusu et al., 2018; Lee, 2018), on selection and decision-making process of the customer for online travel agency. However, researchers in the field of tourism, especially e-tourism, have not looked into the topic of manipulating issues of the decision-making systems regarding the choice of online travel agencies in-depth yet. So, it is critical to comprehend the main attributes of OTA to create value and selection intention as a whole for online travel agencies and their relative weight in order to raise their attractiveness in a way that fosters an increase in client pleasure, confidence, and retention while minimizing complexity.

In light of the Value-based Adoption Model (VAM) (Kim et al., 2007) and Technology Acceptance Model models (TAM) (Davis et al., 1989), it is attempted to propose a theoretical model. An empirical analysis was then conducted to determine the causal connection across the constructs. By undertaking a more thorough examination of travellers' intentions toward OTA, the study will address a gap in the body of research by providing a deeper comprehension of the OTA elements that affect OTA selection intentions and perceived value. This study will aid travel service providers and OTA managers in deciding which OTA attributes to offer and developing more reliable marketing plans. The results suggest that OTA selection intention is affected by perceived value and which is further impacted by price, privacy and security, information quality and ease of use. Based on the above, we can set the research objectives:

- To identify the attributes of OTA and examine their impact on perceived value.
- To investigate how the perceived value of OTA influences OTA selection intention.

LITERATURE REVIEW

Theoretical Background

The Technology Acceptance Model (TAM) (Davis et al., 1989) is an eminent model describing the purchaser's technology acceptance behaviour, in other words, adopting new technology. It proposes that perceived usefulness and ease of use can influence the adoption of technology. Perceived usefulness in this study indicates the significance of information quality and online reviews, while price, privacy and security, and ease of use signify user-friendliness. So, these attributes can influence the traveller's selection intention of OTA. TAM has been a widely used theory in technology acceptance. Some prominent studies have been conducted recently by using TAM on mobile food delivery applications (An et al., 2023); Zoom applications (Alfadda and Mahdi, 2021); artificial intelligence-based technologies (Na et al., 2022); e-wallet (Astari et al., (2022), sports bracelet (Zhang et al., 2023).

To get beyond TAM's limitations in a new ICT context, the Value-based Adoption Model (VAM) seeks to clarify the adoption of technology through the lens of TAM (Davis et al., 1989) and perceived value (Zeithaml, 1988). VAM is a relatively new model proposed by Kim et al. (2007), which explains that perceived value has been determined by comparing benefits and sacrifice, in addition to the division of motives into extrinsic and intrinsic components. As contrasting to TAM, which wanted to clarify the intention to use technology by considering its usefulness and ease of use, the Value-based Adoption Model (VAM) concentrated on the outcomes (usefulness and enjoyment) and sacrifices (technicality and perceived charge) as the principal gears of perceived value and inspected the intent to use. Buyers are better able to judge the value they get, which leads to further realistic intentions to adopt emerging technologies (Kim et al., 2017). Perceived value is evaluated using perceived benefits and perceived sacrifice. As a result, Information quality, privacy and security, ease of use, and online review were included in our definition of perceived benefits in this study, while price refers to perceived sacrifice. So, better benefits and lower sacrifices increase the perceived value for OTA.

Some recent studies were conducted to predict new technology adoption behaviour using VAM, such as the Internet of Things (IoT) (Kim et al., 2017); e-learning (Liao et al., 2022); virtual tourism (Lim et al., 2022); online retailing (Erdmann et al., 2021). In the essence of the above theoretical support, the below factors are discussed with the support of literature.

Online Travel Agency

Online travel agencies (OTAs) are businesses online that enable tourists to book a wide range of trip services directly over the Online platform (Chen et al., 2022). OTAs are trip intermediaries that communicate with tourists via the online platform to sell travel-related goods like vacation packages and other related items (Talwar et al., 2020). It provides products and travel-related services from various suppliers (Chivandi et al., 2020); offers discounts that are better than those on hotel websites, expands its market, accumulates items, and lowers its expenses (Rogerson et al., 2019). OTAs have emerged as a useful tools in the travel industry (Rizal et al., 2020). Customers choose OTA so that they can get more facilities (Talwar et al., 2020). Customers who use OTAs for service can save money, time, and physical effort on their purchases and plan travel decisions. OTAs are practically open 24/7, allowing passengers to alter plans quickly, easily, and based on suspensions or problems such as airline delays, lost tickets, overbookings, and so on (Kadam et al., 2020). OTAs offer outstanding client service via mobile apps, flexible websites, email marketing, and even social networking sites. It not only promotes and offers innovative goods and services but also solicits input from customers in order to improve the offerings. It tailors booking experiences with greater speed and convenience (Zamyatina and Solntseva, 2019).

Perceived Value and OTA Selection Intention

Perceived value is described as the overall benefits and costs derived from having or using a product or service (Zeithaml, 1988). In this study, perceived value refers to the information value, price value, privacy and security value, perceived usefulness and benefit from online reviews of online travel agencies. Perceived value is a weighty predictor of customer purchase intention. The connection between perceived value and behavioural intentions is further supported by recent studies (Riva et al., 2022; Jaleel et al., 2021; Damanik and Yusuf, 2021). Overall positive perceived value encourages customers to adopt technology, and negative perceived value discourages them to accept technology. Prominent studies established the relationship between perceived value and technology adoption intention (Chen and Lin, 2019; Kim et al., 2017); Gligor and Bozkurt, 2020; Ting et al., 2013; de Kervenoael et al., 2020). Tourists' OTA selection intention can be determined by the perceived value, and it is regarded as the main element that influences individuals’ selection and behavioural intentions towards OTA (Chen and Lin, 2019). Thus, the hypothesis can be stated as follows:

H1: Perceived value of OTA has a significant positive impact on OTA selection intention.

Information Quality

Information quality is the range of value that the client associates with the information. The more useful the information is for customer decision-making, the better (Zhu and Kim, 2019). According to a previous study conducted by Lee and Min (2021), the most important factors for judging information quality are its richness, correctness, appropriateness, timeliness, and conciseness. OTA trust and continued usage intention are significantly influenced favourably by the information quality characteristics of accuracy, timeliness, and usefulness. Martínez-Costa et al. (2018) conducted a study on 264 OTAs’ Spanish tourists and found that the key reason why there is a predominance of happy consumers is the quality of the information offered on the websites. The availability of quality information increases satisfaction and improves trust (Lee and Min, 2021); determines the efficiency of a travel website design (Wen, 2009) and thus results in positive behavioural intentions (Masri et al., 2020). Information is offered in formats like audio, images, writing, and videos, and the features of the media used to present the information are what determine its quality (Tarute et al., 2017). Tourists largely depend on accurate information to eradicate confusion and make the right decision (Chen and Chang, 2018).

Talwar et al. (2020) have shown that information value is critical to predicting purchase intention toward OTAs. The ease of obtaining information on the various offers and rules, return systems, and advertising campaigns is more likely to influence tourists’ selection intention of OTAs. Ahn and Sura (2020) have found information extensiveness, the comfort of comprehension, and customization are significant. The decision-making processes of travellers are significantly affected by the quality of the information (Wang et al., 2020). Therefore, a hypothesis can be drawn as follows:

H2: The information quality attribute of OTA has a significant positive influence on perceived value.

Privacy and Security

People in this era of advanced technology are very cognizant of information security (Mohr and Walter, 2019). Security is the degree to which an online platform is secured and furnished to safeguard users' data (Ho and Lee, 2007). Martínez-Costa et al. (2018) stated that the level to which internet users observe that the platform is safe for preserving individual or financial information is known as perceived security, also referred to as privacy in some research. According to Kim et al. (2011), the perception of security is connected to the assurance of privacy and protection of personal data, as well as safe and risk-free credit card purchases. Security and privacy concerns are among the top reasons why people desire to maintain their anonymity and protect their privacy. Security concerns are very critical issues for online travellers. Oliveira et al. (2020) conducted a study where security and safety were marked as one of the main reasons why travellers shared their experiences on social media. Privacy issues exert a negative effect on people's inclination to exchange information in the context of e-commerce as a whole. In addition to that, prior personal experience with privacy violations is negatively correlated with trust (Anic et al., 2019; Ioannou et al., 2021). However, Ioannou et al. (2020) found that despite having privacy concerns, travellers are free to share behavioural information with OTAs. Users' varying levels of privacy and security affect how strongly quality, cost, social standing, information, preferences, and intention to make a transaction are correlated (Talwar et al., 2020). Security for online transactions is an essential component of satisfaction (Kim et al., 2011) and purchase intention (Talwar et al., 2020). So, it can be hypothesized as below.

H3: The privacy and Security attribute of OTA has a significant positive influence on perceived value.

Price

Price is considered as a significant element of perceived value and purchase intention (Levrini et al., (2021). Online travel agencies basically attract customers through varieties of price engineering. Many researchers have found price as the most influential factor in choosing OTA. Price benefits were found to be important to the intention to make an online purchase. Pricing tour packages with OTAs is a critical decision since it may not only encourage travellers but also discourage them as well, or even reject the services. They will be more inclined to buy a service if the provided price is lower compared to the internal pricing criterion. Mao et al. (2021) found that OTA should set a high price for high-value travellers and a low price for conventional hotels. Travellers who book services online are willing to get a better deal at the lower possible price. For this reason, they attempt to compare alternative OTAs. According to Talwar et al. (2020), offering reasonable pricing and allowing price comparison create OTA selection intention. Kim et al. (2020) conducted a study where they found that OTAs are now looking into how varying levels of price dispersion affect travellers' decisions. The findings also indicate that consumers favour an OTA alternative with large price dominance dispersion. Due to better prices, online travel agencies (OTAs) are where most tourists choose to book their lodging (Agag and El-Masry, 2016). Based on the above literature, we can hypothesize as follows:

H4: The price attribute of OTA has a significant positive influence on perceived value.

Online Review

Online reviews are positive and negative conversations in online among customers regarding their experiences with a company (Zhai et al., 2022). In the context of online tourism, a customer may recommend an online travel agency's product when they are happy with their customer service. The growing popularity of social media facilitates sharing of knowledge and experiences through online reviews. The number of reviews affects consumer purchasing decisions, and consumers identify them as a beneficial source of information before consumption. Reviews support travelers' decision-making process (Nilashi et al., 2018). The confidence of the buyer and seller is crucial because online transactions do not take place face-to-face for either party. In this situation, reviews can be a great way to increase travellers' self-assurance. Many studies have proven the importance of online reviews. Agag and El-Masry (2016) conducted a study of 495 members, including managers and consumers, in Egypt, where they found that consumer perception of an online travel agency is directly and positively impacted by positive word-of-mouth (WOM). Prospective travellers, when deciding which products or services to buy, will rely on reviews from other customers or their own personal preferences (Kim, 2019). Acceptance of reviews is significantly influenced by the kind and calibre of reviews and reviewers. Based on their meta-analysis, Hu and Yang (2021) revealed that review detailing, writer competence, age, and identity are crucial criteria for online travellers seeking information.

Tourists gave more weight to negative comments than to positive ones (Pinto and Castro, 2019). Customer reviews influence trust, increase perceived value, and trust influences the selection intentions and behaviour of online customers (Furner, 2022). Therefore, based on the above literature support following hypothesis can be stated.

H5: Online review has a significant positive influence on the perceived value of OTA.

Ease of Use

The reduction of complexity in any sector of business is critical to success. There is no exception in this case for tourism, particularly online tourism. The degree of simplicity in dealing with OTA is known as perceived ease of use, where customer comprehension of how effortlessly to use an online travel agency to get service (Aristio, 2019). One of the determinants of customer intention is perceived ease of use (Agag and El-Masry, 2016). While evaluating the OTA site's performance, a customer considers features that promote website clarity, personalization, and adaptability of appointments. Online travel firms take various initiatives to minimize user complexity in using service. Users' anxiety over new technologies can be decreased by providing a familiar operating environment (Su et al., 2022). For example, the chatbot's usability has a favourable impact on the customer experience's extrinsic values (Chen et al., 2021). The appeal of the OTA website can be evaluated in quality judgments only after its utility and convenience have been verified (Sun et al., 2016). Ease of use is one of the important tools to instigate purchase and repurchase intention (Dewi et al., 2020). Wicaksono and Maharani (2020) found that ease of use affects the behavioural intention of online customers. They further suggested that, as a service provider, a firm should make services easy for customers. Perceived ease of use is a substantial and powerful predictor of customer happiness and continued purchase intention (Filieri et al., 2021). Overall, ease of use significantly contributes to tourists' perceived value. Thus, a hypothesis can be drawn like below:

H6: The ease of use attribute of OTA has a significant positive influence on perceived value.

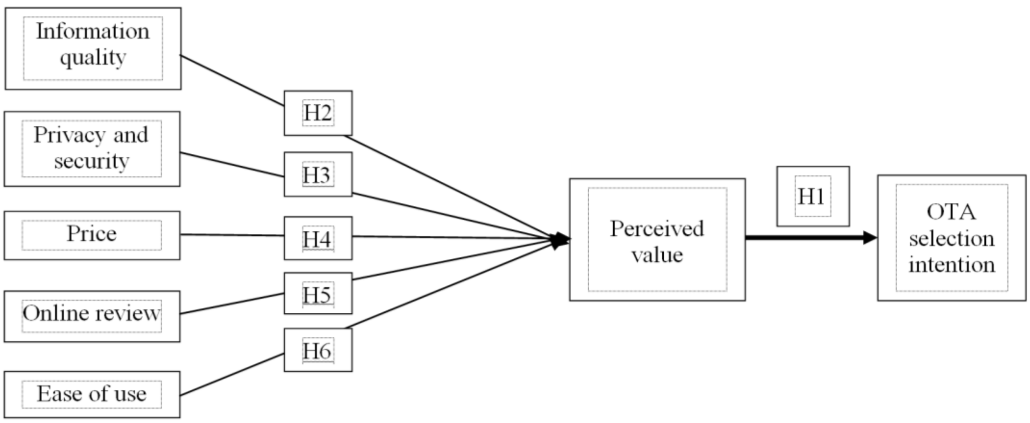


Figure 1. Proposed research model

Overview of The Proposed Model

In light of the above literature review, a model is proposed which determines the relationship between information quality, privacy and security, price, ease of use, online review (independent variables) with perceived value and selection intention (dependent variables) of online travel agency by Bangladeshi tourists (displayed in Figure 1). The proposed model has been adapted from the study titled "The effect of website quality on repurchase intention with the mediation of perceived value: The case study of online travel agencies in Vietnam" (Pham and Nguyen, 2019:78-91) and "Understanding the travelers' intention towards virtual tourism adoption using value-based adoption model" (Lim et al., 2022: 176-197).

METHODOLOGY

Data Collection

In this study, the primary data was collected from the customers of eight reputed online travel agencies in Bangladesh. Data was collected from the tourists who have taken service from OTA at least once. "Have you previously used an online travel agency to travel?" was the filtering question. Those who replied 'yes' qualified for the study as respondents. Therefore, purposive sampling techniques were used since only participants who were knowledgeable and well-informed regarding OTA were selected for the study (Wu Suen et al., 2014). A Google form containing the questionnaire was distributed among the respondents since Bryman and Bell (2011) stated that online is an excellent tool for collecting standardized data. A five-point-Likert scale technique suggested by Babakus and Mangold (1992) was utilized to assess the factors of this study where 1 = "strongly disagree," 2 = "disagree," 3 = "neutral," 4 = "agree," and 5 = "strongly agree." A total of 324 responses from the participants were collected by ensuring permission, privacy and other ethical concerns. After removing erroneous and unfit responses, 307 questionnaires were finalized for further analysis. A sample size of 307 is sufficient to undertake this research using structural equation modelling (SEM) (Hair et al., 2016; Comrey and Lee, 1992).

Demographic Data

In order to have a conclusive understanding of the research findings, the demographic data of the sample was also collected. In this research, most of the respondents are male (61.56%, n=189). On the other hand, 38.44% (n=118) are female tourists. 74.59% (n=229) of respondents are aged 18-40, and 25.41% (n=78) are 41-65 level of age. Most participants (71.99%, n=221) have travelled through OTA once a year, followed by 28.01% (n=86) who have visited OTA more than once a year. Again, 25.08% (n=77) have 0–20000 (Taka) monthly income, and 40.07% (n=123) have a monthly income from 20001-40000 (Taka), followed by 34.85% (n=107) 40001 and above income.

Measures

In this research, a few items were used to evaluate a particular relevant construct. Items of the factors were adapted from different reputed published research articles relevant to this study. To verify the reliability and validity of the relationship of items with the constructs first of all, few academic experts in the field of tourism and e-tourism were invited. Based on the comments of the experts' items were reviewed and edited to fit the context of this study. A total of 26 items comprise the questionnaire. Items were extracted from different papers and slightly modified to fit the study. Three items of information quality were adapted from Ho and Lee (2007); five items of privacy and security were adapted from (Fu Tsang et al., 2010); three items of price were adopted from Talwar et al. (2020); Online review adapted from (item 1,2,3) Pinto and Castro (2019) and (item 4) Pham and Nguyen, (2019), ease of use (item 1,2,3) Agag and El-Masry (2016); and (item 4) Pham and Nguyen (2019); four items of perceived value adapted from Pham and Nguyen (2019); three items of OTA selection intention adapted from Xu and Jackson (2019).

Table 1. Validity and reliability test results of the measurement model

Constructs	Code	Factor Loading	Cronbach's Alpha	CR	AVE
Information quality	IQ 1	0.876	0.860	0.865	0.682
	IQ 2	0.877			
	IQ 3	0.715			
Privacy and security	PS 1	0.795	0.917	0.918	0.691
	PS 2	0.899			
	PS 3	0.835			
	PS 4	0.832			
	PS 5	0.793			
Price	PR 1	0.907	0.932	0.931	0.819
	PR 2	0.919			
	PR 3	0.889			
Online review	OR 1	0.828	0.892	0.993	0.676
	OR 2	0.819			
	OR 3	0.883			
	OR 4	0.755			
Ease of use	EU 1	0.791	0.881	0.882	0.652
	EU 2	0.868			
	EU 3	0.776			
	EU 4	0.791			
Perceived value	PV 1	0.869	0.940	0.940	0.797
	PV 2	0.905			
	PV 3	0.887			
	PV 4	0.909			
OTA selection intention	OSI 1	0.862	0.882	0.882	0.713
	OSI 2	0.845			
	OSI 3	0.827			

DATA ANALYSIS

Data analysis was conducted in two phases, as recommended by Anderson and Gerbing (1988). First, the validity and reliability of the constructs were ensured using factors loading, Cronbach alpha, Composite reliability (CR) and average variance explained (AVE), which are displayed in Table 1. Second, Structural equation modelling (SEM) was employed to exhibit the relationship of the constructs in the model. SPSS v-24 and AMOS v-26 were used for the analysis.

Confirmatory Factor Analysis

Before evaluating the structural model, a satisfactory fit of the measurement model was ensured. The convergent validity and reliability of the model were achieved by testing the factor loading, composite reliability (CR) and average variance extracted (AVE). Hair et al. (2016) suggest that the cut-off values for factor loading are 0.7, CR is 0.7, and AVE is 0.5. The result of the above values (displayed in Table 1) confirms that all the values are at a satisfactory level; therefore, convergent validity was achieved (Henseler et al., 2015). Although one item from 'information value' and another item from 'price' was removed because of low factor loading. AMOS fit indices of the measurement model (Figure 2) are CMIN/df = 1.338, CFI = 0.983, RAMSE = 0.33, GFI = 0.916, and RMR = 0.036, NFI = 0.937, TLI = 0.980. These values show a good model fit recommended by (Chetty, 2022; Byrne, 2001; Hair et al., 2016). Fornell and Larcker's (1981) criterion was utilized to achieve discriminant validity. The uniqueness of the factors is ensured by the discriminant validity, which further testifies the phenomenon that is not observed by others. The square root values of all the factors are higher than that of the off-diagonal cross of the other factors, as displayed in Table 2.

Table 2. Reliability and validity measures

Constructs	MSV	MaxR(H)	Information quality	Privacy and security	Price	Online review	Ease of use	Perceived value	OTA selection intention
Information quality	0.084	0.885	**0.826**						
Privacy and security	0.206	0.924	0.175**	**0.832**					
Price	0.323	0.933	0.119†	0.172**	**0.905**				
Online review	0.038	0.901	0.195**	0.144*	0.074	**0.822**			
Ease of use	0.034	0.888	0.002	0.071	-0.014	0.054	**0.807**		
Perceived value	0.425	0.941	0.289***	0.454***	0.568***	0.183**	0.186**	**0.893**	
OTA selection intention	0.425	0.883	0.247	0.196	0.285	0.115	0.147	0.652	**0.845**

Note: MSV = Maximum Shared Variance; MaxR (H) = Maximum Reliability; Significance of Correlations: *p < 0.05, **p < 0.01.

Structural Model

The structural relationship of the latent constructs has been tested with structural equation modelling (SEM) by AMOS version 26 after ensuring the model fit of both the measurement and structural model. The satisfactory fit of the structural model (Table 3) was ensured by the achieved values as suggested by Jain and Chetty (2022), Byrne (2001) and Hair et al. (2016), where CMIN/df = 1.382, CFI = 0.980, RAMSE = 0.35, GFI = 0.910, RMR = 0.069, NFI = 0.932, TLI = 0.978 since the values are within the threshold limit so the structural model is acceptable to go on with the analysis. The result of the SEM (Figure 3) shows the causal relationship between the dependent and independent variables. The residual errors relating to the same components were used to apply the model modifications. We discover a logical explanation for the residual error correlations inside a component (Hermida, 2015; Gerbing and Anderson,1988).

The strength of the structural model is shown by the R2 value, which shows the total variability of independent constructs (Barclay and Smith, 1995). An R2 value of 0.67 is significant, 0.33 is moderate, and 0.19 is weak (Chin, 1998). Here, the R2 value of perceived value is 0.49 and selection intention is 0.41, which is moderate.

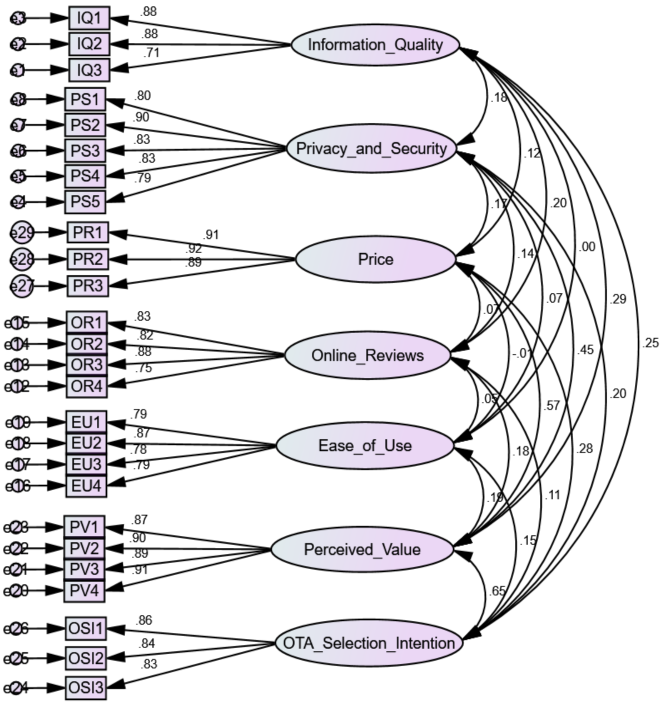


Figure 2. Measurement model

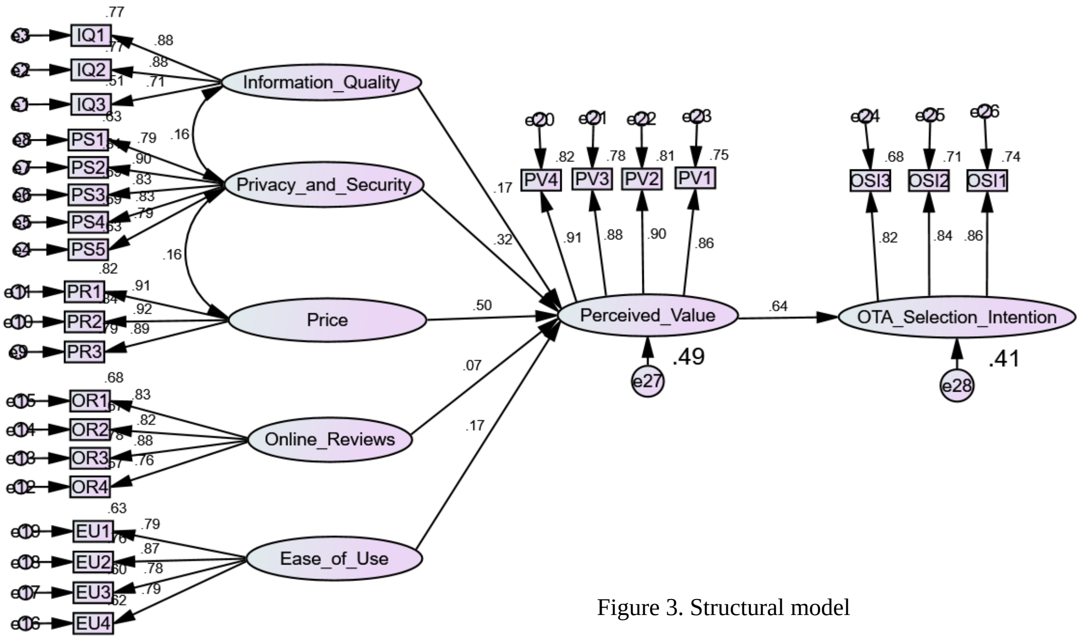


Figure 3. Structural model

Hypothesis Testing and Results

SEM analysis results shown in Table 4 and Figure 3 demonstrate that the H1, H2, H3, H4, and H6 have been accepted, but H5 was rejected. It was proposed in Hypothesis 1 that there is a significant positive relationship between the perceived value on OTA selection intention. The regression weight of perceived value on OTA selection intention is 0.638 and $p < 0.001$. So H1 is accepted. Again, the information quality, privacy and security, price and ease of use have significant positive impacts on perceived value since the regression estimates are 0.174, 0.322, 0.499 and 0.172, respectively and their $p<0.001$. Surprisingly the impact of online review has a p-value (0.151) higher than the cutoff value (0.001), indicating no significant relationship with perceived value. Therefore, hypothesis 5 was rejected.

Table 3. Goodness of fit indices of both measurement and structural model
Source: Thresholds adapted from Jain and Chetty, (2022) and Byrne (2001)

Fitness indices	Thresholds	Model	
		Measurement	Structural
Absolute Fit values: CMIN/DF	1-3	1.338	1.382
GFI	> 0.90	0.916	0.910
RMR	< 0.05, <0.08	0.036	.069
RMSEA	< 0.05, <0.08	0.33	0.35
AGFI	> 0.90	0.895	0.892
Comparative/incremental Fit values: CFI	> 0.90	0.983	0.980
NFI	> 0.90	0.937	0.932
IFI	> 0.90	0.983	0.980
RFI	> 0.90	0.927	0.924
TLI	> 0.90	0.980	0.978
Parsimonious Fit values: PGFI	> 0.50	0.726	0.755
PNFI	> 0.50	0.802	0.835
PCFI	> 0.50	0.841	0.878

DISCUSSION

This study aimed to determine the influence of OTA characteristics on perceived value and the effect of visitors' perceived value on OTA selection intention. The result demonstrated that tourists' perceived value significantly affects OTA selection intention. Information value, privacy and security, price, and ease of use have a significant positive influence on perceived value. Only online review has not been shown to have significant relation with perceived value. The result implies that Bangladeshi tourists want better value in exchange for their sacrifices while selecting OTA. The Expectation-Value Theory (Eccles et al., 1998) states that reasonable price, adequate privacy, monetary security, required information, and easiness of using the systems improve customer value perception. Hence, travellers will choose the OTA, which provides improved features and takes good care of the clients. Therefore, the selection intention for that particular OTA will be increased. The result showed that the price has the most influence on perceived value OTA. This is because the fair price of the services is the monetary sacrifice of the travellers in return for benefits. Bangladesh is a developing country, and the customers are very price-sensitive (Kabir and Islam, 2022). As a result, the OTA, which offers good value at a lower price, will get preference from Bangladeshi tourists. Tourists look for occasional discounts and promotional offers from OTA, and being price sensitive group, Bangladeshi tourists tend to perceive the value of the OTA services, which give more promotional pricing offers. This finding regarding perceived value is similar to other research findings (Kim et al., 2017; Konuk, 2019; Sullivan and Kim, 2018).

Privacy and security have also been found to have a positive impact on the perceived value of OTA. Every online business has to face privacy and security issues worldwide. Travellers provide sensitive personal information like name, age, address, profession, travelling history etc., to the OTA website. They are so concerned regarding the privacy of their information reserved in OTA. So, naturally, tourists prefer the OTA that is serious about the client’s informational privacy. Again, the issues related to money transfers, return and confirmation of payment digitally also affect monetary security. Some infamous OTAs involve mishandling the above issues.

That’s why tourists put privacy and security more weight on perceived value. So far, no study has found a direct relationship between privacy and security with perceived value, but some studies have explored its relation with satisfaction (Yin and Lin, 2022) as well as adoption intention (Soodan and Rana, 2020; Mombeuil and Uhde, 2021).

In this study, information quality was found to have a significant positive relation with perceived value. This is because the concept of online travel agencies in Bangladesh is relatively new. So, travellers want to know every detail of the services and expect that the OTA will eradicate their confusion and consequently offers a smooth travelling experience. Accuracy, detailing, authenticity and relevancy of information regarding the travelling services is so crucial to the decision-making of the tourists and therefore adds value significantly. Bangladeshi tourists perceive information quality as an important antecedent because the availability of information in digital forms like images, videos, blogs and vlogs on the online travel agency website or application provides almost a real-life experience that also contributes to boosting the perception of value. This result supports past studies (de Kervenoael et al., 2020; Putri and Pujani, 2019).

The ease of use was found to have significant relation with perceived value. This finding is parallel with the results of some other research (Singh et al., 2020; Yin and Lin, 2022). The concept of an online travel agency is new to Bangladeshi tourists; thus, the systems, technology, process of placing orders etc., exert a certain level of complexity to the tourists.

Therefore new users feel comfortable if they find it easy and convenient. Online service processes such as placing orders, making payments, resolving complaints and negotiating online require knowledge and abilities at a certain level. Customers may find it very difficult sometimes. So, the perceived value will increase as the system become easier for tourists. In this research, Online reviews were found to have an insignificant relationship with the perceived value of the OTA. Some other past studies have also found similar results in terms of online reviews (Zhang et al., 2021).

Also support that perceived value influence pre-stage purchase decisions (Nasiri and Shokouhyar, 2021). The reason behind this finding is that the presence of a huge number of fake reviews online reduced the credibility. Wrong information, distorted visuals, and exaggerated descriptions on Bangladeshi social media are so frequent that customers normally don't believe them without verification (Hassan and Islam, 2019). That is why information derived from e-WOM gets insignificant when someone thinks of buying something online. Another reason is the practice of displaying paid reviews on social media by the company itself, which reduces credibility. Therefore, price, information, privacy and security, and ease of use are more important to online tourists than the information and recommendations online.

Table 4. Hypothesis Statements

Hypo-thesis	Dependent variable	Independent variable	Estimates	Std. Estimates	Standard Error (SE)	Critical Ratio (CR)	P	Results
H2	Perceived Value	Information Quality	.233	.174	.067	3.476	***	Supported
H3	Perceived Value	Privacy and Security	.359	.322	.057	6.347	***	Supported
H4	Perceived Value	Price	.472	.499	.048	9.805	***	Supported
H5	Perceived Value	Online Review	.063	.069	.044	1.436	.151	Rejected
H6	Perceived Value	Ease of use	.201	.172	.057	3.554	***	Supported
H1	OTA Selection Intention	Perceived Value	.584	.638	.052	11.135	***	Supported
Note: H=Hypothesis; P= Probability, ***<0.001								

THEORETICAL CONTRIBUTION

The research has tested the empirical relationship of the perceived value of OTA attributes on the selection intention of online travel agencies. So, this research is adding 'perceived value' as a new component in the selection intention of OTA. Past studies have investigated off-line travel agency attributes on selection intention.

However, this research not only introduced factors of online travel agencies but also exposed the relative application of the factors that create perceived value that will reference the literature in this area. A modified model has been proposed to show a relationship between perceived value and OTA selection intention. The theories and models considered as the basis for the study were further tested in different contexts and constructs with this research.

TAM and VAM models were successfully adopted to explain the relationship of OTA features with perceived value and, consequently, OTA selection intention. Several studies have discussed the features of online travel agencies to predict purchase intention, but this research tested their impact on perceived value and selection intention. Literature related to online travel agencies in the context of Bangladesh is relatively low. Therefore, this research will be a reference point for researchers interested in studying online travel agencies in the context of Bangladesh.

PRACTICAL IMPLICATIONS

The research finding implies several practical implications for the managers of online travel agencies. The perceived value indicates that the customer will get greater benefits than the sacrifice to get a service. Results showed that perceived value significantly influences online travel agency selection intention. So, managers need to build a strategy to increase the customers' perceived value, at least try to provide better value than that of competitors, which will help the customers choose their OTA other than the competitors' one. The research finding signifies the necessity of increased benefits of OTA services to improve the perception of value among tourists. Since the number of online travel agencies operating in Bangladesh has been increasing, managers need to increase their competitive advantages over their rivals and draw attention to the potential customers by providing valuable information, fair price, ensuring security and improving ease of use. Online travel agencies can do this in several ways.

First, regarding information quality, they should ensure that 24/7 online customer care services are available for clients and provide authentic but unique information because information assists tourists in comparing services with other competing OTAs. OTA can arrange online customer support services like a chatbot, instant messaging and social media feedback system directly with the tourists to improve perceived information value. Companies must recognize and convey information that can influence perceived value and consumer purchase decisions. Otherwise, the traveller will become unhappy and seek other OTAs if quality information is not offered. Second, managers need to truly ensure the customers that the OTA is very much cordial to the privacy and security of its customers. Security may be ensured by hotel safety, safety in the car and drivers, destination safety, physical safety, and safety from fraudulent activities.

Again, the privacy of digital, financial, transaction-related, and personal information must be ensured. There should be a guarantee that the OTA will not share tourists' information with any third party. Third, the price of the OTA services must be competitive. Occasional discounts can be provided, and the information related to price should be displayed on the website of OTA. The online travel agency can arrange for package services that also attracts potential tourist to select a particular travel agency. Fourth, managers should introduce services that are easy to handle. Online order processing, online payment, comparison of services, service cancellation complaint procedures and navigation systems should be made as easy as possible. Text and video tutorials can be made available on the website to better understand the complex process and services. Fifth, although the perceived value and online reviews are found to have little relation, managers should not ignore the value of online reviews and their impact on potential customers. So, managers can display satisfied customers' feedback on their website, encourage customers to provide positive reviews on social media and try to improve the quality, quantity, and credibility of electronic word of mouth.

CONCLUSIONS AND FUTURE RESEARCH

This research aimed at testing OTA attributes impact on the perceived value of online travel agency services, which consequently influence selection intentions of the most favourable online travel agency. Findings showed that perceived value significantly affects the selection intention of OTA, and information quality, price, privacy and security and ease of use significantly impact perceived value. Only online review was found insignificant with perceived value.

This study empirically tested a new model in the field of online tourism. This study is pioneer by introducing perceived value as a construct in this context. This research exhausts certain limitations. In order to get a comprehensive picture of OTA purchase and post-purchase behaviour, further study with longitudinal data may be conducted.

Some other significant antecedents of the perceived value of online travel agencies, like support services, visibility and reputation, may be empirically tested in future studies. Gender, income and age as moderating variables may also be investigated to get a view on the current topic.

Author Contributions: Conceptualization, Z.H. and K.H; Methodology, Z.H. and K.H; software, Z.H.; Validation, Z.H. and S.K.; Formal analysis, Z.H. and S. K.; Investigation, Z.H.; Data curation, Z.H.; Original draft preparation, Z.H. and K.H.; Review and editing, S.K. and M.R; Visualization, Z.H. and K.H.; Supervision, M.R. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The authors acknowledge to anonymous reviewer for their thoughtful suggestions and comments.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Agag, G., & El-Masry, A.A. (2016). Understanding consumer intention to participate in online travel community and effects on consumer intention to purchase travel online and WOM: An integration of innovation diffusion theory and TAM with trust. *Computers in human behavior*, *60*, 97-111. https://doi.org/10.1016/j.chb.2016.02.038

Ahn, J., & Sura, S. (2020). The effect of information quality on Social Networking Site (SNS)-Based commerce: From the perspective of Malaysian SNS users. *Journal of Organizational and End User Computing (JOEUC)*, *32*(1), 1-18. https://doi.org/10.4018/joeuc.2020010101

Airways. (2021). Online travel agency (OTA) market industry. Airways Office. Retrieved February 26, 2023, from https://airwaysoffice.com/online-travel-agency-ota-market-industry/

Albayrak, T., Karasakal, S., Kocabulut, Ö., & Dursun, A. (2020). Customer loyalty towards travel agency websites: The role of trust and hedonic value. *Journal of Quality Assurance in Hospitality & Tourism*, *21*(1), 50-77. Journal of Quality Assurance in Hospitality & Tourism, 21(1), 50–77. https://doi.org/10.1080/1528008x.2019.1619497

Alfadda, H.A., & Mahdi, H.S. (2021). Measuring students' use of zoom application in language course based on the technology acceptance model (TAM). *Journal of Psycholinguistic Research*, *50*(4), 883-900. https://doi.org/10.1007/s10936-020-09752-1

Anderson, J.C., & Gerbing, D.W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological bulletin*, *103*(3), 411. https://doi.org/10.1037/0033-2909.103.3.411

An, S., Eck, T., & Yim, H. (2023). Understanding consumers' acceptance intention to use mobile food delivery applications through an extended technology acceptance model. *Sustainability*, *15*(1), 832. https://doi.org/10.3390/su15010832

Anic, I.D., Škare, V., & Milaković, I.K. (2019). The determinants and effects of online privacy concerns in the context of e-commerce. *Electronic Commerce Research and Applications*, *36*, 100868. https://doi.org/10.1016/j.elerap.2019.100868

Aristio, A.P., Supardi, S., Hendrawan, R.A., & Hidayat, A.A. (2019). Analysis on purchase intention of Indonesian backpacker in accommodation booking through online travel agent. *Procedia Computer Science*, *161*, 885-893. https://doi.org/10.1016/j.procs.2019.11.196

Astari, A., Yasa, N., Sukaatmadja, I., & Giantari, I.G.A.K. (2022). Integration of technology acceptance model (TAM) and theory of planned behavior (TPB): An e-wallet behavior with fear of COVID-19 as a moderator variable. *International Journal of Data and Network Science*, *6*(4), 1427-1436. https://doi.org/10.5267/j.ijdns.2022.5.008

Babakus, E., & Mangold, W.G. (1992). Adapting the SERVQUAL scale to hospital services: an empirical investigation. *Health services research*, *26*(6), 767. https://pubmed.ncbi.nlm.nih.gov/1737708

Barclay, M.J., & Smith Jr., C.W. (1995). The maturity structure of corporate debt. *the Journal of Finance*, *50*(2), 609-631. https://doi.org/10.1111/j.1540-6261.1995.tb04797.x

Bryman, A., & Bell, E. (2011). *Business Research Methods 3e*. P. 505. Oxford University Press.

Byrne, B.M. (2001). Structural equation modeling with AMOS, EQS, and LISREL: Comparative approaches to testing for the factorial validity of a measuring instrument. *International journal of testing*, *1*(1), 55-86.

Chen, C.C., & Chang, Y.C. (2018). What drives purchase intention on Airbnb? Perspectives of consumer reviews, information quality, and media richness. *Telematics and Informatics*, *35*(5), 1512-1523. https://doi.org/10.1016/j.tele.2018.03.019

Chen, J.S., Kamalanon, P., & Janupiboon, T.P. (2022). Company websites and mobile apps versus social media: which service experience creates more customer value for online travel agencies?. *Service Business*, *16*(4), 1081-1110. https://doi.org/10.1007/s11628-022-00511-x

Chen, J.S., Le, T.T.Y., & Florence, D. (2021). Usability and responsiveness of artificial intelligence chatbot on online customer experience in e-retailing. *International Journal of Retail & Distribution Management*, *49*(11), 1512-1531. https://doi.org/10.1108/ijrdm-08

Chen, S.C., & Lin, C.P. (2019). Understanding the effect of social media marketing activities: The mediation of social identification, perceived value, and satisfaction. *Technological forecasting and social change*, *140*, 22-32. https://doi.org/10.1016/j.techfore.2018.11.025

Chin, W.W. (1998). Commentary: Issues and opinion on structural equation modeling. *MIS quarterly*, vii-xvi.

Chivandi, A., Samuel, O., & Muchie, M. (2020). The effect of online travel agencies (ota) on brand relationships in low and high-end hotels in South Africa. *GeoJournal of Tourism and Geosites*, *31*(3), 951-957. https://doi.org/10.30892/gtg.31303-526

Comrey, A.L., & Lee, H.B. (2013). *A first course in factor analysis*. Psychology press. https://doi.org/10.4324/9781315827506

Damanik, J., & Yusuf, M. (2022). Effects of perceived value, expectation, visitor management, and visitor satisfaction on revisit intention to Borobudur Temple, Indonesia. *Journal of Heritage Tourism*, *17*(2), 174-189. https://doi.org/10.1080/1743873x.2021.1950164

Davis, F.D., Bagozzi, R.P., & Warshaw, P.R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management science*, *35*(8), 982-1003. https://doi.org/10.1287/mnsc.35.8.982

de Kervenoael, R., Hasan, R., Schwob, A., & Goh, E. (2020). Leveraging human-robot interaction in hospitality services: Incorporating the role of perceived value, empathy, and information sharing into visitors' intentions to use social robots. *Tourism Management*, *78*, 104042. https://doi.org/10.1016/j.tourman.2019.104042

Dewi, C.R.A., Yasa, N.N.K., Giantari, I.G.A.K., Sukawati, T.G.R., Setiawan, P.Y., & Setini, M. (2020). The Effect of Security, Trust and Ease of Use towards Repurchase Intentions Mediated by E-satisfaction on Online Travel Agent. *Jour of Adv Research in Dynamical & Control Systems*, *12*(8), 340-354. https://doi.org/10.5373/jardcs/v12i8/20202482

Eccles, J.S., Wigfield, A., & Schiefele, U. (1998). Motivation to succeed.

Erdmann, A., Mas, J.M., & Arilla, R. (2021). Value-based adoption of augmented reality: A study on the influence on online purchase intention in retail. *Journal of Consumer Behaviour*. https://doi.org/10.1002/cb.1993

Filieri, R., Acikgoz, F., Ndou, V., & Dwivedi, Y. (2021). Is TripAdvisor still relevant? The influence of review credibility, review usefulness, and ease of use on consumers' continuance intention. *International Journal of Contemporary Hospitality Management*, *33*(1), 199-223. https://doi.org/10.1108/ijchm-05-2020-0402

Fornell, C., & Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, *18*(1), 39-50. https://doi.org/10.2307/3151312

Fu Tsang, N.K., Lai, M.T., & Law, R. (2010). Measuring e-service quality for online travel agencies. *Journal of Travel & Tourism Marketing*, *27*(3), 306-323. https://doi.org/https://doi.org/10.1080/10548401003744743

Furner, C.P., Drake, J.R., Zinko, R., & Kisling, E. (2022). Online review antecedents of trust, purchase, and recommendation intention: A simulation-based experiment for hotels and AirBnBs. *Journal of Internet Commerce*, *21*(1), 79-103. https://doi.org/10.1080/15332861.2020.1870342

Gligor, D., & Bozkurt, S. (2020). FsQCA versus regression: The context of customer engagement. *Journal of Retailing and Consumer Services*, *52*, 101929. https://doi.org/10.1016/j.jretconser.2019.101929

Hair Jr, J.F., Hult, G.T.M., Ringle, C.M., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage publications.

Hassan, R., & Islam, M.R. (2019). Detection of fake online reviews using semi-supervised and supervised learning. In *2019 International conference on electrical, computer and communication engineering (ECCE)*, 1-5. IEEE. https://doi.org/10.1109/ecace.2019.8679186

Henseler, J., Ringle, C.M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, *43*, 115-135. https://doi.org/10.1007/s11747-014

Hermawan, D. (2022). The effects of web quality, perceived benefits, security and data privacy on behavioral intention and e-WOM of online travel agencies. *International Journal of Data and Network Science*, *6*(3), 1005-1012. https://doi.org/10.5267/j.ijdns.2022.1.011

Hermida, R. (2015). The problem of allowing correlated errors in structural equation modeling: concerns and considerations. *Computational Methods in Social Sciences*, *3*(1), 5-17.

Ho, C.I., & Lee, Y.L. (2007). The development of an e-travel service quality scale. *Tourism management*, *28*(6), 1434-1449. https://doi.org/10.1016/j.tourman.2006.12.002

Hu, X., & Yang, Y. (2021). What makes online reviews helpful in tourism and hospitality? A bare-bones meta-analysis. *Journal of hospitality marketing & management*, *30*(2), 139-158. https://doi.org/10.1080/19368623.2020.1780178

Huang, Z., & Mou, J. (2021). Gender differences in user perception of usability and performance of online travel agency websites. *Technology in Society*, *66*, 101671. https://doi.org/10.1016/j.techsoc.2021.101671

Ioannou, A., Tussyadiah, I., & Lu, Y. (2020). Privacy concerns and disclosure of biometric and behavioral data for travel. *International Journal of Information Management*, *54*, 102122. https://doi.org/10.1016/j.ijinfomgt.2020.102122

Ioannou, A., Tussyadiah, I., & Miller, G. (2021). That's private! Understanding travelers' privacy concerns and online data disclosure. *Journal of Travel Research*, *60*(7), 1510-1526. https://doi.org/10.1177/0047287520951642

Jain, R., & Chetty, P. (2022). Confirmatory Factor Analysis (CFA) in SEM using SPSS Amos. [online] Project Guru. Available at: https://www.projectguru.in/confirmatory-factor-analysis-cfa-in-sem-using-spss-amos/ [Accessed 07 Apr. 2023].

Jaleel, A., Yajid, M., Khatibi, A., & Azam, S. (2021). Assessing the interrelationships between customer satisfaction, perceived value and behavioral intention among Maldivians seeking medical care within medical tourism services: empirical evidence from the Maldives. *Management Science Letters*, *11*(6), 1845-1854. https://doi.org/10.5267/j.msl.2021.1.019

Kabir, M.R., & Islam, S. (2022). Behavioural intention to purchase organic food: Bangladeshi consumers' perspective. *British Food Journal*, *124*(3), 754-774. https://doi.org/10.1108/bfj-05-2021-0472

Kadam, M.V.V., & Janvekar, M.D. (2020). An Analysis of the effects of OTAS on travel agents in Hotel Room Bookings. *Editorial Board*, *9*(7), 20-30.

Kim, H.W., Chan, H.C., & Gupta, S. (2007). Value-based adoption of mobile internet: an empirical investigation. *Decision support systems*, *43*(1), 111-126. https://doi.org/10.1016/j.dss.2005.05.009

Kim, J.K. (2019). The usability of a mobile hotel reservation (MHR) channel and its impact on relationship quality and behavioral intentions. *International Journal of Tourism and Hospitality Research*, *33*(6), 19-33. https://doi.org/10.21298/ijthr.2019.6.33.6.19

Kim, J., Franklin, D., Phillips, M., & Hwang, E. (2020). Online travel agency price presentation: examining the influence of price dispersion on travelers' hotel preference. *Journal of Travel Research*, *59*(4), 704-721. https://doi.org/10.1177/0047287519857159

Kim, M.J., Chung, N., & Lee, C.K. (2011). The effect of perceived trust on electronic commerce: Shopping online for tourism products and services in South Korea. *Tourism Management*, *32*(2), 256-265. https://doi.org/10.1016/j.tourman.2010.01.011

Kim, S.Y., Kim, J.U., & Park, S.C. (2017). The effects of perceived value, website trust and hotel trust on online hotel booking intention. *Sustainability*, *9*(12), 2262. https://doi.org/10.3390/su9122262

Kim, Y., Park, Y., & Choi, J. (2017). A study on the adoption of IoT smart home service: using Value-based Adoption Model. *Total Quality Management & Business Excellence*, *28*(9-10), 1149-1165. https://doi.org/10.1080/14783363.2017.1310708

Kitcharoen, K. (2019). The effect of e-word of mouth (E-WOM) on various factors influencing customers' hotel booking intention. *ABAC ODI Journal Vision. Action. Outcome*, *6*(1), 62.

Konuk, F.A. (2019). The influence of perceived food quality, price fairness, perceived value and satisfaction on customers' revisit and word-of-mouth intentions towards organic food restaurants. *Journal of Retailing and Consumer Services*, *50*, 103-110. https://doi.org/10.1016/j.jretconser.2019.05.005

Laboni, S.A., & Abdullah, S.Z. (2019). Operations and Market Analysis of Travel Agencies: An Empirical Study on Two Travel Agencies of Bangladesh. *European Journal of Business and Management Research*, *4*(6).

Lama, S., Pradhan, S., & Shrestha, A. (2019). An e-tourism adoption model & its implications for tourism industry in Nepal. In *Information and Communication Technologies in Tourism 2019: Proceedings of the International Conference in Nicosia, Cyprus, January 30–February 1, 2019* (291-303). Springer International Publishing. https://doi.org/10.1007/978-3-030-05940-8_23

Lee-Jen Wu, S., Hui-Man, H., & Hao-Hsien, L. (2014). A comparison of convenience sampling and purposive sampling. *Journal of Nursing*, *61*(3), 105-111.

Lee, K.W. (2018). An Investigation of The Online Travel Agencies' Usability. *Culinary Science & Hospitality Research*, *24*(2), 44-50. https://doi.org/10.20878/cshr.2018.24.2.006006006

Lee, S.K., & Min So-Ra, (2021). Effects of information quality of online travel agencies on trust and continuous usage intention: an application of the SOR model. *The Journal of Asian Finance, Economics and Business*, *8*(4), 971-982. https://doi.org/10.13106/jafeb.2021.vol8.no4.0971

Levrini, G.R., & Jeffman dos Santos, M. (2021). The influence of price on purchase intentions: Comparative study between cognitive, sensory, and neurophysiological experiments. *Behavioral Sciences*, *11*(2), 16. https://doi.org/10.3390/bs11020016

Liao, Y.K., Wu, W.Y., Le, T.Q., & Phung, T.T.T. (2022). The integration of the technology acceptance model and value-based adoption model to study the adoption of e-learning: The moderating role of e-WOM. *Sustainability*, *14*(2), 815. https://doi.org/10.3390/su14020815

Lim, K., Ahmad, S.N.B., Mahmod, N.A., OTHMAN, I.W., & LADA, S. (2022). Understanding the travelers 'intention towards virtual tourism adoption using value-based adoption model. management, 7(30), 176-197. https://doi.org/10.35631/JTHEM.730014

Majó, J., Ramirez, A., & Moya, D. (2021). The effect of reviews on the online reputation of hotels in Latin America. *International Journal of Tourism and Hospitality Management*, *4*(1), 206-226. https://doi.org/10.21608/ijthm.2021.177921

Mao, Z., Liu, T., & Li, X. (2021). Pricing mechanism of variable opaque products for dual-channel online travel agencies. *Annals of Operations Research*, 1-30. https://doi.org/10.1007/s10479-021-04163-4

Martínez-Costa, C., Pladevall Viladecans, J., Mas-Machuca, M., & Marimon, F. (2018). Behavioral profiles of consumers of online travel agencies. *International Journal for Quality Research*. https://doi.org/https://doi.org/10.18421/ijqr12.03-10

Masri, N.W., You, J.J., Ruangkanjanases, A., Chen, S.C., & Pan, C.I. (2020). Assessing the effects of information system quality and relationship quality on continuance intention in e-tourism. *International journal of environmental research and public health*, *17*(1), 174. https://doi.org/10.3390/ijerph17010174

Min, S., & Lee, S. (2020). A Study on the Behavior of the User according to the Distribution Development of Online Travel Agency. Journal of Distribution Science, 18(6), 25–35. https://doi.org/10.15722/jds.18.6.202006.25

Mohr, H., & Walter, Z. (2019). Formation of consumers' perceived information security: Examining the transfer of trust in online retailers. *Information Systems Frontiers*, *21*(6), 1231-1250. https://doi.org/10.1007/s10796-019-09961-7

Mombeuil, C., & Uhde, H. (2021). Relative convenience, relative advantage, perceived security, perceived privacy, and continuous use intention of China's WeChat Pay: A mixed-method two-phase design study. *Journal of Retailing and Consumer Services*, *59*, 102384. https://doi.org/10.1016/j.jretconser.2020.102384

Na, S., Heo, S., Han, S., Shin, Y., & Roh, Y. (2022). Acceptance model of artificial intelligence (AI)-based technologies in construction firms: Applying the Technology Acceptance Model (TAM) in combination with the Technology–Organisation–Environment (TOE) framework. *Buildings*, *12*(2), 90. https://doi.org/10.3390/buildings12020090

Nasiri, M.S., & Shokouhyar, S. (2021). Actual consumers' response to purchase refurbished smartphones: Exploring perceived value from product reviews in online retailing. *Journal of Retailing and Consumer Services*, *62*, 102652. https://doi.org/10.1016/j.jretconser.2021.102652

Nasution, F.I.H., Khairunnisa, A.K., Menawan, A.A., Gobel, L., Ardi, F., & Ulkhaq, M.M. (2019). Assessing Website Quality of Online Travel Agency: An Application of the Importance-Performance and Gap Analysis Model. In *Proceedings of the 3rd International Conference on Digital Technology in Education*, 176-180.

Nilashi, M., Ibrahim, O., Yadegaridehkordi, E., Samad, S., Akbari, E., & Alizadeh, A. (2018). Travelers decision making using online review in social network sites: A case on TripAdvisor. *Journal of computational science*, *28*, 168-179. https://doi.org/10.1016/j.jocs.2018.09.006

No, E., & Kim, J.K. (2015). Comparing the attributes of online tourism information sources. *Computers in human behavior*, *50*, 564-575. https://doi.org/10.1016/j.chb.2015.02.063

Oliveira, T., Araujo, B., & Tam, C. (2020). Why do people share their travel experiences on social media?. *Tourism Management*, *78*, 104041. https://doi.org/10.1016/j.tourman.2019.104041

Pham, H., & Nguyen, T. (2019). The effect of website quality on repurchase intention with the mediation of perceived value: The case study of online travel agencies in Vietnam. *Journal of Global Business Insights*, *4*(1), 78-91. https://doi.org/10.5038/2640 6489.4.1.1041

Pinto, I., & Castro, C. (2019). Online travel agencies: Factors influencing tourists' purchase decisions. *Tourism & Management Studies*, *15*(2), 7-20. https://doi.org/10.18089/tms.2019.150201

Putri, W.K., & Pujani, V. (2019). The influence of system quality, information quality, e-service quality and perceived value on Shopee consumer loyalty in Padang City. *The International Technology Management Review*, *8*(1), 10-15. https://doi.org/10.2991/itmr.b.190417.002

Rianthong, N., Dumrongsiri, A., & Kohda, Y. (2016). Improving the multidimensional sequencing of hotel rooms on an online travel agency web site. *Electronic Commerce Research and Applications*, *17*, 74-86. https://doi.org/10.1016/j.elerap.2016.03.002

Riva, F., Magrizos, S., Rubel, M.R.B., & Rizomyliotis, I. (2022). Green consumerism, green perceived value, and restaurant revisit intention: Millennials' sustainable consumption with moderating effect of green perceived quality. *Business Strategy and the Environment*, *31*(7), 2807-2819. https://doi.org/10.1002/bse.3048

Rizal, H., Amin, H., Suddin, L., Sondoh Jr, S.L., & Ku, C.J. (2020). Relationship Quality and E-Loyalty towards Online Travel Agency (OTA): Social Exchange Theory Perspective. *Jurnal Pengurusan*, 58. https://doi.org/10.17576/pengurusan-2020 58-04

Rogerson, C.M., & Collins, K.J. (2019). Entrepreneurs in craft beer and tourism: Perspectives from South Africa. *Geo Journal of Tourism and Geosites*, *27*(4), 1158-1172. https://doi.org/10.30892/gtg.27404-423

Roy, S.C., & Roy, M. (2015). Tourism in Bangladesh: Present status and future prospects. *International Journal of Management Science and Business Administration*, *1*(8), 53-61. https://doi.org/10.18775/ijmsba.1849-5664-5419.2014.18.1006

Rusu, C., Rusu, V., Quiñones, D., Roncagliolo, S., & Rusu, V.Z. (2018). Evaluating online travel agencies' usability: what heuristics should we use?. In *Social Computing and Social Media. User Experience and Behavior: 10th International Conference, SCSM 2018, Held as Part of HCI International 2018, Las Vegas, NV, USA, July 15-20, 2018, Proceedings, Part I 10*, 121-130. Springer International Publishing. https://doi.org/10.1007/978-3-319-91521-0_10

Singh, N., Sinha, N., & Liébana-Cabanillas, F.J. (2020). Determining factors in the adoption and recommendation of mobile wallet services in India: Analysis of the effect of innovativeness, stress to use and social influence. *International Journal of Information Management*, *50*, 191-205. https://doi.org/10.1016/j.ijinfomgt.2019.05.022

So-Ra, M.I.N., & Sun-Mi, L.E.E. (2020). A study on the behavior of the user according to the distribution development of online travel agency. *유통과학연구*, *18*(6), 25-35. https://doi.org/10.15722/jds.18.6.202006.25

Soodan, V., & Rana, A. (2020). Modeling customers' intention to use e-wallet in a developing nation: Extending UTAUT2 with security, privacy and savings. *Journal of Electronic Commerce in Organizations (JECO)*, *18*(1), 89-114. https://doi.org/10.4018/jeco.2020010105

Stylos, N., Fotiadis, A.K., Shin, D.D., & Huan, T.C.T. (2021). Beyond smart systems adoption: Enabling diffusion and assimilation of smartness in hospitality. *International Journal of Hospitality Management*, *98*, 103042. https://doi.org/10.1016/j.ijhm.2021.103042

Su, K.W., Chiu, P.C., & Lin, T.H. (2022). Establishing a blockchain online travel agency with a human–computer interaction perspective. *Journal of Hospitality and Tourism Technology*, *13*(3), 559-572. https://doi.org/10.1108/jhtt-01-2021-0038

Sullivan, Y.W., & Kim, D.J. (2018). Assessing the effects of consumers' product evaluations and trust on repurchase intention in e-commerce environments. *International Journal of Information Management*, *39*, 199-219. https://doi.org/10.1016/j.ijinfomgt.2017.12.008

Sun, P., Cárdenas, D.A., & Harrill, R. (2016). Chinese customers' evaluation of travel website quality: A decision-tree analysis. *Journal of Hospitality Marketing & Management*, *25*(4), 476-497. https://doi.org/10.1080/19368623.2015.1037977

Talwar, S., Dhir, A., Kaur, P., & Mäntymäki, M. (2020). Barriers toward purchasing from online travel agencies. *International Journal of Hospitality Management*, *89*, 102593. https://doi.org/10.1016/j.ijhm.2020.102593

Talwar, S., Dhir, A., Kaur, P., & Mäntymäki, M. (2020). Why do people purchase from online travel agencies (OTAs)? A consumption values perspective. *International Journal of Hospitality Management*, *88*, 102534. https://doi.org/10.1016/j.ijhm.2020.102534

Tarute, A., Nikou, S., & Gatautis, R. (2017). Mobile application driven consumer engagement. *Telematics and Informatics*, *34*(4), 145-156. https://doi.org/10.1016/j.tele.2017.01.006

Ting, C.W., Chen, M.S., & Lee, C.L. (2013). E-satisfaction and post-purchase behaviour of online travel product shopping. *Journal of Statistics and Management Systems*, *16*(2-3), 223-240. https://doi.org/10.1080/09720510.2013.821337

Ukpabi, D.C., & Karjaluoto, H. (2017). Consumers' acceptance of information and communications technology in tourism: A review. *Telematics and Informatics*, *34*(5), 618-644. https://doi.org/10.1016/j.tele.2016.12.002

Wang, J., Kim, J., Moon, J., & Song, H. (2020). The effect of smog-related factors on Korean domestic tourists' decision-making process. *International Journal of Environmental Research and Public Health*, *17*(10), 3706. https://doi.org/10.3390/ijerph17103706

Wen, I. (2009). Factors affecting the online travel buying decision: a review. *International Journal of Contemporary Hospitality Management*, *21*(6), 752-765. https://doi.org/10.1108/09596110910975990

Wen, J., Lin, Z., Liu, X., Xiao, S.H., & Li, Y. (2021). The interaction effects of online reviews, brand, and price on consumer hotel booking decision making. *Journal of Travel Research*, *60*(4), 846-859. https://doi.org/10.1177/0047287520912330

Wicaksono, A., & Maharani, A. (2020). The effect of perceived usefulness and perceived ease of use on the technology acceptance model to use online travel agency. *Journal of Business and Management Review*, *1*(5), 313-328.

Xu, H., Lovett, J., Cheung, L.T., Duan, X., Pei, Q., & Liang, D. (2021). Adapting to social media: the influence of online reviews on tourist behaviour at a world heritage site in China. *Asia Pacific Journal of Tourism Research*, *26*(10), 1125-1138. https://doi.org/10.1080/10941665.2021.1952460

Xu, X., & Jackson, J.E. (2019). Examining customer channel selection intention in the omni-channel retail environment. *International Journal of Production Economics*, *208*, 434-445. https://doi.org/10.1016/j.ijpe.2018.12.009

Yin, L.X., & Lin, H.C. (2022). Predictors of customers' continuance intention of mobile banking from the perspective of the interactivity theory. *Economic research-Ekonomska istraživanja*, *35*(1), 6820-6849. https://doi.org/10.1080/1331677x.2022.2053782

Zamyatina, N.A., & Solntseva, O.G. (2019). Hotel tech ecosystem: adaptations to online distribution. In *Institute of Scientific Communications Conference* (194-204). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-47945-9_21

Zeithaml, V.A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *Journal of marketing*, *52*(3), 2-22. https://doi.org/10.1177/002224298805200302

Zhai, L., Yin, P., Li, C., Wang, J., & Yang, M. (2022). Investigating the effects of video-based E-word-of-mouth on consumers' purchase intention: the moderating role of involvement. *Sustainability*, *14*(15), 9522. https://doi.org/10.3390/su14159522

Zhang, L., Denizci Guillet, B., & Kucukusta, D. (2015). Online travel agents—Hotels' foe or friend? A case study of mainland China. *Journal of China Tourism Research*, *11*(4), 349-370. https://doi.org/10.1080/19388160.2015.1111823

Zhang, N., Liu, R., Zhang, X.Y., & Pang, Z.L. (2021). The impact of consumer perceived value on repeat purchase intention based on online reviews: by the method of text mining. *Data Science and Management*, *3*, 22-32. https://doi.org/10.1016/j.dsm.2021.09.001

Zhang, X., Wang, Y., & Leung, S.O. (2023). Technology Acceptance Model (TAM) and sports bracelets usage in physical education for freshmen: the role of gender and self-efficacy. *Technology, Pedagogy and Education*, *32*(1), 45-63. https://doi.org/10.1080/1475939x.2022.2152861

Zhu, Y., & Kim, S.Y. (2019). Information quality and consumer information satisfaction of sharing accommodation service. *Journal of Consumption Culture*, *22*(4), 51-77.

***Travel & tourism - bangladesh: Statista market forecast. Statista. (n.d.). https://www.statista.com/outlook/mmo/travel-tourism/bangladesh

Article history: Received: 14.06.2023 Revised: 12.08.2023 Accepted: 16.09.2023 Available online: 06.10.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1224-1231
DOI 10.30892/gtg.50402-1120

MULTI-DIMENSIONAL ATTRIBUTES OF ORGANIZING AN ECO-RUN EVENT FOR SUSTAINABLE TOURISM AND ITS POWERFUL IMPACT ON SATISFACTION AND LOYALTY OF TOURIST-RUNNERS

Siyathorn NAKPHIN*
Suratthani Rajabhat University, International School of Tourism, Suratthani, Thailand, e-mail: siyathorn.khu@gmail.com

Benya JARIYAWIJIT
Suratthani Rajabhat University, International School of Tourism, Suratthani, Thailand, e-mail: benya.jar@sru.ac.th

Kessini TRIPONGPUN
Suratthani Rajabhat University, International School of Tourism, Suratthani, Thailand, e-mail: kessini.tri@sru.ac.th

Citation: Nakphin, S., Jariyawijit, B., & Tripongpun, K. (2023). MULTI-DIMENSIONAL ATTRIBUTES OF ORGANIZING AN ECO-RUN EVENT FOR SUSTAINABLE TOURISM AND ITS POWERFUL IMPACT ON SATISFACTION AND LOYALTY OF TOURIST-RUNNERS. *GeoJournal of Tourism and Geosites*, 50(4), 1224–1231. https://doi.org/10.30892/gtg.50402-1120

Abstract: This paper aims to investigate the attributes of organizing an eco-run event for sustainable tourism and the causal effects of loyalty through the eco-run event attributes and satisfaction. Data were collected from 761 Thai runners experienced in a running event in tourist destinations. The questionnaires were tested using Cronbach's Alpha of attitude toward eco-run events, satisfaction, and loyalty, .941, .943, and .929, respectively. The data were analyzed by the structural equation model. The results illustrated 11 key attributes being a new concept managing running events responding to sustainable tourism. The paper found positive effects among the 11 attributes, satisfaction, and loyalty. Consequently, applying the key attributes can enhance tourist runners' satisfaction and loyalty. The results can make contributions to organizers, CBT, and academics in organizing an eco-run event sustaining tourism.

Key words: sport tourism, eco run, satisfaction, loyalty, tourist-runners

* * * * * *

INTRODUCTION

The running events had annually grown according to the increasing number of runners. The worldwide growth of marathon runners from 2008-2016 was 49.43%. The highest growth was in Africa (505.74%), followed by ASIA (262.89%), EU (42.86%), North America (20.97%), Oceania (65.66%), and South America (-14.40%) (Andersen, 2021). Nielson Sport (2021) revealed that 22% of all runners preferred running more often during the spreading of COVID-19. There are plenty of benefits both mental and healthy for runners. Additionally, the running event can also provide advantages in terms of environment, economy, and society. From academic research, it was found that the running event is a powerful tool to boost tourism. However, it confronted many challenges leading to transformation into several types of running events relying on the phenomenon of the times. For its benefits, it is a kind of sports tourism that can sufficiently enhance income and supplementary careers for locals (Gibson et al., 2012; Papanikos, 2015). Additionally, the running events can attract running tourists both domestic and international (Nowak and Chalimoniuk-Nowak, 2014). It is also found that runners from other provinces or countries spend more money than runners in the same areas, especially female and high-income runners (Wicker et al., 2012). Furthermore, it is a channel to promote destination awareness, and event quality impacts destination image (Moon et al., 2011), special events can impact destinations in the long term.

However, if management is not effective enough, it will seriously damage the area and the runners (Turco et al., 2003). Currently, running sports tourism event management has still confronted several difficulties apart from the positive impacts. Among the conservative concerns, running events have been changed in several measures such as reducing water bottles and plastics, organizing an event in urban areas to avoid traffic jams, etc. In addition, the lack of participation of locals leads to an unimpressed destination; it is due to applying outside organizers and aims for business benefits rather than sustainable tourism. Later on, there was applying the CSR concept in managing running events which can provide a positive impact on both social and environmental aspects (Walker and Heere, 2011). The small-scale running events have also been organized in order to reduce social impacts such as the disturbing way of local' life and enhance local incomes. Organizing a small running event with an emphasis on the use of local facilities, people, and local culture may be a viable form of sustainable tourism development (Gibson et al., 2012), therefore it can contribute economically, socially, and environmentally. Apart from the booming of small-scale running events, there is less attention to investigating attributes of eco-running events for sustainable tourism. Ko and Pastore (2004, 2005, 2007) proposed a measurement for sports recreation namely "SSQRS" or Scale of Service Quality for Recreation Sports consisting of 4 dimensions; program quality,

* Corresponding author

quality of interaction, quality of the outcome, and quality of the physical environment, however, less concerned about involving from locals and aiming response to customer's satisfaction. Tzetzis et al. (2014) applied accessibility, venue, and contest quality. Theodorakis et al. (2014) focused on the physical environment, interaction, and outcome quality.

Du et al. (2015) proposed the PSEASD Scale consisting of event operations, event attributes, service extensions, expo amenities, and service deliveries. Huang et al. (2015) applied 8 components to study marathon events, namely event organization, event information, friendliness of locals, accommodations, tourism resources, infrastructure, shopping, and safety and security. However, it focused on large-scale running events, less on local involvement in sustainable tourism, and aiming for economic reasons. Consequently, it is still questioned what are the attributes of eco-run events that combine both event management and sustainable tourism dimensions. Additionally, the satisfaction and loyalty of tourist-runners are good outcomes that most running organizers desire and spend more funding to build. Both satisfaction and loyalty indicated successful running event management. Therefore, the relationship between satisfaction and loyalty is a central concern for many scholars, however, the finding of its relationship is still ambiguous.

Most previous research found a positive influence of satisfaction to repeat visitation in sports events (Alexandris et al., 2017; Wicker et al., 2012; Chen et al., 2021). However, event satisfaction did not affect the revisitation of riders in the week-long amateur bicycling event in Kaplanidou and Vogt (2007). The need to further establish whether satisfaction influences the loyalty of runners in the events for sustainable tourism is also needed in this field. The primary purpose of this study was to investigate the attributes of eco-run events for boosting sustainable tourism. After that, the causal effect of tourist-runner loyalty through attitudes toward eco-run events and satisfaction will be checked. The research contributions can benefit running organizers, community-based tourism, runners, government sectors, and academics. Additionally, the research results can broaden the general understanding of organizing an eco-running event to enhance sustainable tourism.

LITERATURE REVIEW

Components of Eco Run Events for Sustainable Tourism

From previous papers, it was found that the management of the eco-run events for sustainable tourism consists of both event management and sustainable tourism management. In particular, in terms of event management, the eco-running event should have a clear concept that focuses on promoting tourism (Du et al., 2015), strategies (Du et al., 2015), event management (Gibson et al., 2012; Du et al., 2015; Huang et al., 2018; Shonk and Chelladurai, 2009), staff or service providers (Du et al., 2015; Okayasu et al., 2016), marketing (Moon et al., 2011; Huang et al., 2018; Kruger and Saayman, 2012), safety (Huang et al., 2015; Kruger and Saayman, 2012; Moon et al., 2011). In addition, organizing the running event aiming to sustain tourism covers tourism components such as attractions (Boonsiritomachai and Phonthanukitithaworn, 2018; Moon et al., 2011), accommodations (Shonk and Chelladurai, 2009; Huang et al., 2015), participation (Huang et al., 2015 and 2018; Theodorakis et al., 2015), local cultures (Huang et al., 2018), foods (Huang et al., 2018) and souvenirs (Huang et al., 2015; Huang et al., 2018).

The concept of running events sustaining tourism is the objective of the running events which should focus on promoting tourism and a conservative environment and emphasize community-based tourism. Therefore, designing the events relies on how to create the impression and revisit the destination while simultaneously giving a local contribution. For instance, expanding the cut-off time allows runners to visit beautiful destinations between the running routes (Du et al., 2015).

Strategies of running events are important themes in designing a unique running event reflecting local resources both natural and cultural. An event venue with a beautiful destination and interesting activities or famous destinations can sufficiently succeed in promoting tourism through a running event (Du et al., 2015).

Event management affects runners' satisfaction (Chen et al., 2021; Du et al., 2015), therefore, it should give priority to good design. Shonk and Chelladurai (2009) focused on venue quality including interaction, environment, facilities, layout, worthiness, and competition quality. Similarly, Huang et al. (2018) studied event satisfaction via runners' facilities such as clean toilets, parking, aid stations, public relations points, transportation, and layout.

Staff or service providers in the running event are very crucial for the success. It includes interaction between staff and runners through the service process, friendliness, knowledge, adequacy, prompt response of running event staff (Chen et al., 2021; Huang et al., 2018; Theodorakis et al., 2015), and responsiveness (Theodorakis et al., 2015)

In the case of marketing, it has been less of a concern in the previous papers focusing on running events. Marketing is the process of designing a marketing mix covering product, price, distribution channel, and marketing promotion. Furthermore, the programs offered should be attractive (Huang et al., 2018). Applying online media, user-friendly websites, adequate information, adequate information regarding the race, and correct information given through marketing e.g. date, time, venue, etc. (Kruger and Saayman, 2012).

Safety and security are outlined to be crucial factors in organizing a running event (Huang et al., 2015; Moon et al., 2011). It plays an important role for tourist-runners to decide joining and repeating the running events, therefore, it was mentioned by several previous scholars. For example, safety is an intangible factor in the measurement of the running event quality (Moon et al., 2011). Safety and security in a single item were used to assess runners' satisfaction (Huang et al., 2015; Moon et al., 2011). Additionally, safety should include the visibility of emergency personnel, the visibility of security on the sports grounds, and adequate safety measures/precautions in place during the race (Kruger and Saayman, 2012). Kaplanidou and Vogt (2010) suggested sport tourism attributes covering safer routes which are under the control of the organizers. Lastly, during the spreading of COVID-19, all measures to protect should be considered in organizing the running events.

Local participation is an important factor involving the satisfaction of runners. Additionally, supporting sports events from the host community can affect the intention to revisit (Huang et al., 2018). Huang et al. (2015; 2018) applied items to investigate participation including being friendly and passionate. Additionally, participation had a positive relationship with satisfaction in Theodorakis et al. (2015). It is important that all stakeholders such as local people, community-based tourism (CBT), local governments and organizations, private sectors, and national governments in the tourism destination venue participate and support the running events in different roles.

Tourism components have been less addressed in studying running events sustaining tourism. However, some issues were mentioned in the previous research such as accommodations, tourism resources, and shopping (Huang et al., 2015), as well as historical and local cultures including foods and souvenirs, etc. (Huang et al., 2018), tourist sites/activities, and local shows (Moon et al., 2011). Some tourism issues were mentioned in Shonk and Chelladurai (2009) consisting of access quality focusing on accessibility to destination, venue, and accommodation quality measuring in service provider interaction, environment, and worthiness. Perić et al. (2016) recommended the tourist experience dimension as a factor in a new conceptual business model framework for sports tourism. Boonsiritomachai and Phonthanukitithaworn (2018) revealed that destination attributes; activities, attractions, facilities, and supplementary services influence satisfaction.

Tourist-Runner's Satisfaction

The satisfaction of tourist runners can be defined as both emotional and rational delight. In terms of measurement, the overall satisfaction- a single item and its various attributes have been applied in the context of running events. Happiness is a main factor in determining the satisfaction of the runners; it is the outcome of experience and expectations (Du et al., 2015; Hyum and Jordan, 2018; Theodorakis et al., 2015), the right decision to join the running events (Du et al., 2015; Hyum and Jordan, 2018; Theodorakis et al., 2015), well organized (Gibson et al., 2012) and overall satisfaction (Gibson et al., 2012)

Tourist-Runner's Loyalty

The loyalty of runners toward the running event has been studied via several items, thus, it is the attitude of runners after joining the events leading to attention and future behaviors. It includes positive comments for organizing the events, word of mouth both traditional and electronic WOM, inviting others to join the future events (Du et al., 2015), and intention to revisit the future events (Wicker et al., 2012; Du et al., 2015; Hyum and Jordan, 2018). There are other behaviors to determine runner loyalty such as collecting medals, trophies, shirts, and numbers of running events (Shipway and Jones, 2008). Another issue relating to tourism is good impressions in tourism destinations and willingness to revisit the destination in other running events (Shonk and Chelladurai, 2009)

Research Proposition

Attitude is an important factor affecting the behaviors of people (Schiffman and Kanuk, 1994). The attitude of runners is shaped by perception from different resources such as online media, learning, word of mouth, etc. leading to an expectation before joining the running event. Comparison between expectation and experience occurs in finalizing attitude and behaviors; thus it is the customer's behavior according to the black box in marketing theory. Therefore, the attitude of runners toward running event management is positively related to the quality of organizing the running events. If the running event can be well managed according to the attitude which is the element of feelings or preferences of the runners, it will result in more satisfaction for the runners.

H1: Runners's attitudes toward the Eco Run for Sustainable Tourism Concept affect directly running event satisfaction

The previous studies found that attitude affects the behaviors of runners (Schiffman and Kanuk,1994), the behaviors include future intentions or revisiting the running events. Kaplanidou and Gibson (2010) found that the attitude of runners during the running events affected their intention to join the events in the future. Therefore, the events which are organized according to the needs/wants of runners toward sustainable tourism, will influence the revisit of runners.

H2: Runner's attitudes toward Eco Run for Sustainable Tourism Concept affect directly running event loyalty

In the literature reviews, there were ambitious results of the relationship between satisfaction and loyalty. Alexandris et al. (2017) found that the quality of the service environment and the outcome can predict running event loyalty. Furthermore, Wicker et al. (2012) studied the relationship between satisfaction and repeat visitation and found a positive relationship between them. Runners who have high satisfaction, tend to revisit the running event in the future. Similarly, Chen et al. (2021) found runner's satisfaction positively affected loyalty at 0.205. However, Kaplanidou and Vogt, (2007) found that event satisfaction did not affect the revisitation of bicycle riders. It can be seen that the results of the studies on the relationship in sports events areas are still ambiguous. There may be other factors causing the unanimous result. Each study applied different constructs to measure satisfaction and loyalty. For example, Wicker et al.(2012) applied a single item to study satisfaction and revisit. Therefore, this study will investigate the impact of satisfaction of running event management and loyalty, H3 was proposed as follows;

H3: Runner's satisfaction affects positively running event loyalty

The loyalty of runners through the running event relies on good attitudes toward the service quality of the running event leading to satisfaction. Chen et al. (2021:8-9) found that attitude toward the event's quality affected satisfaction (0.10), and the attitude had a direct effect the loyalty (0.307). In particular, the runner's attitude should affect loyalty through satisfaction. Therefore, in this research, the fourth hypothesis runner's attitudes toward eco run for sustainable tourism concept affect positively loyalty mediation via satisfaction was investigated.

H4: Runner's attitudes toward Eco Run for Sustainable Tourism Concept affect positively running event loyalty mediation via satisfaction.

RESEARCH METHODS

Participants

A non-probability, purposive sampling technic was applied. The running experience of participants was determined before collecting the data, participants were who experienced a running event in the southern corridor province of Thailand: Suratthani, Nakron Si Thammarat, Chumpol or Ranong, which are tourism destinations at least one time within the past 1-2 year. Data collection was applied both paper-based and online. Non-probability with convenient sampling was applied to collect data. The sample size was 761, while it has been widely noted for applying structural equation models. Sample size conditions strongly influenced GFI and AGFI, accounting for 10.27% and 11.37% of the total variance, respectively, for these two indexes (Fan et al., 1999), 100 samples.

Sample-size effects can also arise with descriptive indices of model fit (Raykov and Widaman, 1995), the large sample isn't the right answer. It depends on the types of models, the number of factors, the number of indicators, the strength of the indicator loadings and regressive paths, and the amount of missing data per indicator (Wolf et al., 2013). Kline (2011) explained that sample sizes depend on the complication of models and the numbers of observed and non-observed variables, the sample size should be higher than 200 and 5-10 samples per parameter. Furthermore, Nunnally (1967) recommended the rule of thumb, the ratio is 10 samples per 1 observed variable which is a suitable lower bound. Therefore, the samples of 761 respondents were adequate and fit to analyze SEM.

Measurement

The self-rated questionnaire was constructed from the literature reviews and the context of the running event in the Southern Corridor province of Thailand. Responses to all items were scored on a 5-point Likert scale, 1= the least agree and 5= the highest agree. The attitude toward Eco run for sustainable tourism is composed of 11 components with 67 observed variables: 1) eco-run concept (Con: C1-C12), 2) running event strategy (Stra: ST1-ST6), 3) event management (Man: M1-M8), 4) service provider (Peo:P1-P5), 5) marketing (Mar: MK1-MK7), 6) attractions (Att: TR1-TR4), 7) participation (Par: PR1-PR5), 8) accommodation (Accom:AC1-AC5), 9) local food and souvenirs (FO:FO1- FO4), 10) local culture (CUL: CU1-CU6) and 11) safety (SAF: S1-S5). Satisfaction (S) and loyalty (L) were measured via 4 and 7 observed variables, respectively. All attributes were a total of 79 items. The questionnaire was developed by 3 experts to check the index of item-objective congruence (IOC) and found that all items were 0.67 or higher, some sentences were improved to make a clear understanding. After that, the pilot test with 60 samples was conducted to confirm the reliability of the research instrument and the components in the study. The reliability of eco-run sustainable tourism attitudes, satisfaction, and loyalty was .941, .943, and .929, respectively.

Analysis

The data were checked for all conditions; missing value, coding error, normal distribution via kurtosis and skewness, multi-collinearity, and the Cronbach Alpha of each construct before applying the structural equation model. The data were normal distribution, the kurtosis and skewness values were in a range of -1.656 - -0.355 and -.988-4.228, the kurtosis and skewness values should be in a range of ± 3 and ±7 (West et al, 1995). All data were non-multi-collinearity, since the correlations were a range of 0.142-0.853, being lower than 0.9. The confirmatory factor analysis; first and second order, was firstly conducted to verify the measurement model quality; convergent and discriminant validity, and all latent constructs in the study, after that the structural equation model was analyzed.

The convergent validity is indicated by high indicator loading, Composite reliability should be higher than 0.7, the AVE is ≥ 0.5, and T-test is > 1.96 (Hair et al., 2010). The discriminant validity referring to the extent to which variables are distinct and uncorrelated can be detected by comparing the Average Variance Extracted (AVE) and Maximum Shared Variance (MSV), MSV<AVE. The goodness of fit index was addressed via x^2/df >, GFI> 0.9, CFI>0.9 and RMSEA < 0.07 (Hair et al., 2010), SRMR < .08 (Hu and Bentler, 1999; Kline, 2005).

RESULTS

Respondent's Profile

Most of the samples were male (51.1%), aged 34-40 years (29.2%), currently living in Surat Thani Province (48.4%), Buddhism (96.7%), bachelor's degree (59.8%), personal business career (33.6%) and average monthly income 15,001-30,000 Thai baht/month (41.9%). Most of the respondents had a frequency of participating in running 9 or more times per year at 27.6%, followed by 3-4 times per year at 22.9%. Most of the samples participated in the latest event in the category of Fun Run (about 3 - 9 kilometers), 40.9%, followed by a mini-half marathon (10-13 kilometers), 30.0%, half marathon (21 - 22 kilometers), 12.2%, Trail (10 - 19 km), 4.7 %, Trail (20 - 29 km) and Marathon (42 - 43 km) (3.7%).

Measurement Model

The results of the confirmation component analysis are shown in the measurement model, consisting of 3 latent variables: attitude towards running management, satisfaction, and loyalty to the running event. The measurement model before adjusting found that the model is not well fit, $X^2/df = 1.780$, RMR = 0.025, GFI = 0.903, CFI = 0.971, and RMSEA = 0.032. There was a cutting of 23 items to improve the model fit.

The final measurement model showed satisfactory construct reliability, convergent validity, and discriminant validity. The fit indices of the improved model were satisfactory; $X^2/df = 1.780$, RMR: 0.025, GFI = 0.903, CFI = 0.971, and RMSEA = 0.032, showing that the measurement fits the data well.

Table 1. Reliability and validity of the measurement model

Latent Variable Items	Factor Loading	C.R.	CR	AVE
Components of Eco Run Events for sustainable tourism			**0.571**	**0.936**
Concept (Con)	.689	-		
C1: Developing community-based tourism	.776	-		
C2: Promoting a conservative environment	.815	23.911		
C3: Promoting community-based tourism	.868	23.257		
C5: No use of plastic and form	.656	17.018		
C8: Reducing disturbing locals	.674	18.457		
C11: Regulations to respect and conserve environments and culture	.731	18.979		
Strategy (Stra)	.702	14.966		
ST2: Interesting running types suitable for the area such as marathons, trails, triathlons, etc.	.703	21.585		
ST3: Suitable date and time for the area such as fruit seasons, fog, etc.	.874	28.687		
ST4: Beautiful attractions or interesting activities in the events	.863	-		
Manage (Man)	.649	13.192		
M1: Sufficient service of public relations points/registration /deposit /receiving bibs	.793	25.479		
M2: Sufficient facilities such as car parks, restrooms/toilets.	.879	29.811		
M3: Sufficient and appropriate food/drinks on the route and at the finish	.857	27.992		
M5: clear direction signs	.878	30.031		
M8: proper competition time and cut-off	.832	-		
People (Peo)	.708	15.326		
P2: Service providers are courteous and smiling	.899	32.679		
P3: Service providers well know service process and running events	.873	33.521		
P4: Providing quick service	.825	30.300		
P5: Adequacy of service providers	.902	-		
Participations (Par)	.676	15.339		
PR2: All locals participating in running management	.737	18.800		
PR3: Supporting from the national government	.857	30.320		
PR4: Supporting from local government	.867	-		
PR5: Supporting from inside and outside the private sector	.836	29.060		
Marketing (Mar)	.857	13.228		
MK2: Well design of shirts, medals, and trophies	.836	24.737		
MK3: Having several distances for applicants to choose	.756	22.387		
MK5: Convenience channels for application and payment	.816	-		
MK7: Suitable applicant fees	.795	32.777		
Attractions (Att)	.827	15.904		
TR1: Attractive tourism program before or after the events	.779	-		
TR2: Beautiful attractions and local uniqueness along the route	.874	31.885		
TR3: Feeling local uniqueness along the route	.881	-		
Accommodations (Accom)	.766	14.833		
AC1: Having accommodations of locals for participants promoting locals, jobs, and income	.894	-		
AC2: Having cultural activities at the local accommodations for guests	.851	31.323		
AC3: Having facilities for guests such as pick up the finish-start point	.840	30.698		
Foods and Souvenirs (FO)	.803	15.158		
FO1: Having local foods and beverages for participants and others	.806	32.549		
FO2: Participants and others knew local souvenirs in the running event	.883	27.839		
FO3: Participants and others can buy local souvenirs in the running event	.873	-		
Local Culture (CUL)	.794	14.500		
CU1: Designing and decorating the events reflected the local uniqueness of the community	.835	31.965		
CU2: Applying appliances reflected the local uniqueness of the community such as staff's uniform, local foods, photos, etc.	.826	-		
CU4: Participation of local youth to perform local culture	.812	24.935		
CU5: Night activities reflected the uniqueness of local culture	.732	21.709		
CU6: Local performs during the running routes	.763	23.755		
Safety (SAF)	.807	15.002		
S2: A sanitary security system in accordance with SHA standards	.848	-		
S3: Safety of running routes	.870	31.116		
S4: Safety of activities during the running routes	.900	32.932		
S5: Experts and safety equipment throughout the route	.836	29.034		
Satisfaction	-	-	**0.935**	**0.784**
S1: Participating in the running event provided me with happiness	.810	-		
S2: I feel that I made the right decision to participate in this running event.	.862	41.048		
S3: I feel that this event was well organized	.910	31.057		
S4: Overall, I was highly satisfied with the running event	.954	33.037		
Loyalty	-	-	**0.908**	**0.666**
L1: Always say positive things about the running event	0.897	-		
L2: Word of mouth	0.880	35.081		
L4: Invite others to join this running event in the future	0.881	35.168		
L6: Collecting medals, trophies, and number of events	0.670	21.956		
L7: Revisit this destination in other events	0.726	24.897		

From Table 1 and 2, the components of the measurement model verified convergent validity. The factor loadings were 0.649 - 0.954, higher than 0.5 (Hair et al., 2010). The discriminant validity was supported, the composite reliability (CR)of satisfaction, loyalty and attitude were 0.936, 0.935, and 0.908, respectively which were close to 1 and higher than 0.7 (Bagozzi and Yi, 1988; Hair et al., 2010). Furthermore, the Average variance extracted evaluation (AVE) of satisfaction, loyalty, and attitude was 0.571, 0.784, and 0.666, respectively, being higher than 0.5 (Kline, 2011; Hair et al., 2010). Lastly, the comparison between the AVE and MSV found that the AVE was lower than ASV (Hair et al., 2010).

Table 2. Discriminant Validity

	CR	AVE	MSV	Satisfaction	Loyalty	Attitude
Satisfaction	0.935	0.784	0.599	1.00		
Loyalty	0.908	0.666	0.599	.774*(.599)*	1.00	
Attitude	0.936	0.571	0.205	.395*(.156)*	.453*(.205)*	1.00

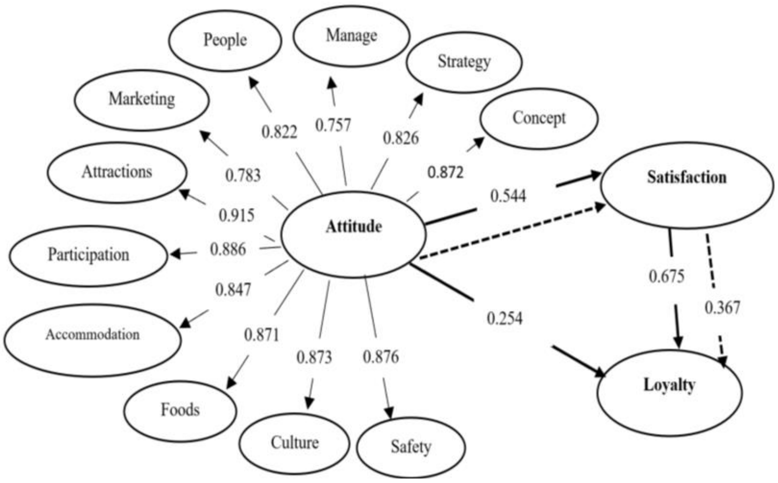


Figure 1. The Structural equation of eco-run and sustainable tourism attitude, satisfaction, and loyalty

Table 3. The hypothesized result

Research Hypothesis	Standard Estimated	Result
H1: Tourist-runner’s attitudes toward an eco run for sustainable tourism directly affect running event satisfaction	0.544	Supported
H2: Tourist-runner’s attitudes toward an eco-run for sustainable tourism directly affect running event loyalty	0.254	Supported
H3: Tourist-runner’s satisfaction directly affects running event loyalty	0.675	Supported
H4: Tourist-runner’s attitudes toward an eco-run for sustainable tourism affect running event loyalty mediation by satisfaction	0.367	Supported

Structural Equation Model (SEM)

The results of the attitude, satisfaction, and loyalty structural equation model found that the model was a good fit, according to $X^2/df = 1.849$, p=0.000, GFI= 0.867, CFI= 0.960, and RMSEA= 0.033, however, there were adjustments to increase the model fit. The fitness of the adjusted model revealed the model fit well with the data, the revised fit indices were $X^2/df = 1.871$, p=0.001, GFI= 0.904, CFI= 0.968, and RMSEA= 0.034. From Figure 1, the structural equation model indicated that attitude toward eco run for tourism concept impacts positively satisfaction, R^2=0.544 as well as loyalty, R^2=0.254, significant at .001. The impact of satisfaction toward loyalty is positive, R^2=0.675, significant at .001. While, it also has an indirect effect on loyalty through mediating by satisfaction, R^2=.367, significant at .001. The hypothesized results found that all hypothesizes were supported as mentioned in Table 3.

DISCUSSION AND IMPLICATIONS

Discussion

The objectives were to study components for eco-run events sustaining tourism and its relationship with satisfaction and loyalty. The finding extends a common understanding of running event management from previous studies. Firstly, the results proposed 11 components that combined both event management and tourism dimensions. As a consequence, it is the multi-dimensions to organize eco-run events for sustainable tourism consisting of sustainable tourism concept, strategy, management, people, marketing, attractions, participation, accommodations, food and souvenirs, local culture, and safety. All components can properly predict the attitude of tourist-runners who join the running event as a tourist and a runner. Based on the total effect coefficient, the top 3 elements of eco-run events; attractions, participation, and safety appeared to have the most importance in measuring eco-run events. Surprisingly, they are important components of tourism. Differently, past research has neglected the importance of tourism dimensions, focusing solely on investigating running event management. This phenomenon can be explained by the most runners desire to travel to beautiful destinations as a tourist by doing a favorite activity -running. Similarly, Saayman and Saayman (2012) found that reasons to join a sporting event were to visit tourist destinations and explore a new area. Huang et al. (2018) also revealed that participation in communities was positively related to satisfaction and participants' intentions to return to Tianzhong Marathon. Safety and security are very important factors for visiting and repeating the events of the runners. Security was an item in the intangible factor that impacted destination image (Moon et al., 2011).

The finding confirmed that attitudes toward eco-run events for sustainable tourism of tourist-runners affected both satisfaction and loyalty. This result is consistent with prior research in that the quality of service in sports events influenced satisfaction (Moon et al., 2011) and revisit (Ho Kim et al., 2013; Chen et al., 2021). Additionally, tourist-runner satisfaction leads to repeat visitation (Alexandris et al., 2017; Chen et al., 2021; Wicker et al., 2012). Interaction quality and community attributes influenced the intent to return (Huang et al., 2018). However, it was inconsistent with Kaplanidou and Vogt (2007), satisfaction did not impact loyalty. Lastly, the finding highlighted the mediation effect of attitude toward eco-runs for sustainable tourism on loyalty through satisfaction. In particular, eco-run events for sustainable tourism had a greater impact on satisfaction than loyalty. This idea implies that the 11 components of eco-run events for sustainable tourism are worthy of creating the satisfaction of tourist-runners rather than building their loyalty.

Managerial implications

The findings have important implications for promoting sustainable tourism by organizing an eco-run event and can help community-based tourism (CBT) to design and implement an eco-run event that can make contributions, socially, economically, and environmentally. Organizing a running event to boost sustainable tourism should concern both tourism and event management elements. The results of this study suggest that an organization hosting a running event for sustainable tourism should consider attractions in the venue leading to designing attractive tourism programs before or after the events and along running routes having beautiful attractions and local uniqueness. In terms of participation, all stakeholders comprising local people, local and national government, and inside and outside businesses should be involved in running events for sustainable tourism. In addition, safety routes, safe activities, the adequacy of experts and safety equipment, and a sanitary security system in accordance with SHA standards should be emphasized in the event design.

In particular, a running event organizer should develop the events according to the concept focusing on community-based tourism, conservation environment, avoiding disturbing locals, and respecting culture. Strategies should be emphasized on setting the right types of running such as marathons, trail, triathlons, etc., suitable dates and times with seasons or attractions. Furthermore, local culture should be added to the running event and activities such as decorations, staff uniforms, local foods, and local shows. For marketing strategies, organizers should emphasize the good design of shirts, medals, and trophies. Products or distances should be several distances to serve different groups of tourist-runners. Suitable applicant fees and convenient channels for application and payment included both online and offline channels. Lastly, it is important to organize a running event for sustainable tourism that prepares local accommodations or homestays with cultural activities, local foods, and complimentary services such as pick-up at the finish-start point.

Although the paper provides theoretical and practical contributions, some limitations should be considered. Noticeably, research samples are limited to Thai tourist runners, while nationality may affect the attitude of the runners. Moreover, the distance may classify different groups of tourist-runners who may have different attitudes. Therefore, future studies on running events for sustainable tourism are warranted for a better understating of these important issues.

Author Contributions: Conceptualization, S.N.; methodology, S.N., B.J. and K.T.; software, S.N.; validation, S.N.; formal analysis, S.N.; investigation, S.N.; data curation, B.J. and K.T. ; writing - original draft preparation, S.N. ; writing - review and editing, S.N.; visualization, S.N., B.J. and K.T.; supervision, S.N.; project administration, S.N. All authors have read and agreed to the published version of the manuscript.

Funding: By the National Research Council of Thailand (NRCT)

Institutional Review Board Statement: SRU-EC2020/081

Informed Consent Statement: Informed

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: This research was granted by the National Research Council of Thailand (NRCT). I also would like to thank Suratthani Rajabhat University for supporting the facilities in doing the research.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Alexandris, K., Theodorakis, N., Kaplanidou, K., & Papadimitriou, D. (2017). Event quality and loyalty among runners with different running involvement levels The case of "The Alexander the Great" International Marathon. *International Journal of Event and Festival Management*, 8(3), 292-307. https://doi.org/0.1108/IJEFM-08-2016-0057

Andersen, J.J. (2021). *Marathon Statistics 2019 Worldwide (Research).* Accessed August 22, 2021. https://runrepeat.com/research-marathon-performance-across-nations.

Bagozzi, R., & Yi, Y. (1988). On the Evaluation of Structural Equation Models. *Journal of the Academy of Marketing Sciences*, 16, 74-94.

Boonsiritomachai, W., & Phonthanukitithaworn, C. (2019). Residents' Support for Sports Events Tourism Development in Beach City: The Role of Community's Participation and Tourism Impacts. *SAGE Open*, 9(2). https://doi.org/ 10.1177/2158244019843417

Chen, X., Yim, B. H., Tuo, Z., Zhou, L., Liu, T., & Zhang, J. J. (2021). "One event, one city": promoting the loyalty of marathon runners to a host city by improving event service quality. *Sustainability*, 13(7), 3795. https://doi.org/10.3390/su13073795

Du, J., Jordan, J.S., & Funk, D.C. (2015). Managing Mass Sport Participation: Adding a Personal Performance Perspective to Remodel Antecedents and Consequences of Participant Sport Event Satisfaction. *Journal of Sport Management*, 29(6), 688–704. https://doi.org/10.1123/JSM.2014-0225

Fan, X., Thompson, B., & Wang, L. (1999). Effects of sample size, estimation methods, and model specification on structural equation modeling fit indexes. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 56–83. https://doi.org/10.1080 /10705519909540119

Gibson, H.J., Kaplanidou, K., & Kang, S.J. (2012). Small-scale event sport tourism: A case study in sustainable tourism. *Sport Management Review*, 15(2), 160–170. https://doi.org/10.1016/j.smr.2011.08.013

Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). *Multivariate Data Analysis*. 7th Ed., Pearson, New York.

Ho Kim, T., Jae Ko, Y., & Min Park, C. (2013). The influence of event quality on revisit intention. Managing Service Quality, *An International Journal*, 23(3), 205–224. https://doi.org/10.1108/09604521311312237

Hu, L.T., & Bentler, P.M. (1999). Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria versus New Alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6, 1-55. https://doi.org/10.1080/10705519909540118

Huang, C.H., Liu, W.T., Chuang, C.L., & Huang, Y.H. (2018). The Service Quality and Community Attribute Effect Impacts on Satisfaction for Marathon Event. *International Journal of Economics and Business Administration*, 4(3), 105-109.

Huang, H., Lunhua Mao, L., Wang, J., & Zhang, J.J. (2015). Assessing the relationships between image congruence, tourist satisfaction and intention to revisit in marathon tourism: the Shanghai International Marathon. *International Journal of Sports Marketing and Sponsorship*, 16 (4), 46-66. https://doi.org/10.1108/IJSMS-16-04-2015-B005

Hyum, M., & Jordan, J.S. (2018). Athletic goal achievement: A critical antecedent of event satisfaction, re-participation intention, and future exercise intention in participant sport events. *Sport Management Review*, 2-15. https://doi.org/10.1016/j.smr.2019.01.007

Kaplanidou, K. & Vogt, C. (2010) The Meaning and Measurement of a Sport Event Experience among Active Sport Tourists. *Journal of Sport Management*, 24, 544-566.http://dx.doi.org/10.1123/jsm.24.5.544

Kaplanidou, K., & Gibson, H.J. (2010). Predicting Behavioral Intentions of Active Event Sport Tourists: The Case of a Small-scale Recurring Sports Event. *Journal of Sport & Tourism*, 15(2), 163–179. http://dx.doi.org/10.1080/14775085.2010.498261

Kaplanidou, K., & Vogt, C. (2007). The interrelationship between sport event and destination image and sport tourist's behaviors. *Journal of Sport Tourism*, 12(34), 183-206. https://doi.org/10.1080/14775080701736932

Kline, R.B. (2011). *Principles and practice of structural equation modeling* 3 rd ed. London: The Guilford Press.

Ko, Y.J., & Pastore, D.L. (2004). Current issues and conceptualizations of service quality in the recreational sport industry. *Sport Marketing Quarterly*, 13 (3), 159-67.

Ko, Y.J., & Pastore, D.L. (2005). A hierarchical model of service quality for the recreational sport industry. *Sport Marketing Quarterly*, 14 (2), 84-97.

Ko, Y.J., & Pastore, D.L. (2007). An Instrument to Assess Customer Perceptions of Service Quality and Satisfaction in Campus Recreation Programs. *Recreational Sports Journal*, 31, 34-42. https://doi.org/10.1123/rsj.31.1.34

Kruger, M., & Saayman, M. (2012). Creating a memorable spectator experience at the Two Oceans Marathon. *Journal of Sport & Tourism*, 17(1), 63-77. https://doi.org/10.1080/14775085.2012.662391

Moon, K.S., Kim, M., Ko, Y.J., Connaughton, D.P., & Lee, J.H. (2011). The influence of consumer's event quality perception on destination image. *Management Service Quality*, 21(3), 287-303. https://doi.org/10.1108/09604521111127974

Nielson Sport (2021). *Recreational Running Consumer Research Study*. Accessed August 22, 2021. https://assets.aws. worldathletics.org/document/60b741d388549ceda6759894.pdf

Nowak, P.F., & Challmoniuk-Nowak, M. (2014). Running Tourism in Poland Example of Tourist Activity of Polish Marathon Runners. *British Journal of Education, Society & Behavior Science*, 5(4), 416-425. https://doi.org/10.9734/BJESBS/2015/13374

Nunnally, J.C., Bernstein, I.H., & Berge, J.M.T. (1967). *Psychometric theory*. New York: McGraw-hill.

Okayasu, I., Nogawa, H., Casper, J.M., & Morais, D.B. (2016). Recreational sports event participants' attitudes and satisfaction: cross-cultural comparisons between runners in Japan and the USA. *Managing Sport and Leisure*, 21(3), 164-180. https://doi.org/10.1080/23750472.2016.1220812

Papanikos, G.T. (2015). The Economic Effects of a Marathon as a Sport Tourism Event Athens. *Journal of Sports*, 2(4), 225-240. https://doi.org/10.30958/ajspo.2-4-3

Perić, M., Vitezić, V. & Mekinc, J. (2016). Conceptualising innovative business models for sustainable sport tourism. *International Journal of Sustainable Develop & Plan*, 11(3), 469–482. https://doi.org/10.2495/SDP-V11-N3-469-482

Raykov, T., & Widaman. K.F. (1995). Issues in applied structural equation modeling research. *Structural Equation Modeling*, 2.28993 18. https://doi.org/10.1080/10705519509540017

Saayman, M., & Saayman, A. (2012). Determinants of Spending: an Evaluation of Three Major Sporting Events. *International Journal of Tourism Research*, 14(2), 124 – 138. https://doi.org/10.1002/jtr.841

Schiffman, L.G., & Kanuk, L.L. (1994). *Consumer Behaviour* (5th ed.). Englewood Cliffs, NJ: Prentice-Hall.

Shipway, R. & Jones, I. (2008). The great suburban Everest: An insider's perspective on experience at the 2007 Flora London Marathon. *Journal of Sport & Tourism*, 13(1), 61-77. https://doi.org/10.1080/14775080801972213

Shonk, D.J., & Chelladurai, P. (2009). Model of service quality in event sport tourism: development of a scale. *International Journal of Sport Management and Marketing*, 6 (3), 292-307. https://doi.org/10.1504/IJSMM.2009.029090

Theodorakis, N.D., Kaplanidou, K., & Karabaxoglou, I. (2014). Effects of Event Service Quality and Satisfaction on Happiness on Runners of a Recurring Sport Event. *Leisure Sciences: An Interdisciplinary Journal*, 37(1), 87-107. https://doi.org/10.1080/01490400.2014.938846

Turco, D.M., Swart, K., Bob, U., & Moodley, V. (2003). Socio-economic impacts of sport tourism in the Durban Unicity, South Africa. *Journal of Sport & Tourism*, 8(4), 223-239. https://doi.org/10.1080/1477508032000161537

Tzetzis, G., Alexandris, K., & Kapsampeli, S. (2014). Predicting visitors' satisfaction and behavioral intentions from service quality in the context of a small-scale outdoor sport event. *International Journal of Event and Festival Management*, 5(1), 4-21. https://doi.org/10.1108/IJEFM-04-2013-0006

Walker, M., & Heere, B. (2011). Consumer Attitudes toward Responsible Entities in Sport (CARES): Scale development and model testing. *Sport Management Review*, 15(2), 160-170. https://doi.org/10.1016/j.smr.2010.08.001

Wicker, P., Hallmann, K., & Zhang, J.J. (2012). What is influencing consumer expenditure and intention to revisit? An investigation of marathon events. *Journal of Sport & Tourism*, 17(3), 165-182. https://doi.org/10.1080/14775085.2012.734058

Wolf, E.J., Harrington, K.M., Clark, S.L., & Miller, M.W. (2013). Sample Size Requirements for Structural Equation Models: An Evaluation of Power, Bias, and Solution Propriety. *Educational and Psychological Measurement*, 73, 913-934. https://doi.org/10.1177/0013164413495237

Article history: Received: 15.05.2023 Revised: 02.08.2023 Accepted: 17.09.2023 Available online: 16.10.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1232-1239
DOI 10.30892/gtg.50403-1121

PERCEPTION OF LOCAL COMMUNITY TOWARDS TOURISM DEVELOPMENT: A STUDY ON RURAL TOURISM SITES OF JORDAN

Nermin A. KHASAWNEH
Department of Sustainable Tourism, Queen Rania Faculty of Tourism and Heritage, The Hashemite University, Zarqa, Jordan, e-mail: nermeenibra@yahoo.com

Ramzi Al ROUSAN[*]
Department of Sustainable Tourism, Queen Rania Faculty of Tourism and Heritage, The Hashemite University, Zarqa, Jordan, e-mail: ramzim@hu.edu.jo

Malek BADER
Department of Sustainable Tourism, Queen Rania Faculty of Tourism and Heritage, The Hashemite University, Zarqa, Jordan, e-mail: malekbader@hotmail.com

Abdulraouf S. MAYYAS
Department of Conservation Science, Queen Rania Faculty of Tourism and Heritage, The Hashemite University, Zarqa, Jordan, e-mail: A.S.Mayyas@hu.edu.jo

Muna SLEHAT
Department of Tourism Management, School of Archaeology and Tourism, The University of Jordan, Amman, Jordan, e-mail: m.slaihat@ju.edu.jo

Citation: Khasawneh, N.A., Rousan, R.A., Bader, M., Mayyas, A.S., & Slehat, M. (2023). PERCEPTION OF LOCAL COMMUNITY TOWARDS TOURISM DEVELOPMENT: A STUDY ON RURAL TOURISM SITES OF JORDAN. *GeoJournal of Tourism and Geosites*, 50(4), 1232–1239. https://doi.org/10.30892/gtg.50403-1121

Abstract: Tourism is one of the most effective solutions for overcoming poverty in rural areas. Jordan has many renowned tourist attractions situated in urban and rural areas. Tourism plays an integral role to boost the national economy of Jordan. In an increasingly globalized society, rural tourism is expected to rise, thus it is important to examine how the locals feel about tourism development. The study aims to examine how the locals in the rural areas of Jordan's Ajloun and Jerash governorates perceive the effects of tourism development. For the analyses, 395 households of data were used. Residents' attitudes toward the development of tourism have been evaluated using multiple regression along with descriptive statistics, both positively and negatively. IBM AMOS 22.0 has been used to complete the statistical analysis. The results indicated that tourism in the selected villages is in the pre-development stage and respondents strongly supported the development of the tourism industry because it creates jobs, attracts investment, and increases the value of agricultural products by creating a market. However, respondents expressed little concern about the adverse effects, such as the loss of traditional value, environmental degradation, pollution, and traffic congestion.

Key words: Residents' attitudes, rural tourism, tourism development, Jordan

* * * * * *

INTRODUCTION

The tourism industry has its significance in economic development and contribution to Gross Domestic Product (GDP). The tourism industry has huge potential to fulfil economic social and aesthetic needs in developing economic diversity (Tsaur and Wang, 2007). Tourism has both negative and positive impacts (Ross, 1992), which include socio-cultural, economic, and environmental dimensions (Stylidis et al., 2014). To assess whether tourism is acceptable, it is crucial to ascertain how the local community feels about the expansion of the industry. Because tourism has the potential to create jobs, generate revenue, improve quality of life, develop infrastructure, and attract investors, local populations may see unfavourably (Saner et al., 2019). On the contrary local community may negatively observe tourism because of sociocultural costs and increased levels of inflation in many host areas (Chen, 2000; Muresan et al., 2016).

Policymakers and planners may better address issues and concerns to increase benefits, engage local communities, and promote local cultural identity by being aware of how the local community perceives tourist growth and its positive and negative effects. According to many academicians, local community involvement in tourism planning is the most effective strategy for the industry's growth. They contend that including the neighbourhood community maximizes the positive effects of the tourism sector while minimizing its negative effects. (Lee, 2013; Boonsiritomachai and Phonthanukitithaworn, 2019). Therefore, various studies have been found to examine local community perception of tourism development worldwide (Kim and Butler, 2015; Afthanorhan et al., 2017; Gursoy et al., 2019; Obradović and Stojanović, 2021).

[*] Corresponding author2021

A common finding has been found that local community involvement is an inevitable part of sustainable tourism development. Jordan has many renowned tourist attractions. Tourism plays an integral role to boost the national economy of Jordan. The governorates of Northern Jordan, Ajloun, and Jerash have been considered for this study. Ajloun and Jerash are about an hour's drive from the North of Amman. They are known for sites of antiquity, archaeological attractions, thick green forests, and lush vegetation that is among the best in the Middle East. The number of visitors to tourist sites by location during Jan-Dec 2020-2021 has been shown in Table 1.

Table 1. The number of visitors to tourist sites by location during Jan-Dec 2020-2021 (Source: MoTA, 2021)

Area	2020		Total	2021		Total
	Foreign	Jordanian		Foreign	Jordanian	
Ajloun	17,053	38,905	55,958	22,486	1,14,530	1,37,016
Jerash	58,698	23,050	81,748	42,528	62,022	1,04,550

As per the table-1 total number of visitors to both tourist sites has increased in 2021 and hosting both domestic as well as foreign visitors all year round. Ajloun Governorate is considered the best destination to spend the summer holidays because of its moderate climate. Ajloun is also known for mountains, natural landscapes, and its dense forest tree. Ajloun is one of the best destinations in Jordan in terms of natural sightseeing among all governorates. The reason, Arjan, Orzareth, Wadi Rayan, and the Mar Elias villages are also the largest localities of the Ajloun governorate. Ajloun city is located northwest of Jordan about 70 km from the capital city, Amman. As per the Ministry of Interior, The Hashemite of Jordan, (2022 a), the Ajloun governorate's population is 1,76,080. Jerash governorate is known for ten Roman Decapolis Cities, which are called Jerash in Arabic and Gerasa in Latin. These cities belong to Hellenistic and Roman periods that had cultural, political, and commercial significance. Souf, Sakeb, Reemon, Khufur Khal, Asfoor and Gafgafa villages are also the largest localities of the Jerash Governorate. Jerash city is located in the north of the capital city Amman about 45 km towards Syria. As per the Ministry of Interior, The Hashemite of Jordan, (2022 b) the Jerash governorate's population is 2,37,059.

Despite the foregoing indications that the study region is improving Jordan's tourism inventory, very lesser is known about how the local community feels about the development of tourism. Moreover, little study has been conducted on rural residents to examine their perception of tourism development. Traditional social standards also govern Jordanian society, particularly in the rural and desert regions, where women in particular have a great propensity to preserve predecessors' traditions and practices. Their timidness leads them to withdraw in order not to be observed by others (Al Haija, 2011). Rural inhabitants should not feel neglected in the process of fostering tourism. The local community's participation in the planning process will enhance sustainable tourism in the Ajloun governorate. (Fandi, 2015) and similar other touristic sites like Jerash. The local community should not be deprived of various tourism benefits associated with tourism, and their perception of tourism development should not be neglected. Local community opinions and perceptions should be included in the tourism policy formulation. In an increasingly globalized society, rural tourism is expected to rise, thus it is important to examine how the locals feel about tourism development.

LITERATURE REVIEW

Rural tourism is an old phenomenon in the tourism literature and studies related to rural tourism dating from the late 9^{th} century (Gao and Wu, 2017). In recent times rural areas have had more functions than just agriculture, they are the site of tourism, leisure, recreation, tranquillity, and specialty food production (Saxena et al., 2007).

Rural tourism sites are very popular among tourists. Numerous government policies are supporting rural tourism by managing rural tourism practices and coordinating residents and businesses (Liu et al., 2020). Because of its popularity among national and international tourists. Residents of the hosted destinations are one of the main stakeholders of rural tourism and are directly impacted by tourism development.

To further illuminate how the neighbourhood perceives the impact of tourism growth, other theories have been suggested. Dependency theory, community attachment theory, conflict theory, and social exchange theory are a few of the theories (Aref and Redzuan, 2009). As a theoretical framework, social exchange theory has been widely adopted in tourism studies for developing an understanding of local community perception of tourism development (Sirakaya et al., 2002; Jurowski and Gursoy, 2004). As per social exchange theory, these development impacts can generally be categorized into economic, socio-cultural, and environmental impacts (Rasoolimanesh and Jaafar, 2016). The local community will benefit economically from the growth of tourism by having more job possibilities and higher household income. (Andereck et al., 2005; Sandaruwani and Gnanapala, 2016). The rising cost of living and the increase in property taxes are examples of the negative economic effects (Látková and Vogt, 2012; Scarlett, 2021). The positive socio-cultural impacts include community benefits, community participation, cultural exchange, availability of entertainment, and recreational opportunities (Ramkissoon, 2020). The negative socio-cultural impacts include overcrowding, prostitution, alcohol abuse, an increase in crime, and vandalism (Ribeiro et al., 2017; Joo et al., 2019). The positive environmental impacts of tourism development spread awareness about the conservation of the environment and building environment through the provision of infrastructure and upgrading the building (Green et al., 1990). The negative environmental impact is damaging ecosystems, the natural environment, water, and air pollution (Ko and Stewart, 2002).

Locals who are aware of the many advantages of tourism are frequently more eager to work in the business and more active in the planning and decision-making processes. While negative effects lead people to stop intervening and supporting the growth of tourism, positive effects encourage the local community to promote tourism development by participating in tourism activities (Sharpley, 2014; Nunkoo and So, 2016). As tourist regions are characteristically different, the scale of residents' attitudes has to be dynamically and individually adjustable for sustainable tourism planning (Gursoy et al., 2019 b). Various scales and indices to measure local community perception such as the Tourism Impact Attitude Scale, European performance satisfaction Scale, and Residence Empowerment through Tourism Index have been developed (S. Wang and Xu, 2015). These scales and indices have characterized local community perception of tourism development as a multi-dimensional framework (Harrill, 2004).

Previous studies also examined the perceptions of the local community towards tourism development and suggested that more study is required to better understand, the perception of the local community, towards the tourism development in the rural tourism sites from more different perspectives. (M. Wang et al., 2021; Halim et al., 2022; Pekerşen and Kaplan, 2022). The former studies in various countries highlighted that local community perception towards tourism development varies from country to country, this difference may be due to the country's level of tourism development, understanding, and level of acceptance for tourism development due to psychological, geographical, cultural and religious norms among the local community (Pearce and Stringer, 1991; Tosun, 2002; Maruyama et al., 2023; Papadopoulou et al., 2023). Therefore, further study is required to investigate local community perception towards tourism development in different geographical contexts. Moreover, the rural population is more sensitive toward tourism development, especially those who are not involved in the tourism planning and development process (Bachleitner and Zins, 1999; Ibanescu et al., 2018).

1. Research Gaps in local community perception and tourism development literature

It is noted that there are not many studies that look at how the locals feel about the development of tourism in Jordan's rural tourist destinations. Local community perception in tourism development cannot be ignored because of their integral role, their involvement in tourism planning is very important in bridging the gap between governance and tourism development (Progano, 2018). Furthermore, it is crucial to acknowledge that no studies have been conducted to examine how residents in the villages of Arjan, Wadi Rayan, and Mar Elias in the governorate of Ajloun and Souf, Sakeb, and Khufur Khal in the governorate of Jerash feel about the development of tourism. Considering the given research gap the aim of the study is to identify the perception of the local community towards tourism development in the rural tourism sites of Jordan. Carbon, (2014) claims that the study of perception is a more current phenomenon among people. As a result, additional research on perception is necessary to better understand this concept within the local community.

2. Research Hypotheses

The following hypotheses have been suggested to explain the connection between local community perception and tourism development.

H1: Local communities with a positive perception will support tourism development.

H2: Local communities with a negative perception will not support tourism development.

RESEARCH METHODOLOGY

Investigating the research objectives has been done using a quantitative approach. There were three primary sections to the questionnaire. The demographic profile, including the subjects' gender, age, education level, annual household income, place of residence, and employment, was the main topic of the first section. The second section of the survey focused on respondents' opinions of how tourism development has both benefited and hurt them. The survey instrument was modified from earlier research (Látková and Vogt, 2012; Rasoolimanesh and Jaafar, 2016) on a Likert scale of 1 to 5, where 1 equals strongly disagree and 5, strongly agree.

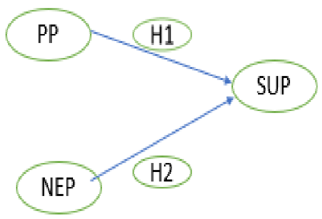


Figure 1. Hypothetical framework (Note: PP= Positive perception; NEP: Negative perception; SUP: Support tourism development)

Study area

The survey was conducted on Arjan, Wadi Rayan, and the Mar Elias villages of Ajloun governorate and Souf, Sakeb, and the Khufur Khal villages of Jerash governorate. As per the local Administrative Council of the selected villages, Arjan, Wadi Rayan, Mar Elias, Souf, Sakeb, and Khufur Khal the population numbered 6000,7144, 8192,15744, 11586, and 7355 respectively. The residents of these six villages have been considered as respondents. Due to their location near natural and historical monuments and their potential for tourism growth, these settlements were chosen. As per Krejcie and Morgan, the minimum sample size for a population of 56000 is 381 (Krejcie and Morgan, 1970).

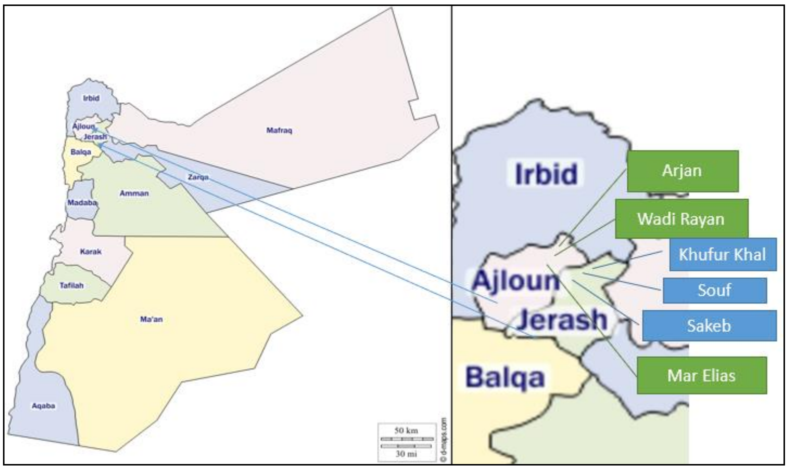


Figure 2. Location map of the study area

Various households in these villages received 452 questionnaires, of which 65, 58, 60, 82, 78, and 52 questionnaires were collected from Arjan, Wadi Rayan, Mar Elias, Souf, Sakeb, and Khufur Khal villages of Ajloun and Jerash governorate respectively as shown in Figure 3. A total of 455 questionnaires have been distributed out of which 395 responses have been recorded with a response rate of 87%. Between February 15 and June 5, 2022, information was gathered from 395 households using both formal and informal survey methods. The local administration council gave a list, and the interviewees were chosen at random from it. The questionnaire was created in both Arabic and English. Additionally, regional terms were used to keep the respondents' trust. We have also used unofficial follow-up conversations and observations to confirm the accuracy of our results.

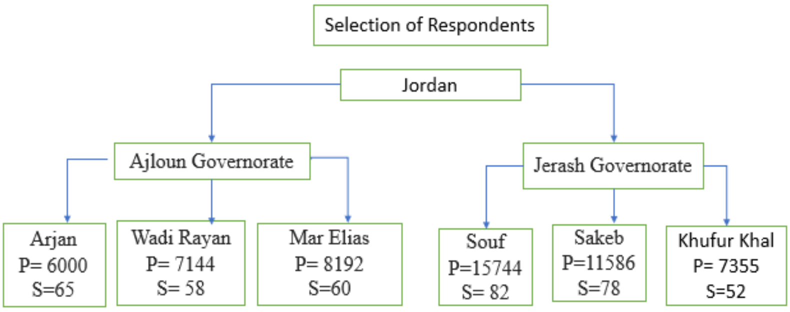


Figure 3. Selection of respondents Note: P= Population, S= Sample

Data Analysis

Using Cronbach's alpha, reliability and validity have been tested. The links between the constructs and the corresponding items have been determined using factor analysis. A series of descriptive analyses have been carried out to comprehend the residents' positive and negative impressions of their community and the extent to which they support tourism growth. Finally, multiple regression has been used to evaluate residents' attitudes toward tourism development, both positively and negatively. The statistical analysis was completed using SPSS (version 22).

Table 2. Demographic profile of respondents (Note: 1 JOD = 1.41 USD; During survey)

Characteristics	Frequency	Percentage
Gender (N=395)		
Male	203	51.3%
Female	192	48.7%
Age (Years)		
Lower than 30	56	14.1%
31-40	81	20.5%
41-50	135	34.1%
51-60	90	22.7%
61 and above	33	8.3%
Education		
Illiterate	59	14.9%
Primary school	92	23.2%
Secondary school	154	38.9%
Certificate/Diploma	25	6.3%
Degree	65	16.4%
Level of Income		
JOD 500 and below	97	24.5%
JOD 501- JOD 1000	104	26.3%
JOD 1001 – JOD 2000	72	18.2%
JOD 2001 and above	53	13.4%
Not fixed income	69	17.4%
Live in a village as a child		
Yes	319	80.7%
No	76	19.25
Employment		
Part-time	57	14.4%
Full time	185	46.8%
Retired	74	18.7%
Not currently employed	79	20.0%

4.1 Analysis and Results

Table 3 shows the factor analysis and reliability testing to assess the correlation between variables through grouping and dimensionality of the questionnaire items. A value of 0.770 falls into the range of being good for principal component analysis (Kaiser, 1974). The kaiser-Varimax rotation designates that questionnaire Items should be broken down into three categories: favorable perceptions, unfavourable impressions, and support for the growth of tourism. As per Table 3, the Cronbach alpha for all three factors has been found above 0.770. These findings show that the reliability and validity of the survey items are at an acceptable level. Table 4 displays the items with the greatest means of residents' positive (PP), unfavourable (NP), and support for tourism development perceptions (SUP). The mean values of the positive perception items ranged from 3.84 to 4.07. The statement "Tourism development attracts more tourists would produce more jobs" (4.07), followed by "Tourism development attracts more investment in rural regions (solid waste management, sanitation, and water supply)," has the highest mean favourable perception value. (3.99) and "Tourism growth creates new markets, increasing the value of farm products" (3.94).

However, the mean values for a negative perception ranged from 3.02 to 3.54 lower than those for a favourable assessment. The mean negative perception value for "Tourism produces alterations in our traditional value" (3.54) is the highest. The local population was found to be very concerned about maintaining their traditional values, which was followed by the statement that "environmental deterioration would result from tourism development infrastructure, such as the construction of hotels, restaurants, and other services" (3.26). and Increased tourism contributes to traffic congestion and pollution (3.21). Supporting initiatives for tourism development, the mean values were between 3.02 and 4.18. The highest mean value is "local community should actively participate in policy and decision-making process" (4.08), followed by "I believe that tourism should be actively encouraged in my community (4.18)," and "I would like to join those activities that are appropriate to the promotion of tourism at my destination" (4.04).

These results reveal that the residents of selected villages of Ajloun and Jerash governorate were keen to assist the growth of tourism development. The lowest mean value ‘the initiative taken by the government are appropriate for tourism development’ (3.02) reveals that the government intervention is not that much involved as per the expectations of residents. Summated scale method by Bernardin et al., (1976) has been used to calculate the values for attitudes toward and support for the growth of tourism. The largest mean value for support for tourism development is followed by favorable perceptions. The mean value of negative perceptions is the lowest. Multiple regression was used to examine how perceptions, both positive and negative, affected the expansion of tourism. Table 5's regression analysis findings highlight the important positive and negative influences of locals' perceptions on their support for the growth of tourism. Therefore, H1 and H2 are supported by the investigation's findings. Table 6 displays the regression model's R2 value, which is 0.201, and the adjusted R2 value, which is 0.189. Both of these values are deemed acceptable by behavioural research. (Sarstedt et al., 2021).

Table 3. The outcomes of factor analysis and a reliability test for the items that were adopted Note. KMO = .894; Bartlett's Test of Sphericity, p-value = .000

	Construct	Adopted Items	Factor Loading	Cronbach's Alpha
PP	**Positive Perception**			**0.810**
1	Tourism development attracts more tourists would generate more jobs.		0.812	
2	Tourism development attracts more investment in rural areas (solid waste management, sanitation, and water supply).		0.801	
3	Tourism development adds value to farm products by creating a new market.		0.768	
4	Property owned by residents becomes more valuable as a result of tourism development.		0.754	
5	Tourism development diversifies the rural economy.		0.458	
NP	**Negative Perception**			**0.816**
1	Tourism development results in raising the cost of living.		0.723	
2	Tourism development infrastructure like the construction of hotels, restaurants, and other amenities would lead to environmental degradation.		0.820	
3	Tourism causes changes in our traditional values.		0.734	
4	Tourism development results in pollution and traffic congestion.		0.810	
5	Tourism causes overcrowding problems for residents.		0.699	
SUP	**Support for Tourism Development**			**0.829**
1	The local community should participate in the policy and decision-making process.		0.725	
2	The residents should be engaged in the heritage and local culture conservation programs.		0.739	
3	I am in favour of tourism and want to see it become an integral part of my neighbourhood.		0.751	
4	The initiative taken by the government is appropriate for tourism development.		0.712	
5	I would like to participate in those activities which are appropriate to the promotion of Tourism at my destination.		0.675	
6	In my opinion, my community should actively promote tourism.		0.633	

Table 4. Descriptive analysis (Note. PP = positive perception; NP = negative perception; SUP = support for tourism development)

Positive Perception (PP)			**Negative Perception (NP)**			**Support for Tourism Development (SUP)**		
Items	**Means**	**Std. Dev.**	**Items**	**Means**	**Std. Dev.**	**Items**	**Means**	**Std. Dev.**
PP1	4.07	.642	**NP1**	3.02	1.018	**SUP1**	4.08	.633
PP2	3.99	.606	**NP2**	3.26	1.083	**SUP2**	3.94	.684
PP3	3.94	.696	**NP3**	3.54	1.034	**SUP3**	3.05	.984
PP4	3.84	.702	**NP4**	3.21	1.052	**SUP4**	3.02	1.018
PP5	3.91	.766	**NP5**	3.17	1.078	**SUP5**	4.04	.664
						SUP6	4.18	.581
Average	**3.95**	**.517**		**3.24**	**.790**		**4.46**	**.470**

Table 5. Results of Multiple Regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.908	.318		10.820	.000
H1	.408	.079	.440	5.540	.000
H2	-.109	.049	-.182	-2.293	.028

a. Dependent Variable: Support for Tourism Development

Table 6. Findings from model testing (R^2)

Model	R	R^2	Adjusted R^2	Std. Error of Estimate
1	.458[a]	.201	.189	.47223

a. Predictors (Constant), Negative Perceptions, Positive Perceptions

DISCUSSION AND CONCLUSION

This study outlines an effort to examine, how locals feel about and support tourism development in the villages of Arjan, Wadi Rayan, and Mar Elias in the Ajloun governorate, and Souf, Sakeb, and Khufur Khal in the Jerash governorate. Additionally, we looked at how citizens' opinions about tourism growth in general—both favorable and unfavourable affected their support for it. Aijloun and Jerash governorates are renowned for having some of the greatest greenery in the Middle East, as well as ancient ruins, archaeological attractions, and thick green forests. It would be accurate to say that the selected villages of Ajloun and Jerash governorate are in the pre-development stages of tourism development because little effort has been made to position the future as a tourist destination. Residents thus do not yet notice either the positive or bad effects of tourism. Therefore, they do not base their overwhelmingly positive assessments of the rise of tourism on their personal experiences. They assumed that tourism development would lead to generating more jobs, more investments, and adding value to farm products by creating a new market. These results, which show that locals have a favorable opinion of tourism development, are in line with earlier research (Rasoolimanesh and Jaafar, 2016; Muresan et al., 2016; Liu et al., 2020; Alrwajfah et al., 2019). However, few residents voiced concerns about the detrimental effects of tourism growth, like loss of traditional value, environmental degradation, pollution, and traffic congestion. According to earlier research, citizens' levels of positive and unfavourable perceptions vary between developed and developing nations. In the early stages of tourism development, inhabitants are less concerned about the negative effects of the industry (such as traffic congestion, overcrowding, and rising crime), but as the development grows, these worries become more evident (Látková and Vogt, 2012).

In addition, we investigated how locals' attitudes toward overall tourism development both positive and negative affected their support for it in the chosen villages of Ajloun and Jerash. Previous studies have indicated that locals are supportive and enthusiastic about participating in the process of community development, regardless of whether they have positive or unfavourable attitudes toward the development of tourism. Residents perceived that tourism development attracts more tourists would generate more jobs and tourism development attracts more investment in rural areas (solid waste management, sanitation, and water supply). These results, which show that locals have a favorable opinion of tourism development, are in line with earlier research (Upchurch and Teivane, 2000; Abdollahzadeh and Sharifzadeh, 2014; Vujko et al., 2021) However, locals expressed little worry about the alleged detrimental effects of tourism, such as tourism causes changes in our traditional values, tourism development infrastructure like the construction of hotels, restaurants, and other amenities would lead to environmental degradation and tourism development results in pollution and traffic congestion. Látková and Vogt, (2012) observed that in the initial growth of tourism, inhabitants had fewer worries about the negative effects of tourism (such as crowding, traffic congestion, and rising crime), but as the industry matures, these worries increase. Tosun (2002); Sharma and Dyer (2012); Chang et al. (2018) reports have found that residents of established tourist destinations are more worried about the damaging effects of tourism. Therefore, the results of this study about the unfavourable attitudes of Ajloun and Jerash inhabitants are consistent with other studies because the two cities are still in the early stages of tourism development and are therefore very undeveloped.

The results of this study show that people in the villages of Arjan, Wadi Rayan, and Mar Elias in the governorate of Ajloun, and Souf, Sakeb, and Khufur Khal in the governorate of Jerash, are extremely in favor of tourism development and marketing their home region as a tourist destination. Both tourism-related activities and environmental initiatives are acceptable to them. At this time, it is expected that tourism can spur local development and enhance inhabitants' standards of living in the villages of Arjan, Wadi Rayan, and Mar Elias in the Ajloun governorate, as well as Souf, Sakeb, and Khufur Khal in the Jerash governorate. The findings of this study also showed that residents' positive perceptions had a positive impact on their support for the expansion of tourism. Positive attitudes among the populace led to a willingness to support initiatives and advancements in the development of tourism. Additionally, they were willing to take part in campaigns to advertise rural tourism destinations. Numerous earlier research has confirmed these findings about the positive effects of locals' positive perceptions on their support for tourism development, particularly in rural and underdeveloped destinations. (Gursoy et al., 2002; Andereck et al., 2005; Nunkoo and Gursoy, 2012; Muresan et al., 2016). The results of this study show that locals' unfavourable opinions about tourism development have a detrimental impact on their support for tourism development.

In the development and management of the chosen villages of Ajloun and Jerash, local officials should give priority to minimizing the negative effects of tourism on the local community. They should also inform the locals of their plans to do so, in the villages of Arjan, Wadi Rayan, and Mar Elias in the governorate of Ajloun, and Souf, Sakeb, and Khufur Khal in the governorate of Jerash. Residents will be inspired by this awareness to support and engage in the planning of the tourism industry and to help achieve sustainable growth. This knowledge will allay residents' concerns over the negative impacts of tourism on the neighbourhood. Jordanian are very much concerned about their traditional values and tourism development can affect the traditional value of the residents adversely. Today, it's critical to return built settings to the community, but it's also vital to consider how capable they are of organizing and administering their area. The answer to this question cannot be answered generally due to several factors including history, geography, human culture, educational attainment, etc. because of this, the application of proper policies and the progressive implementation of bottom-up upgrading initiatives can urge the neighbourhood to improve its surroundings from a social, economic, and technological standpoint. This is since a community's involvement in preserving and developing its environment will improve the area's development and conservation efforts, as well as the fact that a community's sustained living history will build its sense of community and social cohesion.

Limitations and Future Research

Although there are several limitations to this study, those constraints may affect how the results are understood. The first limitation relates to the study's context (Jordan), which restricts the generalizability of the findings to rural sites in other countries and should be taken into consideration for purposes of future research. Therefore, it is impossible to assert that the findings are applicable outside of specific circumstances. The location of this study is a rural community where the effects of tourism growth have not yet been completely felt by the locals. As a result, their judgments of the benefits and drawbacks of tourism are influenced by their general knowledge, the current projects they have in mind, and perhaps even past experiences with tourism development in other places. However, as locals in the villages of Arjan, Wadi Rayan, and Mar Elias in the governorate of Ajloun and Souf, Sakeb, and Khufur Khal in the governorate of Jerash experience the growth of tourism first-hand, these opinions may alter. The sampled inhabitants' ignorance about tourism development is thus one of the major weaknesses of this study that could bias the findings. Additional research might be done to attempt to quantify the advantages of tourism growth that residents are anticipating to better understand how residents' perspectives vary over time. This limitation adds value as a base for future research.

Finally, the distances between communities in Ajloun and Jerash differ. Respondents were chosen from settlements that were typically 6 to 10 kilometres apart from historical and natural landmarks. Therefore, depending on their proximity to the tourist destination, locals' perceptions may vary. When evaluating the results, it is important to keep in mind that the present study may have further limitations due to the absence of a distance control factor. Future research should try to account for the distance from the tourist destination.

Author Contributions: Conceptualization, N.K. and R.R.; methodology, N.K. and R.R.; software, N.K. and M.B.; validation, A.M. and M.S.; formal analysis, N.K. and R.R.; investigation, A.M. and M.S..; data curation, A.M. and M.B..; writing - original draft preparation, N.K. and R.R.; writing - review and editing, M.S. and A.M.; visualization, N.K. and M.S.; supervision, A.M.; project administration, M.S. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Abdollahzadeh, G., & Sharifzadeh, A. (2014). Rural residents' perceptions toward tourism development: A study from Iran. *International Journal of Tourism Research*, *16*(2), 101–113. https://doi.org/10.1002/jtr

Afthanorhan, A., Awang, Z., & Fazella, S. (2017). Perception of tourism impact and support tourism development in Terengganu, Malaysia. *Social Sciences*, *6*(3). https://doi.org/10.3390/socsci6030106

Al Haija, A.A. (2011). Jordan: Tourism and conflict with local communities. *Habitat International*, *35*(1), 93–100. https://doi.org/10.1016/j.habitatint.2010.04.002

Alrwajfah, M.M., Almeida-García, F., & Cortés-Macías, R. (2019). Residents' perceptions and satisfaction toward tourism development: A case study of Petra region, Jordan. *Sustainability (Switzerland)*, *11*(7). https://doi.org/10.3390/su11071907

Andereck, K.L., Valentine, K.M., Knopf, R.C., & Vogt, C.A. (2005). Residents' perceptions of community tourism impacts. *Annals of Tourism Research*, *32*(4), 1056–1076. https://doi.org/10.1016/j.annals.2005.03.001

Aref, F., & Redzuan, M. (2009). Community Leaders' Perceptions toward Tourism Impacts and Level of Building Community Capacity in Tourism Development. *Journal of Sustainable Development*, *2*(3), 208–213. https://doi.org/10.5539/jsd.v2n3p208

Bachleitner, R., & Zins, A.H. (1999). Cultural tourism in rural comunities: The residents' perspective. *Journal of Business Research*, *44*(3), 199–209. https://doi.org/10.1016/S0148-2963(97)00201-4

Bernardin, H.J., Alvares, K.M., & Cranny, C.J. (1976). A recomparison of behavioral expectation scales to summated scales. *Journal of Applied Psychology*, *61*(5), 564–570. https://doi.org/10.1037/0021-9010.61.5.564

Boonsiritomachai, W., & Phonthanukitithaworn, C. (2019). Residents' Support for Sports Events Tourism Development in Beach City: The Role of Community's Participation and Tourism Impacts. *SAGE Open*, *9*(2), 1–15. https://doi.org/10.1177/2158244019843417

Carbon, C.C. (2014). Understanding human perception by human-made illusions. *Frontiers in Human Neuroscience*, *8*. https://doi.org/https://doi.org/10.3389/fnhum.2014.00566

Chang, K.G., Chien, H., Cheng, H., & Chen, H. (2018). The Impacts of Tourism Development in Rural Indigenous Destinations : An Investigation of the Local Residents ' Perception Using Choice Modeling. *Sustainability*, *10*(12). https://doi.org/10.3390/su10124766

Chen, J.S. (2000). An Investigation of Urban Residents' Loyalty to Tourism. *Journal of Hospitality and Tourism Research*, *24*(1), 5–19. https://doi.org/10.1177/109634800002400101

Fandi, A.S. (2015). The Role of the Local Community in Sustainable Tourism Development. Case Study (Governorate-Ajloun / Jordan). *Research on Humanities and Social Sciences*, *5*(8), 42–49.

Gao, J., & Wu, B. (2017). Revitalizing traditional villages through rural tourism: A case study of Yuanjia Village, Shaanxi Province, China. *Tourism Management*, *63*, 223–233. https://doi.org/10.1016/j.tourman.2017.04.003

Green, H., Hunter, C., & Moore, B. (1990). Assessing the environmental impact of tourism development. Use of the Delphi technique. *Tourism Management*, *11*(2), 111–120. https://doi.org/10.1016/0261-5177(90)90026-6

Gursoy, D., Jurowski, C., & Uysal, M. (2002). Resident attitudes: A structural modeling approach. *Annals of Tourism Research*, *29*(1), 79–105.

Gursoy, D., Ouyang, Z., Nunkoo, R., & Wei, W. (2019). Residents' impact perceptions of and attitudes towards tourism development: a meta-analysis. *Journal of Hospitality Marketing and Management*, *28*(3), 306–333. https://doi.org/10.1080/19368623.2018.1516589

Halim, M.A., Mawa, M.J., Deb, S.K., & Nafi, S.M. (2022). Local Community Perception About Tourism Impact and Community Support for Future Tourism Development: a Study on Sylhet, Bangladesh. *Geojournal of Tourism and Geosites*, *44*(4), 1260–1270. https://doi.org/10.30892/gtg.44410-942

Harrill, R. (2004). Residents ' Attitudes toward Tourism Development : A Literature Review with Implications for tourism planning. *Journal of Planning Literature*, *18*(3), 251–266.

Ibanescu, B.C., Stoleriu, O.M., Munteanu, A., & Iațu, C. (2018). The impact of tourism on sustainable development of rural areas: Evidence from Romania. *Sustainability (Switzerland)*, *10*(10), 1–19. https://doi.org/10.3390/su10103529

Joo, D., Cho, H., & Woosnam, K.M. (2019). Exploring tourists' perceptions of tourism impacts. *Tourism Management Perspectives*, *31*, 231–235. https://doi.org/10.1016/j.tmp.2019.05.008

Jurowski, C., & Gursoy, D. (2004). Distance effects on residents' attitudes toward tourism. *Annals of Tourism Research*, *31*(2), 296–312. https://doi.org/10.1016/j.annals.2003.12.005

Kaiser, H.F. (1974). An index of factorial simplicity. *Psychometrika*, *39*(1), 31–36. https://doi.org/10.1007/BF02291575

Kim, S., & Butler, G. (2015). Local community perspectives towards dark tourism development: The case of Snowtown, South Australia. *Journal of Tourism and Cultural Change*, *13*(1), 78–89. https://doi.org/10.1080/14766825.2014.918621

Ko, D.W., & Stewart, W.P. (2002). A structural equation model of residents' attitudes for tourism development. *Tourism Management*, *23*(5), 521–530. https://doi.org/10.1016/S0261-5177(02)00006-7

Krejcie, R.V., & Morgan, D.W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, *30*(3), 607–610. https://doi.org/10.1177/001316447003000308

Látková, P., & Vogt, C.A. (2012). Residents' attitudes toward existing and future tourism development in rural communities. *Journal of Travel Research*, *51*(1), 50–67. https://doi.org/10.1177/0047287510394193

Lee, T.H. (2013). Influence analysis of community resident support for sustainable tourism development. *Tourism Management, 34*, 37–46. https://doi.org/10.1016/j.tourman.2012.03.007

Liu, C., Dou, X., Li, J., & Cai, L.A. (2020). Analyzing government role in rural tourism development: An empirical investigation from China. *Journal of Rural Studies*, *79*(October 2019), 177–188. https://doi.org/10.1016/j.jrurstud.2020.08.046

Maruyama, N.U., Ribeiro, M.A., & Woosnam, K.M. (2023). The effect of minority residents' attitudes and emotional solidarity on ethnic neighborhood tourism: a multigroup invariance analysis. *Journal of Sustainable Tourism*, *31*(2), 383–405. https://doi.org/10.1080/09669582.2020.1849238

Ministry of Interior The Hashemite of Jordan. (2022). *Governorates and Sectors*. https://moi.gov.jo/EN/ListDetails/Governorates_and_Sectors/57/1

MoTA. (2021). *Jordan Ministry of Tourism and Antiquities*. Jordan Ministry of Tourism and Antiquities. https://www.mota.gov.jo/AR/List/2021_الاحصائيات_السياحية_لعام

Muresan, I.C., Oroian, C.F., Harun, R., Arion, F.H., Porutiu, A., Chiciudean, G.O., Todea, A., & Lile, R. (2016). Local residents' attitude toward sustainable rural tourism development. *Sustainability*, *8*(1), 100. https://doi.org/10.3390/su8010100

Nunkoo, R., & Gursoy, D. (2012). Resident's Support for Tourism An Identity Perspective. *Annals of Tourism Research*, *39*(1), 243–268. https://doi.org/10.1016/j.annals.2011.05.006

Nunkoo, R., & So, K.K.F. (2016). Residents' Support for Tourism: Testing Alternative Structural Models. *Journal of Travel Research*, *55*(7), 847–861. https://doi.org/10.1177/0047287515592972

Obradović, S., & Stojanović, V. (2021). Measuring residents' attitude toward sustainable tourism development: a case study of the Gradac River gorge, Valjevo (Serbia). *Tourism Recreation Research*, *0*(0), 1–13. https://doi.org/10.1080/02508281.2020.1870073

Papadopoulou, N.M., Ribeiro, M.A., & Prayag, G. (2023). Psychological Determinants of Tourist Satisfaction and Destination Loyalty: The Influence of Perceived Overcrowding and Overtourism. *Journal of Travel Research*, *62*(3), 644–662. https://doi.org/10.1177/00472875221089049

Pearce, P.L., & Stringer, P.F. (1991). Psychology and tourism. *Annals of Tourism Research*, *18*(1), 136–154. https://doi.org/10.1016/0160-7383(91)90044-C

Pekerşen, Y., & Kaplan, M. (2022). The perceptions of a local community on tourism development: The case of Akyaka as a Cittaslow. *Community Development*, *2*(54), 292–311. https://doi.org/https://doi.org/10.1080/15575330.2022.2071956

Progano, R.N. (2018). Residents' Perceptions of Socio-Economic Impacts on Pilgrimage Trails: How does the community perceive pilgrimage tourism. *Asian Journal of Tourism Research*, *3*(2). https://doi.org/10.12982/ajtr.2018.0014

Ramkissoon, H. (2020). Perceived social impacts of tourism and quality-of-life: a new conceptual model. *Journal of Sustainable Tourism*, 1–17. https://doi.org/10.1080/09669582.2020.1858091

Rasoolimanesh, S.M., & Jaafar, M. (2016). Residents' perception toward tourism development: A pre-development perspective. *Journal of Place Management and Development*, *9*(1). https://doi.org/http://dx.doi.org/10.1108/JPMD-10-2015-0045

Ribeiro, M.A., Pinto, P., Silva, J.A., & Woosnam, K.M. (2017). Residents' attitudes and the adoption of pro-tourism behaviours: The case of developing island countries. *Tourism Management*, *61*, 523–537. https://doi.org/10.1016/j.tourman.2017.03.004

Ross, G.F. (1992). Resident perceptions of the impact of tourism on an Australian city. *Journal of Travel Research*, *30*(3), 13–17. https://doi.org/10.1177/004728759203000302

Sandaruwani, J.A., & Gnanapala, A. (2016). Socio-economic Impacts of Tourism Development and Their Implications on Local Communities. *International Journal of Economics and Business Administration*, *2*(5), 59–67.

Saner, R., Yiu, L., & Filadoro, M. (2019). Tourism development in least developed countries: Challenges and opportunities. *Sustainable Tourism: Breakthroughs in Research and Practice*, 94–120. https://doi.org/10.4018/978-1-4666-8606-9.ch013

Sarstedt, M., Ringle, C.M., & Hair, J.F. (2021). Partial least squares structural equation modeling. In *Handbook of Market Research*. https://doi.org/10.1007/978-3-319-05542-8

Saxena, G., Clark, G., Oliver, T., & Ilbery, B. (2007). Conceptualizing integrated rural tourism. *Tourism Geographies*, *9*(4), 347–370. https://doi.org/10.1080/14616680701647527

Scarlett, H.G. (2021). Tourism recovery and the economic impact: A panel assessment. *Research in Globalization*, *3*, 100044. https://doi.org/10.1016/j.resglo.2021.100044

Sharma, B., & Dyer, P. (2012). A longitudinal study of the residents ' perceptions of tourism impacts using data from the sunshine coast Australia. *PASOS. Revista de Turismo y Patrimonio Cultural*, *10*(2), 37–46.

Sharpley, R. (2014). Host perceptions of tourism: A review of the research. *Tourism Management*, *42*, 37–49. https://doi.org/10.1016/j.tourman.2013.10.007

Sirakaya, E., Teye, V., & Sönmez, S. (2002). Understanding residents' support for tourism development in the central region of Ghana. *Journal of Travel Research*, *41*(1), 57–67. https://doi.org/10.1177/0047287502041001007

Stylidis, D., Biran, A., Sit, J., & Szivas, E.M. (2014). Residents' support for tourism development: The role of residents' place image and perceived tourism impacts. *Tourism Management*, *45*, 260–274. https://doi.org/10.1016/j.tourman.2014.05.006

Tosun, C. (2002). Host perceptions of impacts: A comparative tourism study. *Annals of Tourism Research*, *29*(1), 231–253.

Tsaur, S.H., & Wang, C.H. (2007). The evaluation of sustainable tourism development by Analytic Hierarchy Process and fuzzy set theory: An empirical study on the green Island in Taiwan. *Asia Pacific Journal of Tourism Research*, *12*(2), 127–145. https://doi.org/10.1080/10941660701243356

Upchurch, R.S., & Teivane, U. (2000). Resident perceptions of tourism development in Riga, Latvia. *Tourism Management*, *21*(5), 499–507. https://doi.org/10.1016/S0261-5177(99)00104-1

Vujko, A., Zečević-Stanojević, O., Zečević, L., Nedeljković, D., & Zečević, M. (2021). Rural residents' perceptions on economic impacts of cultural and promotional aspects of tourism. *Ekonomika Poljoprivrede*, *68*(1), 155–172. https://doi.org/10.5937/ekopolj2101155v

Wang, M., Jiang, J., Xu, S., & Guo, Y. (2021). Community participation and residents' support for tourism development in ancient villages: The mediating role of perceptions of conflicts in the tourism community. *Sustainability (Switzerland)*, *13*(5), 1–16. https://doi.org/10.3390/su13052455

Wang, S., & Xu, H. (2015). Influence of place-based senses of distinctiveness, continuity, self-esteem and self-efficacy on residents' attitudes toward tourism. *Tourism Management*, *47*, 241–250. https://doi.org/10.1016/j.tourman.2014.10.007

Article history: Received: 15.05.2023 Revised: 12.07.2023 Accepted: 25.09.2023 Available online: 19.10.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1240-1252
DOI 10.30892/gtg.50404-1122

CRITICAL ELEMENTS OF DISABILITY MODELS AS DETERMINANTS OF TRAVEL INTENTION OF PEOPLE WITH DISABILITIES TOWARDS NATURAL AND CULTURAL DESTINATIONS

Adolfo Ricardo GUAMÁN*
The International Doctoral School, Universidad Rey Juan Carlos, Madrid, Spain; School of Agricultural Sciences and Natural Resources, Universidad Técnica de Cotopaxi, Latacunga, Ecuador, e-mail: ar.guaman.2018@alumnos.urjc.es

Cristina FIGUEROA
The International Doctoral School, Universidad Rey Juan Carlos, Madrid, Spain, e-mail: cristina.figueroa@urjc.es

Fabricio GUAMÁN-GUEVARA
School of Geography and Sustainable Development, University of St Andrews, UK;
Environmental and Academic Advisor, Ambato, Ecuador, e-mail: fabricio.guaman.guevara@gmail.com

José Luis NÚÑEZ
School of Agricultural Sciences and Natural Resources, Universidad Técnica de Cotopaxi, La Maná, Ecuador, e-mail: jose.nunez@utc.edu.ec

Citation: Guamán, A.R., Figueroa, C., Guamán-Guevara, F., & Núñez, J.L. (2023). CRITICAL ELEMENTS OF DISABILITY MODELS AS DETERMINANTS OF TRAVEL INTENTION OF PEOPLE WITH DISABILITIES TOWARDS NATURAL AND CULTURAL DESTINATIONS. *GeoJournal of Tourism and Geosites*, 50(4), 1240–1252. https://doi.org/10.30892/gtg.50404-1122

Abstract: The present empirical study aims to determine the key factors influencing the travel intention of persons with disabilities who live across the Tungurahua Province, Ecuador. A cross-sectional survey was conducted between September 2019 and mid-March 2020, and collected 473 valid questionnaires containing critical components of the medical and social models of disability. Collected data were quantitatively analysed with multiple regression analysis. Results showed that some crucial elements of the social model of disability (i.e., socio-demographic features and destination quality dimensions) and an element of the medical model of disability (i.e., dependency or need of other persons) significantly affect the travel intentions of persons with disabilities ($p<0.001$). Findings allowed to conceptualise a new theoretical framework to potentially address and solve accessible and inclusive issues of persons with disabilities from Tungurahua Province-Ecuador and other international nations with similar natural and cultural attractions.

Key words: Accessible tourism; Tungurahua-Ecuador; tourism demand; travel intention; persons with disabilities

* * * * * *

INTRODUCTION

Accessible Tourism has striven to enable persons with disabilities (hereafter PWDS) to pass from being considered a small group of marginalised and excluded persons with limited participation in tourism activity (Darcy et al., 2020; Kastenholz et al., 2015; Özcan et al., 2021, Wall-Reinius et al., 2023) to become a potential market segment for the tourism industry (Domínguez et al., 2013; Gillovic and McIntosh, 2020). However, despite these attempts to engage more disabled persons in leisure activities, disability studies indicate that the participation and inclusion rates of PWDS in travel and tourism activities are relatively low, mainly because many destinations have shown not to be well-suited to provide high-quality tourism services and infrastructure to tourists with special access requirements (Pasca et al., 2022; Rodriguez-Sanchez et al., 2014).

Certainly, these accessibility-related barriers that have partially disrupted the development of accessible tourism for PWDS have progressively attracted the attention of more tourism academics, researchers, and stakeholders worldwide. As a consequence of this increasing interest, a large number of studies from demand and supply approaches have been conducted to better understand and address the needs and preferences as well as the key barriers and challenges regularly faced by PWDS in the travel and tourism-related activities (Aguilar-Carrasco et al., 2023; Darcy et al., 2020; Wall-Reinius et al., 2023). Thus, valuable findings from previous studies have promoted improvements in critical elements such as information, promotion of accessible tourism destinations, transportation, infrastructure, training for tourism-related human resources, accommodation, accessible tourist attractions, accessible services and products, and marketing strategies (Kamyabi and Alipour, 2022; Lee et al., 2012; McKercher and Darcy, 2018; Prasongthan, 2018), mainly in developed countries.

By analyzing those tourism accessibility-related studies, it can be seen that, to some extent, most of these disability studies have adopted the application of some of the theoretical foundations and dimensions of different models of disability, mainly from the medical and social models (Rubio-Escuderos et al., 2021; Tomej and Duedahl, 2023; Załuska et al., 2022). Despite these two models of disability are conceptually antagonistic due to their opposite approaches and assumptions (Buhalis and Darcy, 2011; Gillovic and McIntosh, 2020; Nicolaisen et al., 2012); over the last five decades, the medical and social models of disability have been influential in the field of disability studies, becoming the basis for

* Corresponding author

various proposed disability models which assume a more highly complex interplay between personal and environmental factors (Adam et al., 2017; Eusébio et al., 2023; Zajadacz, 2015). Undoubtedly, the independent or collective application of both model dimensions moderately filled critical gaps in knowledge regarding underlying factors limiting and promoting the participation and inclusion of PWDS in tourism markets, such as socio-demographic features (e.g., age, income, and education), tourist's behaviour, travel motivation, destination quality, tourist satisfaction, travel intention, and tourist loyalty (Moura et al., 2022). However, to the best of the authors' knowledge, comprehensive knowledge of the barriers hindering PWDS from gaining memorable tourism experiences is still required, especially from the perspective of disabled persons travelling/desiring to travel towards natural settings (Godtman Kling and Ioannides, 2019; Załuska et al., 2022), particularly located in economically developing nations. The relevance of studying these countries lies in most nations embrace invaluable natural and cultural resources, but however due mainly to economic instability, political and policies constraints, and low market access (Paredes et al., 2021; Pulido-Fernández et al., 2014), the components of accessibility and mobility-related services/infrastructures are mostly deficient or inexistent (Rotem-Mindali and Shemesh, 2013; Tite-Cunalata et al., 2021). In addition, in these geographically disadvantaged countries, the theoretical and empirical accessible tourism research has been poorly developed, hindering the comparability and extrapolation of data obtained in developed countries through the application of models and associated dimensions/variables. Accordingly, outcomes and experiences from previous accessibility studies may not be suitable to consistently explain the limited participation and inclusion of PWDS in leisure tourism activities in other geographical regions, particularly in Latin American nations that have formally signed and ratified the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), including Ecuador. Therefore, given that more empirically-based studies are still required to examine the actual accessible development process of disabled people segments living in a specific region (Adam et al., 2017), the present study addresses the deficiency of empirical data by applying elemental disability models (i.e., medical and social models) and associated variables to define the reality of PWDS and foster their permanent inclusion and participation in travel and tourism activities in Ecuador. From this perspective, general research questions guiding this study have been raised:

(1) Which elemental disability model can be adjusted to the reality of PWDS living in the central region of Ecuador?

(2) Do people with diverse disabilities have the intention to travel towards natural and cultural destinations, and what critical factors inhibit such travel intention and participation?

Additionally, the present research is conducted from a PWDs' perspective, allowing us to fill the critical gaps in knowledge regarding other potential factors affecting the travel intention of PWDS and related demand for accessible tourism consumption (Nicolaisen et al., 2012), particularly in natural and cultural destinations where research is scarce, specifically in the Tungurahua Province-Ecuador where accessible and inclusive issues, in most cases, may have been poorly studied or overlooked by authorities, academics, practitioners, and other stakeholders (Paredes et al., 2021).

Consequently, the aims of the present research are: (1) to determine the critical factors influencing the travel intention of persons with varying disabilities living across the Tungurahua Province, Ecuador; (2) to develop a multidimensional empirically-based model to foster a permanent inclusion and participation of PWDS in travel and tourism activities in central Ecuador. Finally, findings from the current research may provide essential information to conceptualise an empirically-based framework to improve current regional travel and tourism services and facilities, ultimately enhancing the competitiveness levels of Tungurahua Province-Ecuador and other regional and international destinations with similar natural and cultural attractions.

LITERATURE REVIEW
THEORETICAL FRAMEWORK

This section comprises the concept of persons with disabilities, followed by a description of the medical and social models of disability and associated barriers and exclusionary practices discussed in existing literature on travel and tourism activities. The latter information helped develop a conceptual framework that works as the foundation for the present research.

Persons with disabilities (PWDS)

The concept of persons with disabilities has continuously evolved and varied significantly depending on purposes and national legislation between countries (UN, 2018). However, the most commonly accepted concept worldwide is defined in Article 1 of the United Nations Convention on the Rights of Persons with Disabilities (CRPD). This article states that persons with disabilities have long-term physical, mental, intellectual, or sensory impairments (i.e., vision or hearing) and interact with various barriers (e.g., attitudinal and environmental drivers). These barriers may hinder their full and effective participation in society on an equal basis with others (World Health Organization and World Bank [WHO and WB], 2011).

In general, the CRPD works explicitly as a human rights instrument with a social development approach, providing legally binding standards and concepts linked to a wide range of civil, social, political, economic, and cultural rights and fundamental freedoms applicable to persons with disabilities. Additionally, the Convention identifies areas to be improved and adapted for PWDS to effectively exert and protect their rights (United Nations-Habitat [UN-Habitat], 2014).

Although the rights of PWDS have been supported and ratified by a large number of countries across the world (UN-Habitat, 2014), inequalities experienced by persons with permanent and temporary disabilities are still persistent, rendering them more susceptible to experiencing multiple-dimensional disadvantages that compound their poverty, deprivation, and exclusion conditions. These negative scenarios may reduce their chances of fulfilling most 2030 Sustainable Development Goals (SDGs) and other internationally agreed development goals (UN, 2019; United Nations World Tourism Organization [UNWTO], 2016). On the other hand, the conceptualisation of PWDS assumes an exclusivity for ~16% of the global adult population aged 18 and older, mostly living in urban areas of developing countries and having long-term disabilities derived mainly from health conditions (e.g., genetic disorders) (UN, 2018; WHO and WB, 2011). However, this generality excludes those individuals experiencing short- and mid-term disabilities and movement limitations. The latter group acquires their temporary incapacity or physical restriction at some point in their lives, especially in prevalence with ageing, ill-health, pregnancy, or as a consequence of accidents (i.e., a broken leg). Further, parents with children with disabilities, parents with young children, and people walking with a pram are also included in this group (UN-Habitat, 2014).

The medical model of disability in travel and tourism activities

Early 50's, Talcott Parsons first released the medical model of disability (Parsons,1951), which viewed the disability as a personal tragedy or a medical problem that inevitably requires permanent help and care from family or caregivers; consequently, it needed to be fixed or cured to fit into society (Carlson, 2010; Thomas and Woods, 2003). Accordingly, this model placed the responsibility for disability on the individual and aimed to provide medical interventions and treatments as a means of minimising their impairments and limitations (Shen et al., 2023). Thus, these medical improvements had the potential to enhance PWDs' health and mobility, increasing their probability of inclusion and participation in many aspects of life (Haegele and Hodge, 2016), including travel and tourism activities. However, this model failed because it focused mainly on the type or magnitude of disability rather than addressing other society-related factors that contribute significantly more to the marginalization and exclusion of PWDS (Darcy and Buhalis, 2011). Accordingly, subsequent disability studies provide alternative perspectives on understanding disability as a social construct, such as the social model of disability.

The social model of disability in travel and tourism activities

A social perspective of disability was first developed in the 1960s and 1970s by disability rights activists; however, Mike Oliver introduced the concept of the social model of disability in the early 1980s (Lawson and Beckett, 2021), since then, it has been considered as a theoretical framework that emerged as a response to the dominant medical model of disability (Kamyabi and Alipour, 2022). Importantly, the social model of disability has offered a paradigm shift in understanding disability by recognizing the influence of environmental and social drivers in creating barriers and exclusionary practices that constrain the participation and full inclusion of PWDS in various aspects of their life, including education, employment, health care, transportation, social interactions, leisure, travel and tourism. These barriers are associated with attitudes, communication, policies, organization, and physical environments. Thus, for instance, physical barriers (i.e., inaccessible buildings and housing/infrastructure, transportation systems) or attitudinal barriers (i.e., discrimination and stigma) can prevent PWDS from experiencing enhanced functioning, health and well-being (Darcy and Buhalis, 2011). Across the travel and tourism sector as well as other social life activities, this model highlights the need for severe societal changes to remove these barriers (Shen et al., 2023). Thus, recent research in the travel and tourism field that has applied some dimensions of the social model of disability has helped improve our understanding of disability by identifying critical elements that hinder the provision of equal opportunities, participation, inclusion and rights for disabled individuals (Zajadacz, 2015, Kamyabi and Alipour, 2022). Some of these barriers and exclusionary practices discussed in existing literature are: socio-economic and demographic variables, accessibility and mobility, accessibility and transportation, accessibility and information, tourism products and services, discrimination and travel motivation and intentions. These barriers will be explained down below.

1. **Socio-economic and demographic variables**

Ageing reduces the possibility of participation of PWDS in outdoor activities, including trips for work and leisure (Corran et al., 2018). For instance, older tourists are more likely to experience mobility limitations, more comfort and safety requirements, limited income, and lack of social support compared to other population segments, inevitably affecting their decision-making and planning process (Briesner, 2022). As a result of age-related disadvantages, PWDs' travel behaviour changes drastically; thus, older adults with disabilities are more likely to participate in domestic travel and shorter trips rather than travel internationally or engage in adventure tourism activities (Noh and Joh, 2012).

Gender has been recognised as one of the primary predictors of travel difficulties, mainly in advanced-age women rather than men, indicating that mobility opportunities and limitations are unequally experienced in society, resulting in a dramatic impact on medical, family, and social activities of PWDS (Pourhashem et al., 2019). Generally, gender is associated with other parameters limiting people's mobility, such as ageing, deficient health status, low socio-economic status, lack of access to transport resources, and lack of motivation (Özcan et al., 2021). However, women are likely to be more concerned about the significant differences in accessibility, safety and security services provided (Che Had et al., 2023).

Limited income and increasing prices of products and services can significantly affect travel intention, consequently influencing tourism demand (Fangbin et al., 2022). In addition to these factors, lack of access to trustworthy information, lack of funds, and previous unpleasant experiences with travel and tourism services and staff may considerably decrease the engagement and participation of diverse PWDS in travel and tourism activities (Bergier et al., 2010; Rodriguez-Sanchez et al., 2014). In addition, McGuckin and Fucci (2018) demonstrated that the income level of PWDS strongly predicts more/less travel, higher/lower daily travel frequencies, and engagement level in recreational activities.

2. Accessibility and Mobility

Few studies have revealed a widespread lack of environmental accessibility and mobility for persons with permanent and temporary disabilities, mainly in public buildings and spaces. These physical barriers condition their autonomy, quality of life, participation, and inclusion in diverse social activities (UN-Habitat, 2014), including entertainment and leisure activities (Vogt et al., 2022). In tourism, these constraints negatively affect PWDs' expectations and intention to travel towards specific destinations (Sarmah et al., 2022). In addition, given that PWDs' age, type of disability, and health issues can also affect their displacement, some mobility-challenged travellers require another person (relative or caregiver) to assist them whilst travelling (Özcan et al., 2021). This implies that any persistent accessibility and mobility issue in destinations may have the potential to negatively impact on PWDS and companions' travel decision-making and opportunities. Among disabled travellers, visually and physically challenged persons have proved to travel autonomously when suitable environments are provided (McKercher and Darcy, 2018).

3. Accessibility and Transportation

Access to public and private transportation options is vital in motivating or constraining PWDS from participating in travel and tourism activities (Özcan et al., 2021). Furthermore, other associated factors, such as the availability of suitable travel modes, schedules, and distances between tourist origin and destinations, may also constrain PWDs' decision-making and feasibility to travel to specific destinations (Márquez et al., 2019; Shen et al., 2023), consequently reducing tourism demand. Although some transportation problems for PWDS have been identified, there is a lack of empirical data to determine their interplay with other variables, such as socio-demographic features, income, level of functional impairment, automobile ownership, mode of travel (Institute of Medicine [IOM], 2007), particularly in the tourism sector. Furthermore, prior research ascertains that transportation, accommodation, services and facilities are among the most critical factors at destinations to meet the specific needs of each disabled person (Özcan et al., 2021).

4. Accessibility and Information

Although the access and use of digital technologies help break down some barriers, the use of information and communications technologies (ICTs) among PWDS is still considerably lower than among persons without a disability (WHO and WB, 2011). Furthermore, prior research indicates that PWDS regularly struggle with communication and information quality barriers (Lee et al., 2021). Consequently, accessible environments, accessibility-related information and accessible digital information are the most fundamental needs required by PWDS (Buhalis and Michopoulou, 2011; Reindrawati et al., 2022). Thus, in the tourism context, the inexistence or lack of any or all interconnected needs may impede tourists with limited mobility from accessing and sharing information on essential products and services via telephones, the internet, and television (Godtman Kling and Ioannides, 2019; Pagán, 2015). This adverse scenario reduces the possibilities for PWDS to make further decisions, consequently decreasing their travel intentions (Liu et al., 2023).

5. Tourism products and services

Prior studies indicate that the unsuitability of companies and destinations to provide high-quality tourism products and services may constrain PWDs' participation in travel and tourism activities (Bergier et al., 2010; Rodriguez-Sanchez et al., 2014; Załuska et al., 2022). Thereby, destinations and mainstream tourism providers should tend to supply innovative products and services, proving that providers' skills can be fully adapted to the specific demands of each traveller, including preferences, abilities, needs/requirements, and type of disability. It is worth mentioning that the creation or production of any travel service is inseparably associated with its consumption, mainly when businesses and staff have provided an outstanding travel and tourism experience (de Sousa et al., 2023). Therefore, the best performance of any travel and tourism service provider, along with a successful promotion of these tailor-made services, may become fundamental factors in influencing directly tourists' engagement, participation, motivation, satisfaction, and loyalty, particularly people with any disability (Buhalis and Michopoulou, 2011; Cole et al., 2019).

6. Discrimination

This attitudinal barrier has been categorized as part of external environmental barriers and results from the wrong ideas and flawed thinking about PWDS. This factor may be a significant social factor preventing them from participating and enjoying naturally any interaction in society. Thus, stigma, prejudice, and discrimination are still present at the institutional and interpersonal levels due mainly to regulation barriers (i.e., inadequate laws and customs) that consistently marginalise PWDS (Nyanjom et al., 2018). This reality reduces the opportunities for access to services, labour market, education, leisure and tourism market, as well as making friends, consequently impeding them from being active members of society (UN, 2018). Furthermore, discrimination has the potential to negatively affect persons' physical and mental health in the long term and compromise their multiple social relationships (Wofford et al., 2019). Hence, only a deep self-reflection on discriminatory practices that limit PWDs' ability to fully engage in travel experiences, mainly by travel and tourism service providers, may help protect the rights of individuals with disabilities and ensure their equal participation in travel experiences, resulting in a significant increase in tourism demand by this population segment that will positively respond to the creation of inclusive environments that deliver memorable experiences (Lim, 2020), especially in natural environments rather than in urban settings (Groulx et al., 2022).

Travel intentions and motivations

Push and pull factors are approaches widely applied in studies of tourist behaviour (Seyanont, 2017). Thus, push factors are strongly associated with socio-psychological or intrinsic motivations, whereas pull factors are directly related to destination attributes or extrinsic motivations. In addition, these intrinsic and extrinsic motivations can individually or collectively predict behavioural responses, including travel intention (Cerasoli et al., 2014). For instance, having full access to hospitality, travel and tourism products and services along with trained and skilled employees and staff can foster PWDS to experience satisfaction and feel more intrinsically motivated to show further travel intention towards a tourist destination and associated participation in leisure activities (Sarmah et al., 2022). Notably, in nature-based travel settings, it is well-known that PWDS have similar motivations to non-disabled persons, namely escaping from everyday life, enjoying the natural beauty, and spending time with family/friends. However, for many PWDS, direct contact with natural sceneries represents a further travel motivation due to the health and well-being benefits of nature experiences (Chikuta et al., 2017).

The intention to travel may be considered as the perceived likelihood of any person to desire to travel or visit a destination within a specific period (Prasongthan, 2018). Furthermore, this willingness to visit a tourism destination results from a choice and decision process, inducing any person to take particular actions and convert motivation into goal-oriented behaviour. Thus, such intention may significantly explain the relationships between motivation and future travel behaviour (Jang et al., 2009). In tourism markets, empirical research on travel intention for PWDS and older people is still limited. In some cases, prior studies revealed contradictory findings regarding motivation factors significantly influencing the behaviour intention of PWDS (Prasongthan, 2018). For instance, motivations-related dimensions, such as travel constraints and attitudes, may directly affect the travel intention of older tourists and physically disabled persons (Seyanont, 2017). In contrast, other studies show that some sub-dimensions of travel constraints may not significantly affect the travel intention of PWDS (Cole et al., 2019; Lee et al., 2012). Therefore, based upon prior studies, it can be assumed that depending on the dimensions and associated sub-dimensions of motivations assessed within each research, motivation may or not present significant effects on the travel intentions of PWDS. Thereby, more studies regarding factors and associated dimensions that significantly influence the travel intention of PWDS are required to fill this critical knowledge gap, particularly in nature-based settings where limited research has been conducted (UNWTO, 2021).

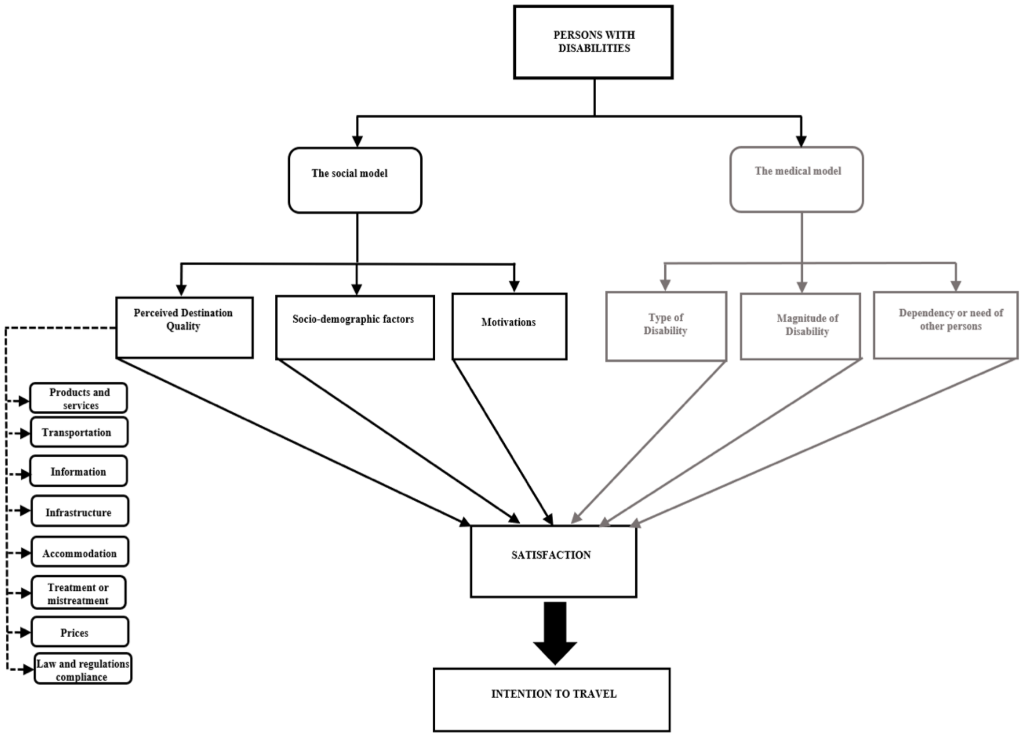


Figure 1. A generalised conceptual framework based upon the medical and social models of disability to explain the intention to travel of persons with disabilities (Source: own elaboration)

Notably, given the importance and presence of the components of the medical and social models of disability in accessible tourism research, this study assumes that a combined conceptual framework between the medical and social models of disability is suitable for explaining the PWDs' intention to travel towards nature and cultural destinations, mainly located in Central Ecuador. In general terms, research literature points out that multiple dimensions of the medical (e.g., type of disability, magnitude of disability, dependency or need of other persons) and the social model of disability (e.g., destination quality, motivations) functioning as independent variables may have the potential to directly influence PWDs' travel intention and subsequent tourist behaviour (dependent variables). In addition, independent variables may also indirectly alter those dependent variables via tourist satisfaction, which may function as a mediating variable in most cases (Kamyabi and Alipour, 2022; Liu et al., 2023). Hence, based upon these concepts and assumptions derived from prior research studies, a conceptual framework has been developed as the foundation for the present research (Figure 1). This initial model will be compared with a model derived from empirical data obtained in this study.

MATERIALS AND METHODS

Study Area

The current study focused on the Tungurahua Province, located within the central Andean region of Ecuador, in north-western South America (1°14'56.7" S 78°37'0.3" W). This particular Andeans region possesses an extraordinary combination of natural and cultural resources distributed across several national parks, nine cities, and top-rated national tourist attractions. Here, religious, cultural, culinary, agrotourism, and adventure tourism activities generate varied job and business opportunities, especially on national holidays (Paredes et al., 2021).

Survey

An on-site survey was conducted between early September 2019 and mid-March 2020 to determine the key factors influencing the travel intention of PWDS across the Tungurahua Province. A total of 473 individuals with a wide range of disabilities participated in the survey by completing a semi-structured questionnaire designed electronically through the Google survey platform. This instrument was used exclusively for native Spanish speakers residing in the Province of Tungurahua at the moment of the study. Prior to beginning the research, all respondents who belonged to organisations of PWDS settled in the province were requested to provide their consent to participate in this research. During the survey, researchers directly managed the data collection via tablet computers, as indicated by a prior face-to-face survey conducted in the Tungurahua Province (Paredes et al., 2021).

Survey instrument

This instrument was adapted from pre-existing items and associated dimensions used in relevant studies on PWDS in developed and developing countries (Adam et al., 2017; Buhalis and Darcy, 2011; Domínguez et al., 2013; Reho et al., 2021; Zajadacz, 2015) and upon other items reflecting local cultural conditions (Guamán-Guevara et al., 2019; Paredes et al., 2021). This questionnaire included multiple elements of the medical and social models of disability placed throughout the three sections of the instrument. For instance, the first section collected socio-demographic information: age, gender, type of disability, level of disability, residence city, education level, monthly income, state bonus holder. The second section was related to travel behaviour: previous visits, frequency of trips towards destinations belonging to Tungurahua Province, type of tourism, travel mode, stay duration, the person making decisions on travel, the need of another person to displacement, past discrimination experiences, and travel intentions. The third section was devoted to collecting crucial information on factors driving PWDs' travel intention towards destinations within the Tungurahua Province.

Table 1. Sample of the survey instrument and description of variables (Source: own elaboration)

Variables	**Definitions**
Socio-demographic features	
Age	<18/19-24/25-35/36-64/>64
Gender	Men/ Women
Type of disability	Physical/Visual/Hearing/Intellectual
Level of disability	1-29/30-49/50-74/>74%
City of residence	Ambato/Baños/Cevallos/Mocha/Patate/Píllaro/Pelileo/Quero/Tisaleo
Education level	Elementary/High School/Undergraduate/Postgraduate
Monthly Income	0-499/500-999/>1000 USD
State bonus holder	Yes/No
Travel behaviour	
Previous visits towards destinations within the Tungurahua Province	Yes/No
Frequency of tourism trips towards destinations within the Tungurahua Province	weekly/monthly/yearly
Type of tourism	Family/Nature-based/Cultural/Gastronomic tourism
Travel mode	Own car/public bus/taxi
Stay duration	Few hours/one night/two days/three or more
The person making decisions on travel	Myself/other persons
The need of another person to displacement	Yes/No
Past discrimination experiences	Yes/No
Travel motivations	Health/Nature beauty/Escape from routine/Rest and relaxation/Cultural events
Travel intentions/desire to travel	Yes/No
Destination quality	
Accessible information	Six questions to answer for each dimension. Responses were designed based upon a 5-point Likert-type scale, ranging from 1 (extremely dissatisfied) to 5 (extremely satisfied).
Infrastructure	
Tourism products and services	
Accommodation	
Treatment towards PWDS	
Trained staff	

Thus, respondents had to answer six questions in each construct related to perceived destination quality, such as information (tourism information on accessibility and information quality) and communication, infrastructure, tourism products and services, transportation, accommodation, treatment towards PWDS, and availability of trained staff. Responses were designed based upon a 5-point Likert-type scale, ranging from 1 (extremely dissatisfied) to 5 (extremely satisfied) (Table 1).

Statistical Analysis

Data collected were quantitatively analysed using the Statistical Package for the Social Sciences (SPSS) software version 25. In addition, Cronbach's alpha test was conducted to determine the reliability of the survey questionnaire items. This reliability test exhibited an overall score of 0.920, indicating high stability or consistency of the items in the questionnaire (Field, 2005; Hair et al., 2014). Subsequently, factors (independent variables) were used for further analysis using a multiple regression method to determine key factors influencing the travel intention of PWDS (dependent variable). A similar statistical analysis was performed in prior research (Álvarez-García et al., 2019) (Figure 2).

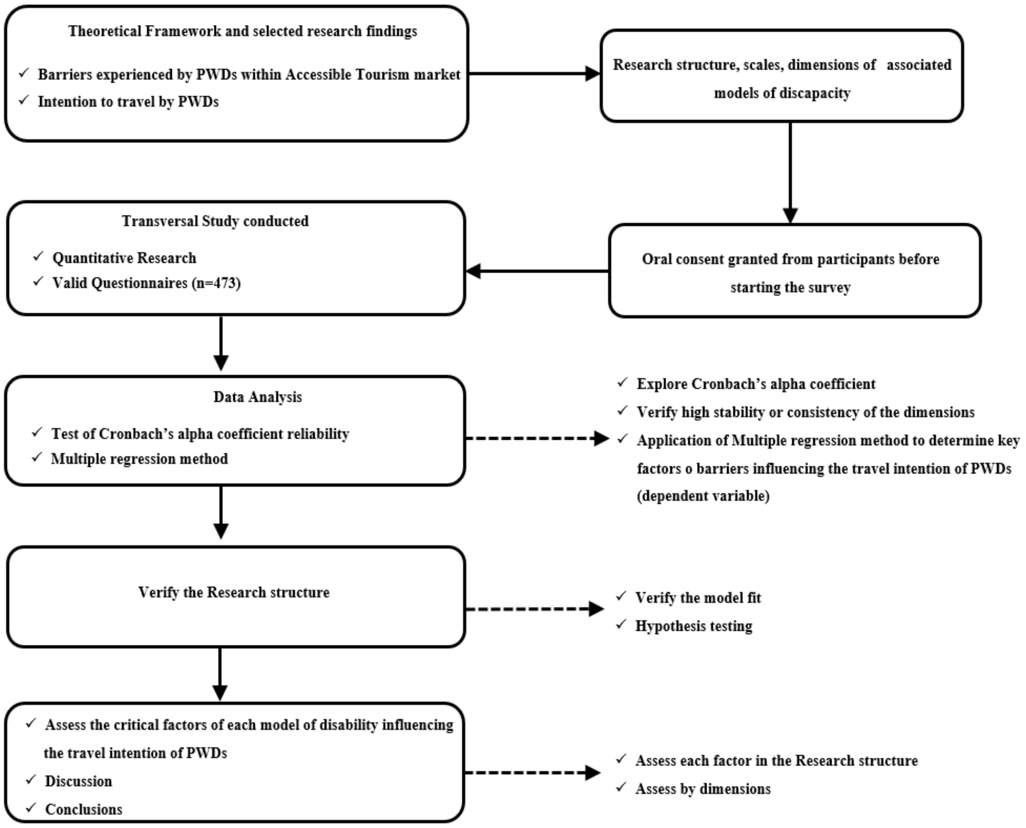


Figure 2. Flowchart of research methodology (Source: own elaboration)

Case study of Tungurahua Province (Ecuador)

Ecuador is a nation that signed on 30 March 2007 and ratified on 3 April 2008 the United Nations Convention on the Rights of Persons with Disabilities (UN, 2008). Thenceforth, governments have taken concrete actions to benefit this vulnerable group, including the addition of 21 articles to the Ecuadorian Constitution that enabled over 10.000 people with disabilities to enter the workforce. In addition, other actions were related to conducting on-site home visits throughout 24 provinces to register and geo-reference nearly 300.000 individuals with diverse disabilities.

Currently, in Ecuador, 470.820 persons with disabilities are registered; however, only 68 901 individuals are part of the active labour market (14.6%), and 206.451 individuals receive one of the state disabilities living allowances (i.e., bonus and pension) (43%). At the regional level, 13 296 individuals are registered as persons with disabilities in the Tungurahua Province. From this amount, males account for 53% of the overall regional population, and females account for the remaining 47%. Furthermore, 1590 individuals are part of the active labour market (11.9%), and 6745 individuals receive one of the state disabilities living allowances (50%) (Consejo Nacional para la Igualdad de Discapacidades [CONADIS], 2021). Despite these affirmative actions and legal framework that helped Ecuador to become a world leader in inclusion practices of people with disabilities in economic and social activities; little progress has been made to provide PWDS with other social alternatives of integration and accessibility such as leisure, travel, and tourism activities that may also enhance their health and quality of life (Guamán-Guevara et al., 2019).

RESULTS

Socio-demographic variables

Most respondents were males (68.6%), followed by females (31.4%). Among all categories of age groups, the majority of participants aged between 25 and 35 years old (45.8%), followed by age groups of 19-24 years (25.3%), 36-64 years (20.5%), under 18 years (5.9%), and over 65 years (2.5%). Furthermore, 42.4 % of the respondents achieved a high school level, followed by 34.6% and 7.8% holding undergraduate and postgraduate degrees, respectively. Regarding the city of residence, most respondents reside in Ambato (64.3%), followed by Pelileo (9.3%) and Baños (7.8%). Most PWDS (53%) possess at least one governmental bonus award as the primary monthly income source. In addition, 71% of the respondents reported having a monthly income below 500 USD.

Disabilities

People with physical disabilities represented 64.6% of all respondents, followed by people with visual (21.1%), intellectual (7.6%), and hearing impairments (6.8%). In addition, gender differences in all types of disability among respondents were found. For instance, males showed twice the prevalence of any disability than females. Furthermore, most participants showed a disability level between 30-49%, followed by people with a disability level between 50-74%.

Tourist behaviour

All respondents have previously travelled across the Tungurahua Province for tourism activities and report multiple accessibility issues at tourist destinations, as discussed in the next section. Furthermore, 84.8% of PWDS travel at least once a week towards any tourist attraction. From this group, most persons stay for a few hours at tourism destinations (78.3%), and the remaining persons stay overnight or longer (21.7%).

Only over half of the respondents (52.3%) indicated that other persons make all travel decisions for them, and the remaining percentage (47.7%) makes their own travel decision. Furthermore, almost 50% of respondents indicated that the bus is the primary means of transportation during tourism activities, followed by their own car (42.6%). The type of tourism mostly done by PWDS is related to family tourism (42.5%), followed by nature-based tourism in rural areas of the province (31.6%), and cultural tourism (25.9%). Most participants (85.4%) indicated a permanent interest in travelling within the Tungurahua Province; however, 69.4% of the respondents needed a companion when travelling. Additionally, PWDS indicated that their main travel motives are linked to escape from routine, seek for nature beauty, and health.

Impact of key factors on intention to travel of PWDS

Outcomes from the analysis indicate that the regression model was statistically significant ($F= 9.672$; $p<0.001$). Multiple determination coefficient (R^2) depicts a group of predictor variables explaining 22.8% of the variance of the independent variable assessed. Regression coefficients values such as Beta (β) and *p* helped identify those significant independent variables displaying the greatest impact on the travel intention of PWDS within the Tungurahua Province (dependent variable). Results revealed that age (β= -0.213; p =0.001), education level (β= 0.172; p =0.001), monthly income (β= 0.201; p =0.001), and the need of another person when travelling (β= 0.191; p =0.001) were the most significant variables influencing the travel intention for PWDS. Concerning the evaluation of satisfaction on perceived destination quality, results indicate that transportation (β= 0.397; p =0.001), products and services quality (β= 0.229; p =0.001), and destination infrastructure (β= 0.171; p =0.001) were the most significant predictors on travel intention of PWDS (Figure 3; Table 2).

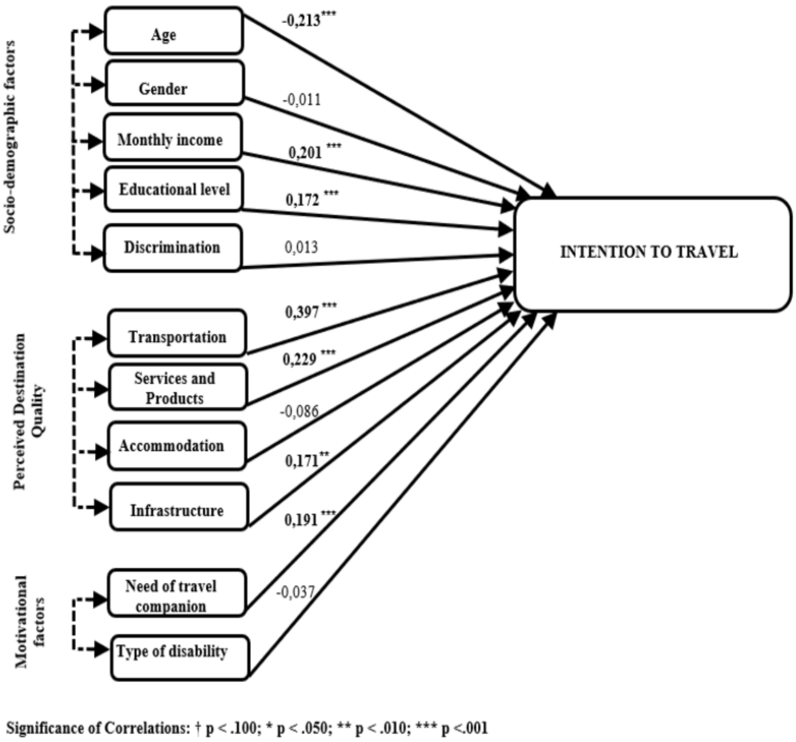


Figure 3. Findings of the research structure.
Regression analysis outcomes (Source: own elaboration)

Table 2. Regression analysis of intention to travel of PWDS (Source: own elaboration)

Model	Unstandardised coefficients		Standardised coefficients	t	Sig.	N
	B	Std. Error	β			
Constant	1.406	0.149		9.438	0.000	
Socio-demographic variables						
Age	-0.085	0.018	-0.213	-4.702	**0.000**	473
Gender	-0.008	0.032	-0.011	-0.267	0.790	473
Monthly income	0.165	0.034	0.201	4.828	**0.000**	473
Education level	0.060	0.016	0.172	3.812	**0.000**	473
Destination quality variables						
Transportation	0.141	0.030	0.397	4.748	**0.000**	473
Services and products quality	0.089	0.022	0.229	4.098	**0.000**	473
Accommodation	-0.031	0.031	-0.086	-0.997	0.319	473
Infrastructure	0.060	0.027	0.171	2.230	**0.026**	473
Discrimination	0.010	0.035	0.013	0.284	0.776	473
Disability-associated restrictions						
Need of travel companion	0.146	0.037	0.191	3.983	**0.000**	473
Type of disability	-0.015	0.017	-0.037	-0.869	0.385	473

ANOVA: R= 0.477; R^2=0.228; Adjusted R^2 =0.204; Std. Error= 0.315; F=9.672; Sig.= 0.001

Conceptual framework from empirical evidence

Based on the outcomes of this empirical study, a new conceptual framework is proposed to determine the primary factors driving the PWDs' intention to travel towards nature and cultural destinations, particularly PWDS distributed across the vast region of the Tungurahua Province in central Ecuador (Figure 4). Remarkably, this model incorporates only those dimensions/variables statistically significant, which mostly belong to a social model rather than a medical model of disability.

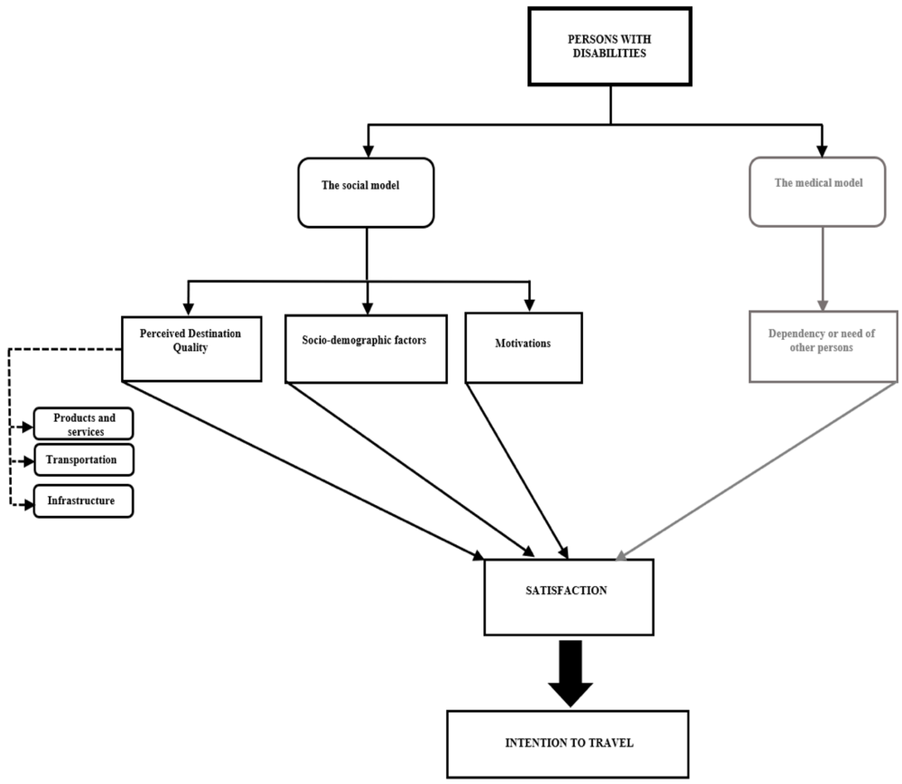


Figure 4. Empirically-based framework explaining the intention to travel of persons with disabilities towards natural and cultural destinations in Central Ecuador, using the social and medical models of disability (Source: own elaboration)

DISCUSSION

Research findings from this empirical study indicate that seven critical elements of the social and medical models of disability function as determinants of the travel intention of people with disabilities towards natural and cultural destinations in Central Ecuador. However, there is a predominance of critical elements of the social model (6 factors) over the medical model (1 factor) of disability. For the social model, sociodemographic factors (e.g., age, monthly income, and education level) and destination quality variables (e.g., transportation, services and products quality, and infrastructure) were statistically significant. Regarding the medical model, only the need of a travel companion was significant. These findings are aligned with previous studies showing that these barriers regularly impede PWDS from actively participating in travel and tourism activities (Devile and Kastenholz, 2018; Devile et al., 2023; Kusufa et al., 2022). These components are discussed below.

For the case of the PWDS from the Tungurahua Province, findings indicate that sociodemographic factors, such as income (>500 USD), age, and education level can significantly encourage or constrain the travel intention and subsequent engagement and participation of PWDS in regional travel and tourism activities. Thus, specifically for the age, the observed negative coefficient sign (β= -0.213; p =0.001) is directly linked to a decreased probability of older PWDS to travel (e.g., Briesner, 2022; Corran et al., 2018). For the income (β= 0.201; p =0.001) and education level (β= 0.172; p =0.001), the coefficients indicate a direct positive relationship between these factors and the intention to travel of PWDS.

These findings are partially aligned with some studies found in accessible tourism literature, where older people with greater socio-economic status and higher educational levels are more likely to increase their mobility (Che Had et al., 2023; Noh and Joh, 2012). Notably, literature suggests that income is a good predictor of intention and participation of PWDS in travel and tourism activities (Fangbin et al., 2022; McGuckin and Fucci, 2018). However, this factor interacts typically with other factors, including the increased prices for accessible products and services, untrustworthy information, untrained staff, and previous unpleasant tourism experiences (i.e., discrimination) can negatively impact on PWDs' travel intention and tourist behaviour worldwide (Bergier et al., 2010; Rodriguez-Sanchez et al., 2014). The latter factor was also examined in this study, showing no significant influence on PWDs' travel intention (β= 0.013; p =0.776).

Regarding destination quality variables, findings highlight the significant contribution of transportation to predicting the intention to travel of PWDS. Thus, these findings are aligned with the available literature on the critical role of transportation services in tourism development (Khadaroo and Seetanah, 2007), particularly in one-day cultural tours (Terziyska, 2021). Hence, based upon findings from this research, it is worth mentioning that regardless of the supplier (i.e., private or public), high-quality transportation services for PWDS may help significantly reduce any disability and social participation barrier (Márquez et al., 2019; Özcan et al., 2021; Ralph et al., 2022; Shen et al., 2023). Accordingly, PWDS experiencing better sensations via suitable means of transportation during travel and tourism activities may decide on more extended stays or more frequent travels towards specific destinations all year round or just on holidays. Furthermore, considering that accessible transportation (e.g., buses, taxis, tourism vehicles) involves the interplay of other services (e.g., terminal facilities, well-trained drivers and staff), authorities and other tourism stakeholders should work on awareness-raising programmes and action plans to improve accessibility, connectivity, safety, and security in all accessible transportation services for PWDS, especially in the Tungurahua Province, where current lacking transportation services for PWDS still represents an significant barrier that hinders their freely and comfortable displacements among the nine cities.

Regarding destination infrastructure set for PWDS, analysis of this dimension indicates a significant positive influence on PWDs' travel intention ($\beta = 0.171$; $p = 0.026$). These results coincide with the importance given to improve destination infrastructure, mainly focused on implementing systematically accessible paths with suitable design and refinement of facilities instead of isolated accessible facilities (Buhalis et al., 2005). However, despite the improvements in destination infrastructure in the last decades, isolated accessible facilities are still observed in many destinations worldwide, including the Tungurahua Province (Paredes et al., 2021).

Concerning other factors related to perceived destination quality, such as the quality of accessible tourism services and products, findings revealed a significant positive impact of these predictors on PWDs' travel intentions ($\beta = 0.229$; $p = 0.001$). In this context, findings align with prior studies stating that when PWDS perceive the high quality of destination tourism products and services, it is more likely to increase their intention to travel towards any destination and participate in any tourism activity (de Sousa et al., 2023). On the contrary, missing and unreliable information on products and services offering may prevent PWDS and other people with special access requirements (e.g., older people) from making effective and informed travel decisions (Buhalis et al., 2005; Darcy, 2010; Lim, 2020). Definitely, improvements in all accessible elements found in the present survey may help the regional tourism sector experience more revisits, benefiting the whole tourism industry, whose growth and sustainable profitability rely upon multiple tourists' visits (Sarmah et al., 2022). Thus, as occurred in other locations, these improvements will increase the nature-based tourism activities supply, initially fostering the domestic demand (e.g., satisfied visitors near destinations) and subsequently engaging an international demand (new customers) when hospitality skills and product quality are considerably enhanced.

Development of a new conceptual framework for PWDS

Notably, findings from the current research provide vital information to conceptualise a new empirically-based framework to understand the reality experienced by PWDS and, more importantly, to address accessible and inclusive issues. In addition, this model has been built in function of this study's outcomes that reflect particular needs, preferences, challenges and priorities of PWDS, which in most cases, have been poorly studied or overlooked, impeding them from active participation in travel and tourism activities in nature and cultural destinations located across Central Ecuador. Furthermore, as shown in Figure 2, the model incorporates fewer components than the theoretical model built based upon literature (Figure 1). In this context, all dimensions/variables used for this model entirely relate to a social model rather than a medical model of disability, suggesting that PWDS are perceived themselves as individuals capable of dealing with tourist destinations barriers and highly interested in participating in travel and tourism activities, particularly across the Tungurahua Province. These perceptions about PWDS are similar to those found in a previous study conducted with European tourism operators, where the medical and social models were also applied (Nicolaisen et al., 2012).

Importantly, given the dominance of the components of the social model over the medical model of disability, the preliminary hypothesis is accepted because it suggests the possibility that a combined conceptual framework between the medical and social models may be suitable to explain PWDs' intention to travel towards nature and cultural destinations, mainly located in the Tungurahua Province-Central Ecuador. Finally, this tailor-made conceptual framework may enable all tourism-related stakeholders to advance in implementing strategies and action plans to improve the accessible regional tourism industry, particularly in the Tungurahua Province. However, despite the relevant contributions of the present research, findings are not conclusive and should not be generalised for all sub-segments of PWDS and other developing countries, particularly due to cross-sectional research-related limitations; hence, more empirical studies from other regions within Ecuador and abroad are required to confirm findings from the present research.

CONCLUSIONS

Findings indicate that PWDS are highly motivated to engage and participate in travel and tourism activities within the Tungurahua Province; however, they are still restricted by various accessibility and inclusion barriers, which directly influence their travel intentions and subsequent travel behaviour. Thus, constraining factors such as monthly income, age, education level, and the need of another person to displacement, transportation, quality of accessible products and services, information, and destination infrastructure constituted the most significant determinants of travel intention and participation in tourism activities of PWDS, consequently influencing local and regional tourism demand.

Findings and resulting tailor-made conceptual framework provide valuable information to the limited body of knowledge of accessibility, inclusion, and tourism consumer behaviour, especially in nature-based and cultural tourism settings where the study was carried out. As the present research was conducted in Ecuador just before the beginning of the COVID-19 pandemic, understanding the significant determinants influencing the travel intention of PWDS before the outbreak will help implement action plans and strategies to promote their inclusion in mainstream society activities, particularly in travel and tourism activities during the post-COVID-19 era, in which travel restrictions will decrease, consequently increasing accessible tourism demand. This increased tourism demand will ultimately contribute to economic and social growth whilst mitigating the negative impact of the current crisis caused by the COVID-19 pandemic. For many middle-income countries, such as Ecuador, there is a latent difficulty in generating high-quality data; however, the present research succeeded in collecting valuable data and developing a combined model whose components mostly relate to the traditional social model of disability rather than a medical model of disability. These achievements pave the way to continue with further works on accessibility and inclusion of PWDS and other tourists with varying accessibility requirements.

Finally, these results also have practical implications for other international tourism sector destinations with similar attractions to the Tungurahua Province-Ecuador, which possesses an outstanding combination of natural and cultural resources. Furthermore, addressing problems associated with each determinant evaluated is critical, mainly to achieving the goals of the 2030 Agenda (i.e., SDGs.) and UNCRPD, from which Ecuador is a signatory country.

Author Contributions: Conceptualization, A.R.G., C.F. and F.G.G.; methodology, A.R.G., C.F. and F.G.G.; software, A.R.G., C.F. and F.G.G.; validation, A.R.G., C.F. and F.G.G.; formal analysis A.R.G., C.F. and F.G.G.; investigation, A.R.G., C.F. and F.G.G.; data curation, A.R.G., C.F., F.G.G. and J.L.N.; writing - original draft preparation, A.R.G., C.F. and F.G-G.; writing - review and editing, A.R.G., C.F., F.G.G. and J.L.N.; visualization, A.R.G., C.F., F.G.G. and J.L.N.; supervision, A.R.G., C.F. and F.G.G.; project administration, A.R.G., C.F. and F.G-G.; All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: This work is a contribution to ARG's PhD study programme at the Universidad Rey Juan Carlos, Madrid-Spain. The authors would also like to thank all survey participants who willingly provided their time to contribute invaluable information to this study. Academic institutions had no role in study design, data collection, data analysis, decision to publish, or manuscript preparation.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Adam, I., Kumi-Kyereme, A., & Boakye, K.A. (2017). Leisure motivation of people with physical and visual disabilities in Ghana. *Leisure Studies*, 36(3), 315–328. https://doi.org/10.1080/02614367.2016.1182203

Aguilar-Carrasco, J.M., Gielen, E., Vallés-Planells, M., Galiana, F., & Riutort-Mayol, G. (2023). Assessment of barriers for people with disability to enjoy national parks. *Frontiers in Psychology*, 13, 1058647. https://doi.org/10.3389/fpsyg.2022.1058647

Álvarez-García, J., González-Vázquez, E., Del Río-Rama, M. de la C., & Durán-Sánchez, A. (2019). Quality in customer service and its relationship with satisfaction: An innovation and competitiveness tool in sport and health centers. *International Journal of Environmental Research and Public Health*, 16(3942), 1–17. https://doi.org/10.3390/ijerph16203942

Bergier, B., Bergier, J., & Kubińska, Z. (2010). Environmental determinants of participation in tourism and recreation of people with varying degrees of disability. *Journal of Toxicology and Environmental Health - Part A: Current Issues*, 73(17–18), 1134–1140. https://doi.org/10.1080/15287394.2010.491042

Briesner, I. (2022). Promoting sustainable mobility in tourist destinations: Mobility Center 2.0. In Tsoutsos, T. (Ed.), *Sustainable mobility for island destinations*, 119-128. Springer, Cham.

Buhalis, D., Eichhorn, V., Michopoulou, E., & Miller, G. (2005). Accessibility market and stakeholder analysis. In *One-Stop-Shop for Accessible Tourism in Europe (OSSATE)*.

Buhalis, D., & Darcy, S. (2011). *Accessible Tourism: Concepts and Issues*, Channel View Publications, Bristol, UK.

Buhalis, D., & Michopoulou, E. (2011). Information-enabled tourism destination marketing: Addressing the accessibility market. *Current Issues in Tourism*, 14(2), 145–168. https://doi.org/10.1080/13683501003653361

Carlson, L. (2010). *The faces of intellectual disability*, Indiana University Press, Bloomington, USA.

Cerasoli, C.P., Nicklin, J.M., & Ford, M.T. (2014). Intrinsic motivation and extrinsic incentives jointly predict performance: A 40-year meta-analysis. *Psychological Bulletin*, 140(4), 980–1008. https://doi.org/10.1037/a0035661

Che Had, N.H., Alavi, K., Md Akhir, N., Muhammad Nur, I.R., Shuhaimi, M.S.Z., & Foong, H.F. (2023). A scoping review of the factor associated with older adults' mobility barriers. *International Journal of Environmental Research and Public Health*, 20(5), 1–19. https://doi.org/10.3390/ijerph20054243

Chikuta, O., du Plessis, E., & Saayman, M. (2017). Nature-based travel motivations for people with disabilities. *African Journal of Hospitality, Tourism and Leisure*, 6(1), 1–16.

Cole, S., Zhang, Y., Wang, W., & Hu, C. (2019). The influence of accessibility and motivation on leisure travel participation of people with disabilities. *Journal of Travel and Tourism Marketing*, 36(1), 119–130. https://doi.org/10.1080/10548408.2018.1496218

CONADIS. (2021). Consejo Nacional para la Igualdad de Discapacidades. Estadísticas de Discapacidad. [Disability statistics]. https://www.consejodiscapacidades.gob.ec/estadisticas-de-discapacidad/

Corran, P., Steinbach, R., Saunders, L., & Green, J. (2018). Age, disability and everyday mobility in London: An analysis of the correlates of 'non-travel' in travel diary data. *Journal of Transport and Health*, 8, 129–136. https://doi.org/10.1016/j.jth.2017.12.008

Darcy, S. (2010). Inherent complexity: Disability, accessible tourism and accommodation information preferences. *Tourism Management*, 31, 816–826. https://doi.org/10.1016/j.tourman.2009.08.010

Darcy, S., & Buhalis, D. (2011). Chapter 2 - Conceptualising Disability: Medical, Social, WHO ICF, dimensions and levels of support needs. In D. Buhalis & S. Darcy (Eds.), *Accessible Tourism: Concepts and Issues*, 21-44. Channel View Publications, Bristol.

Darcy, S., McKercher, B., & Schweinsberg, S. (2020). From tourism and disability to accessible tourism: A perspective article. *Tourism Review*, 75(1), 140-144. https://doi.org/10.1108/TR-07-2019-0323

de Sousa, L., Dias, Á.L., & Pereira, L.F. (2023). The determinants of social self-efficacy of tourism lifestyle entrepreneurs. *International Journal of Tourism Research*, 1-13. https://doi.org/10.1002/jtr.2580
Devile, E.L., Eusébio, C., & Moura, A.A. (2023). Traveling with special needs: investigating constraints and negotiation strategies for engaging in tourism activities. *Journal of Hospitality and Tourism Insights.*
Devile, E., & Kastenholz, E. (2018). Accessible tourism experiences: The voice of people with visual disabilities. *Journal of Policy Research in Tourism Leisure and Events*, 10, 1–21
Domínguez, T., Fraiz, J.A., & Alén, E. (2013). Economic profitability of accessible tourism for the tourism sector in Spain. *Tourism Economics*, 19(6), 1385–1399. https://doi.org/10.5367/te.2013.0246
Eusébio, C., Pimentel Alves, J., Carneiro, M.J., & Teixeira, L. (2023). Needs, motivations, constraints and benefits of people with disabilities participating in tourism activities: the view of formal caregivers. *Annals of Leisure Research*, 1-25. https://doi.org/10.1080/11745398.2023.2190141
Fangbin, Q., Haiyang, D., & Yide, S. (2022). Factors influencing female participation in sports tourism based on logistic model. *Pacific International Journal*, 5(3), 31–41. https://doi.org/10.55014/pij.v5i3.190
Field, A. (2005). *Discovering statistics using SPSS*. SAGE Publications Ltd. http://repositorio.unan.edu.ni/2986/1/5624.pdf
Gillovic, B., & McIntosh, A. (2020). Accessibility and inclusive tourism development: Current state and future agenda. *Sustainability*, 12, 9722. https://doi.org/10.3390/su12229722
Godtman Kling, K., & Ioannides, D. (2019). Enhancing accessibility in tourism & outdoor recreation: A review of major research themes and a glance at best practice (Etour Report, 2019:4). Etour, Mid Sweden University.
Groulx, M., Freeman, S., & Lemieux, C. (2022). Accessible nature beyond city limits – A scoping review. *Journal of Outdoor Recreation and Tourism*. 37:100490. https://doi.org/10.1016/j.jort.2022.100490
Guamán-Guevara, A.R., Guamán-Guevara, M.D., & Mancheno-Saá, J.P. (2019). *Análisis del turismo accesible en la industria hotelera en la ciudad de Ambato [Analysis of accesible tourism in hotel industry in Ambato city]*. Dominio de Las Ciencias, 5(2), 1–12 (In Spanish). https://doi.org/10.23857/dc.v5i2.887
Haegele, J.A., & Hodge, S. (2016). Disability discourse: Overview and critiques of the medical and social models. *Quest*, 1–14. https://doi.org/10.1080/00336297.2016.1143849
Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2014). *Multivariate Data Analysis (MVDA)*. Pearson Education Limited. https://doi.org/10.1002/9781118895238.ch8
IOM. (2007). Institute of Medicine. The future of disability in America. In M. J. Field & A. M. Jette (Eds.), *The Future of Disability in America.* The National Academies Press. https://doi.org/10.17226/11898
Jang, S., Bai, B., Hu, C., & Wu, C.M.E. (2009). Affect, travel motivation, and travel intention: A senior market. *Journal of Hospitality and Tourism Research*, 33(1), 51–73. https://doi.org/10.1177/1096348008329666
Kamyabi, M., & Alipour, H. (2022). An investigation of the challenges faced by the disabled population and the implications for accessible tourism: Evidence from a Mediterranean destination. *Sustainability*, 14(4702), 1–18. https://doi.org/10.3390/su14084702
Kastenholz, E., Eusebio, C., & Figueiredo, E. (2015). Contributions of tourism to social inclusion of persons with disability. *Disability & Society*, 30(8), 1259-1281.
Khadaroo, J., & Seetanah, B. (2007). Transport infrastructure and tourism development. *Annals of Tourism Research*, 34(4), 1021–1032. https://doi.org/10.1016/j.annals.2007.05.010
Kusufa, R.A., Nurfarida, I., Wilujeng, S.R., & Firdaus, R.M. (2022). Tourism Experience in Tourism Villages: Persons with Disabilities (PwD) Perception. *European Journal of Development Studies*, 2(4), 24-28. http://dx.doi.org/10.24018/ejdevelop.2022.2.4.126
Lawson, A., & Beckett, A.E. (2021). The social and human rights models of disability: towards a complementarity thesis. *The International Journal of Human Rights*, 25(2), 348-379. https://doi.org/https://doi.org/10.1080/13642987.2020.1783533
Lee, B.K., Agarwal, S., & Kim, H.J. (2012). Influences of travel constraints on the disabled people’s intention to travel: An application of Seligman’s helplessness theory. *Tourism Management*, 33(3), 569–579. https://doi.org/https://doi.org/10.1016/j.tourman.2011.06.011
Lee, B., An, S., & Suh, J. (2021). How do tourists with disabilities respond to service failure? An application of affective events theory. *Tourism Management Perspectives*, 38, 100806. https://doi.org/10.1016/j.tmp.2021.100806
Lim, J.E. (2020). Understanding the discrimination experienced by customers with disabilities in the tourism and hospitality industry: The case of Seoul in South Korea. *Sustainability*, 12(7328), 1–12. https://doi.org/10.3390/SU12187328
Liu, Y.Y., Koseoglu, M.A., Wong, A.K.F., & Kim, S. (2023). Contributions of people with disabilities to the research on the intellectual structure of the hospitality and tourism literature. *Journal of Hospitality and Tourism Management*, 54, 42-55. https://doi.org/10.1016/j.jhtm.2022.10.007
Márquez, L., Poveda, J.C., & Vega, L.A. (2019). Factors affecting personal autonomy and perceived accessibility of people with mobility impairments in an urban transportation choice context. *Journal of Transport & Health*, 14(100583), 1-21. https://doi.org/10.1016/j.jth.2019.100583
McGuckin, N.A., & Fucci, A. (2018). Summary of travel trends: 2017 national household travel survey.
McKercher, B., & Darcy, S. (2018). Re-conceptualizing barriers to travel by people with disabilities. *Tourism Management Perspectives*, 26, 59–66. https://doi.org/https://doi.org/10.1016/j.tmp.2018.01.003
Moura, A., Eusébio, C., & Devile, E. (2022). The ‘why’ and ‘what for’ of participation in tourism activities: travel motivations of people with disabilities. *Current Issues in Tourism*. https://doi.org/https://doi.org/10.1080/13683500.2022.2044292
Nicolaisen, J., Blichfeldt, B.S., & Sonnenschein, F. (2012). Medical and social models of disability: a tourism providers' perspective. *World Leisure Journal*, 54(3), 201–214. https://doi:10.1080/04419057.2012.702451
Noh, S.H., & Joh, C.H. (2012). Analysis of elderly travel patterns in Seoul metropolitan area, South Korea, through sequence alignment and motif search. *Transportation Research Record Journal of the Transportation Research Board*, 2323, 25–34. https://doi.org/10.3141/2323-04
Nyanjom, J., Boxall, K., & Slaven, J. (2018). Towards inclusive tourism? Stakeholder collaboration in the development of accessible tourism. *Tourism Geographies*, 1–23. https://doi.org/10.1080/14616688.2018.1477828
Özcan, E., Topcu, Z.G., & Arasli, H. (2021). Determinants of travel participation and experiences of wheelchair users traveling to the Bodrum Region: A qualitative study. *International Journal of Environmental Research and Public Health*, 18(2218), 1–27. https://doi.org/https://doi.org/10.3390/ijerph18052218
Pagán, R. (2015). The contribution of holiday trips to life satisfaction: the case of people with disabilities. *Current Issues in Tourism*, 18(6), 524–538. https://doi.org/10.1080/13683500.2013.860086
Parsons, T. (1951). *The Social System*, Routlege & Kegan Paul, London, UK.
Pasca, M.G., Elmo, G.C., Arcese, G., Cappelletti, G.M., & Martucci, O. (2022). Accessible Tourism in Protected Natural Areas: An Empirical Study in the Lazio Region. *Sustainability*, 14(3), 1736. https://doi.org/10.3390/su14031736

Paredes, O., Melo, D., Guamán, A.R., García, M., & Guamán-Guevara, F. (2021). Which Innovative Solutions of Non-Technological and Technological Nature are Needed to Improve Tourism Services? *Tourism: An International Interdisciplinary Journal*, 69(4), 559–577. https://doi.org/10.37741/t.69.4.6

Pourhashem, G., Buzna, Ľ., Kováčiková, T., & Hudák, M. (2019). Exploring women travel behaviour in the region of Žilina from large scale mobility survey. In *Reliability and statistics in transportation and communication*, 105–120, Springer International Publishing. https://doi.org/10.1007/978-3-030-12450-2_10

Prasongthan, S. (2018). Factors affecting intention to travel of people with disabilities in Bangkok Metropolitan Region: A preliminary study. *Asian Administration and Management Review*, 1(2), 100–109.

Pulido-Fernández, J.I., Cárdenas-García, P.J., & Sánchez-Rivero, M. (2014). Tourism as a tool for economic development in poor countries. *Tourism: An International Interdisciplinary Journal*, 62(3), 309-322.

Ralph, K., Morris, E.A., & Kwon, J. (2022). Disability, access to out-of-home activities, and subjective well-being. *Transportation Research, Part A: Policy and Practice*, 163, 209–227. https://doi.org/10.1016/j.tra.2022.06.006

Reho, T., Atkins, S., Korhonen, M., Siukola, A., Sumanen, M., Viljamaa, M., Uitti, J., & Sauni, R. (2021). Sociodemographic characteristics and disability pensions of frequent attenders in occupational health primary care - a follow-up study in Finland. *BMC Public Health*, 21(1847), 1–9. https://doi.org/10.1186/s12889-021-11873-8

Reindrawati, D.Y., Noviyanti, U.D.E., & Young, T. (2022). Tourism experiences of people with disabilities: Voices from Indonesia. *Sustainability*, 14, 13310.

Rodriguez-Sanchez, M.C., Moreno-Alvarez, M.A., Martin, E., Borromeo, S., & Hernandez-Tamames, J.A. (2014). Accessible smartphones for blind users: A case study for a wayfinding system. *Expert Systems with Applications*, 41(16), 7210–7222. https://doi.org/10.1016/j.eswa.2014.05.031

Rotem-Mindali, O., & Shemesh, I. (2013). Mobility and accessibility concerns for tourists in Tel Aviv-Jaffa area. *Tourism: An International Interdisciplinary Journal, 61*(3), 259–276.

Rubio-Escuderos, L., García-Andreu, H., & de la Rosa, J. (2021). Accessible tourism: Origins, state of the art and future lines of research. *European Journal of Tourism Research*, 28, 2803.

Sarmah, B., Kamboj, S., & Chatterjee, R. (2022). Linking the intrinsic and environmental constraints with PwD tourists' behavioral intentions toward a travel destination: Mediating role of learned helplessness. *Journal of Tourism Futures*, 1–15. https://doi.org/10.1108/JTF-02-2021-0053

Seyanont, A. (2017). Travel motivation and intention to revisit of European senior tourists to Thailand. *Universal Journal of Management*, 5(8), 365–372. https://doi.org/10.13189/ujm.2017.050801

Shen, X., Zheng, S., Wang, R., Li, Q., Xu, Z., Wang, X., & Wu, J. (2023). Disabled travel and urban environment: A literature review. *Transportation Research Part D: Transport and Environment*, 115, 1–20. https://doi.org/10.1016/j.trd.2022.103589

Terziyska, I. (2021). One-day cultural tours in Bulgaria: An ethnography study of customer satisfaction. *Tourism*, 69(2), 216–227. https://doi.org/10.37741/T.69.2.4

Thomas, D., & Woods, H. (2003). *Working with people with learning disabilities*, Jessica Kingsley Publishers, London, UK.

Tite-Cunalata, G.M., Ochoa-Ávila, M.B., Carrillo-Rosero, D.A., & Tustón-Landa, V. (2021). *Dimensiones para la gestión del turismo accesible en complejos turísticos del Ecuador [Dimensions for accessible tourism management in touristic complexes in Ecuador]*. Revista Reflexiones, 100(1), 1-21. (In Spanish) https://doi.org/10.15517/rr.v100i1.42843

Tomej, K., & Duedahl, E. (2023). Engendering collaborative accessibility through tourism: From barriers to bridges. *Annals of Tourism Research*, 99, 103528. https://doi.org/10.1016/j.annals.2023.103528

United Nations-Habitat. (2014). UN-Habitat. *Accessibility of housing: a handbook of inclusive affordable housing for solutions for persons with disabilities and older persons*. https://unhabitat.org/sites/default/files/download-manager-files/Accessibility of Housing _ web.pdf

United Nations. (2008). UN. Convention on the rights of persons with disabilities. Treaty Series, 2515, 3.

United Nations. (2018). Persons with disabilities: Breaking down barriers. In U. Nations (Ed.), *Promoting inclusion through social protection. Report on the World Social Situation 2018*, 63–76. https://doi.org/10.18356/c107798c-en

United Nations. (2019). UN. Disability and development report. Realizing the sustainable development goals by, for and with persons with disabilities. In *United Nation Department of Economic and Social Affairs*.

United Nations World Tourism Organization. (2016). UNWTO. *Accessible tourism for all: An opportunity within our reach*. https://doi.org/ 10.18111/9789284417919

United Nations World Tourism Organization. (2021). UNWTO. *Accessibility and inclusive tourism development in nature areas – Compendium of best practices*. UNWTO. https://doi.org/10.18111/9789284422777

Vogt, A.L., Zajchowski, C.A.B., & Hill, E.L. (2022). A ramp that leads to nothing: outdoor recreation experiences of children with physical disabilities during the COVID-19 pandemic. *Leisure Studies*, 41(5), 1–11. https://doi.org/10.1080/02614367.2022.2049629

Wall-Reinius, S., Godtman Kling, K., & Ioannides, D. (2023). Access to nature for persons with disabilities: Perspectives and practices of Swedish tourism providers. *Tourism Planning & Development*, 20(3), 336-354. https://doi.org/10.1080/21568316.2022.2160489

Wofford, N., Defever, A.M., & Chopik, W.J. (2019). The vicarious effects of discrimination: How partner experiences of discrimination affect individual health. *Social psychological and personality science*, 10(1), 121–130. https://doi.org/10.1177/1948550617746218

World Health Organization, & World Bank. (2011). WHO-WB. *World report on disability 2011*. https://doi.org/10.2196/14170

Zajadacz, A. (2015). Evolution of models of disability as a basis for further policy changes in accessible tourism. *Journal of Tourism Futures*, 1(3), 189-202. https://doi.org/10.1108/JTF-04-2015-0015

Załuska, U., Kwiatkowska-Ciotucha, D., & Grześkowiak, A. (2022). Travelling from perspective of persons with disability: Results of an international survey. *International Journal of Environmental Research and Public Health,* 19(17), 10575. https://doi.org/10 .3390/ijerph191710575

Article history: Received: 15.06.2023 Revised: 12.08.2023 Accepted: 26.09.2023 Available online: 19.10.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1253-1259
DOI 10.30892/gtg.50405-1123

GUESTS' SATISFACTION IN GYŐR-MOSON-SOPRON COUNTY, IN HUNGARY

Marcell KUPI
Széchenyi István University, Faculty of Economics, Department of Tourism and Hospitality, Győr, Hungary, e-mail: kupi.marcell@sze.hu

Csaba KŐMÍVES[*]
Széchenyi István University, Faculty of Economics, Department of Tourism and Hospitality, Győr, Hungary, e-mail komives.csaba@sze.hu

Citation: Kupi, M., & Kőmíves, C. (2023). GUESTS' SATISFACTION IN GYŐR-MOSON-SOPRON COUNTY, IN HUNGARY. *GeoJournal of Tourism and Geosites*, 50(4), 1253–1259. https://doi.org/10.30892/gtg.50405-1123

Abstract: The primary goal of the study is to explore the satisfaction of Hungarian people with food delivery services, which gained popularity during the COVID-19 pandemic, in the post-pandemic period. The publication's main research questions are: to what extent are customers satisfied with the speed of food delivery and the temperature of the delivered meals? The empirical research also analyses whether the speed of delivery influences the customers' attitudes towards their connection with the catering establishments. The survey was carried out between April 10, 2022, and June 30, 2022. The sample is non-representative (N=452), with respondents being selected arbitrarily in Győr-Moson-Sopron County. Data were processed using the IBM SPSS 25.0 statistical software package. During the primary research the authors examined the current food ordering habits of the participants using statistical (descriptive, correlational) analyses. The aim of this study is to identify and evaluate the key factors that influence customer satisfaction and decision-making in the food delivery industry, providing actionable insights for service providers. The topic of the present study is the examination of the customer satisfaction and decision-making of the Hungarian population focusing on the food delivery industry. A comprehensive literature review was conducted to establish a theoretical framework and formulate hypotheses. A survey-based methodology was employed to collect data from consumers and the collected data were analysed using statistical techniques to test the formulated hypotheses and determine the relationships between the identified factors and customer satisfaction. Results and discussions: presentation and analysis of the obtained results. The study concludes that delivery speed, food temperature, price-value ratio, quality, variety and online presence are crucial factors in the customer satisfaction and decision-making in the food delivery industry. Addressing these aspects can help service providers enhance their competitiveness and improve the overall customer experience.

Key words: attitudes, delivery, satisfaction

* * * * * *

INTRODUCTION

In the hospitality industry, guest satisfaction is a key factor for business success. The well known 7P marketing model highlights the vital role of employees in the success of the services provided in hospitality establishments. Kindness, openness, friendliness, a trustworthy appearance and the skills of the staff who serve the guests are key factors in guest satisfaction and, consequently, business success. The role of guests is also significant, as they tend to use services in the company of others who can influence each other's consumption patterns and satisfaction, both negatively and positively.

A key factor in the demand for services is that all guests feel important and valued by their hosts. Staff must be willing, helpful and courteous to them. If the person who interacts directly with guests can build trust, guests are more likely to return to them in the future. One key to guest satisfaction is providing quality service. The quality of service is strongly correlated with the guest satisfaction index, which has an impact on the profitability indicators of the operating units.

Győr-Moson-Sopron County, with its rich cultural and historical heritage, offers exceptional opportunities for the hospitality industry. Local restaurants offer a unique atmosphere and quality services that contribute to a high level of guest satisfaction. However, in-depth research and analysis is needed to further develop the county's hospitality industry and increase guest satisfaction. The aim of the present study is to explore in depth the guest satisfaction in the catering establishments operating in Győr-Moson-Sopron County and to make recommendations for further improvements.

In order to better understand the importance of the field and the complexity of the topic, it is worth reviewing previous research. Previously, several studies - described below - have shown that guest satisfaction is closely linked to the quality of service and the atmosphere in the restaurant. In the following sections, we will analyse in detail the research methodology and results, and discuss the conclusions and recommendations for Győr-Moson-Sopron County restaurants.

LITERATURE REVIEW

Numerous definitions have been provided in the literature for conceptualizing tourism for example (Schwink, 1930; Glücksmann, 1935; Norwal, 1936; Kaspar and Fekete, 1999). "Tourism, on one hand, is a knowledge about human

[*] Corresponding author

relations, so there are points in it that attract people on, but also points that ward people off" (Glücksmann, 1935:6). For example, the Hungarian Interpretive Dictionary defines the concept as "noun press 1. Tourist-oriented tourism. 2. Rarely. Touristic, hiking" (Juhász et al., 2006:1414). The UNTWO (United Nations World Tourism Organization) states that "tourism is a social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes. These people are called visitors (which may be either tourists or excursionists; residents or non-residents) and tourism has to do with their activities, some of which involve tourism expenditure"(https://www.unwto.org/glossary-tourism-terms). By Michalkó tourism, are activities that result from people's use of time outside of working hours, usually based on independent decisions (Michalkó, 2012). "Tourism is an integral part of life in its diversity and completeness, with the limitation that it is linked to free time and involves a change of location outside of the home or permanent work schedule" (Bába, 2020: 4). The phenomenon is travel to visit related places with popular culture is not new, it has always been present in people's lives (Lexhagen et al., 2022). Tourism has existed as long as humanity itself, as visiting relatives was already a practice in prehistoric times, and people visited their family, friends, and acquaintances. In ancient times, acquaintances and relatives accompanied competitors to the Olympic Games. In the Middle Ages, journeymen travelled away from their homes to learn their trade from masters living far away.

Sacred sites such as Rome, Jerusalem, Lurds, Angkor, Mecca, were visited for religious reasons and because of their natural and built heritage. The railway was revolutionary and enabled people to travel faster. J. Watson invented the steam engine, R. Fulton the steamship and M. Adam built roads. From the 1820s onwards, steamships enabled tourists to travel on lakes and rivers. After the railway, civil aviation was the biggest explosion in the movement of people, aviation opened new possibilities for mankind, the world's farthest point is available from our home in almost one day. There are many different types of tourism that differ from each other based on their travel goals, organizational forms, and experiences.

Table 1. Classification of the tourism by motivation (Source: authors research)

Denomination	Motivation
Inland tourism	Tourists travel and discover domestic attractions, cultural and natural heritage in their own country.
International tourism	Tourists travel to other countries to discover their attractions, cultural and natural heritage.
Rural tourism	Rural tourism is a way to visit people living in a natural environment, to get to know local products and values, traditions, folk customs, rural life, to gain unique experiences, to build human relations, to actively relax and recreation through quality services (Darabos et al., 2022).
Business tourism	Tourism by people travelling for business purposes, such as conferences, business meetings, trade fairs (Happ, 2015).
Health tourism	Travelling for health, recovery and regeneration, such as health services, wellness and spa tourism (Keller and Printz-Markó, 2020).
Cultural tourism	Tourists are looking for cultural experiences such as to visit museums, galleries, operas and theatres (Richards, 2018).
Ecotourism	A type of tourism to discover nature and the environment, aimed at preserving the natural and cultural heritage and promoting sustainable development trends (Happ, 2019).
Gastro tourism	Travellers want to experience and enjoy the gastronomic delights of the area, such as local food, wine, sweets and other local specialities (Dinç et al., 2023; Lapko et al., 2022).
Sports tourism	Travellers focus on sporting events and sports such as skiing, hiking, fishing, golf and other sports (Ivancsóné and Kupi, 2023).
Hunting tourism	Travellers focus on exploring nature and wildlife, such as safaris, zoos and animal watching tours.

In addition to these types of tourism there are a number of other forms of tourism which are developed according to the different interests and travel habits of travellers. Digitalization can also be found in tourism, and the expansion of digital tourism requires well-prepared, loyal employees who support the organization's operation in the long term. The continuous development of technology provides communication professionals with new tools. For example, the application of virtual reality (VR technology) helps to objectify services and resolves the inseparability of services (Happ and Ivancsóné, 2018; Supekova et al., 2016). Hospitality owns an ancient origin and honourable tradition (Lashley et al., 2007). A considerable literature has been generated across a range of disciplines regarding definitions of and approaches to hospitality.

The concept of hospitality – similar to tourism – is defined in various ways by domestic literature; for example, (Csizmadia, 1996; Burkáné, 1999; Endrődy and Veres, 2005; Martos et al., 2007). Lynch et al., 2011 mean ", … there is neither a single definition of hospitality…nor is there a unified theoretical framework within which hospitality studies are situated" (Lynch et al., 2011:15). Brotherton's opinion "A contemporaneous human exchange, wich is voluntarily entered into, and designed to enhance to mutual well-being of the parties concerned trough the provision of accommodation, and/or food and/or drink" (Brotherton, 1999:168). According to another approach "It represents a host's cordial reception, welcome and entertainment of guests or strangers of diverse social backgrounds and cultures charitably. Dependent on circumstance and context the degree to which the hospitality offering is conditional or unconditional may vary" (Morrison and O'Gorman, 2006:3). Derrida thinks "Not only is there a culture of hospitality, but there is no culture that is not also a culture of hospitality. All cultures compete in this regard and present themselves as more hospitable than the others. Hospitality this is the culture itself" (Derrida, 2002: 361). The Act CLXIV of 2005 defines the concept as follows: "the marketing of ready-made or on-site prepared food and drinks, primarily for on-site consumption, including related entertainment and other service activities; also, catering in any form, professionally carried out at workplaces, as well as in educational and training institutions, must have the necessary infrastructure" (https://net.jogtar.hu/jr/gen/hjegy_doc.cgi?docid=A0500164.TV).

"Hospitality is a unique commercial activity in which local residents and participants in tourism are provided with food, drink, and various services" (Voleszák, 2008: 26). In a narrower sense, it is a specific branch of commerce, where new value is created from acquired goods through service and professional knowledge transfer. In a broader sense, it is a collective term, during which the hospitality business provides complex services to the arriving guests, fulfilling their wishes at the highest level, such as in relation to food, drink, and other services (Kőmíves, 2020).

The concept of satisfaction is defined in the Hungarian Dictionary of Interpretation as follows: "noun. The state of being satisfied with someone or something. ~ feeling" (Juhász et al., 2000: 273).

"Satisfaction is a person's joy or disapointment resulting from the comparison of a product's perceived performance (or outcome) against expectations" (Kotler, 1998: 74). According to the Oxford Advance Learner's Dictionary (2000), satisfaction means a good feeling when one has achieved something or when something one wanted happens; or something that gives us a feeling of getting/getting satisfaction from something. Another conceptualisation of the satisfaction Longman Dictionary of Contemporary English (1981) defines satisfaction to mean: contentment (pleasure); something that pleases, achievment of need/desire, payment of a claim/money owned, condition of being fully persuaded, and the opportunity defend /regain one's honour in a duel. Customer satisfaction is interpreted in this study according to Oliver's (1997) definition: satisfaction is a feeling of satisfaction of customer needs. In other words, a particular attribute of the product or service, or the product/service itself, provides a level of pleasure in consumption that can be judged satisfactory. Put simply, customer satisfaction is the overall level of satisfaction with the experience of a service/product. The satisfaction of the guests directly affects the success of the company. The purpose of Stockburger and Hoffmann's study is to explore the combined effect of Frontline employees' emotions and guests' (Stokburger-Sauer and Hofmann, 2023). Zibarzani et al., (2022) investigated customer satisfaction (food, service, value and atmosphere, N=1358) after Covid-19 outbreak. Morkunas and Rudiené analysed guests' satisfaction in mid-range restaurants in Baltic states (Morkunas and Rudiené, 2020).

Customer satisfaction as term that clarifying regarding a measurement of services or products that provided to meet customer's expectations (Anwar and Louis, 2017). However, the key task of tourism marketing is to create/achieve guest satisfaction (Kovács et al., 2013). Trust is a fundamental factor in creating and maintaining long-term relationships with consumer (Aslan, 2023). The specificity of hospitality is that guests and staff are key in creating service experiences together. The service process can create unique and memorable experiences and strongly influence guests' perceived values. Customer value creation can improve guest value perception, satisfaction and loyalty, thereby creating a business differentiation strategy (Yen, 2023). Table 2 below presents various customer/guest satisfaction analyses.

Table 2. Satisfaction surveys (Source: Own editing based on secondary research)

Autor(s) / Denomination	Year	Dimensions of satisfaction
Ryan et al.	1995	Latent variables; 3 indicators (satisfaction with the company, correspondence of the activity to the customer, comparison with a perfect company)[1]
Fornell et al.	1996	Adaptation of the Swedish method to the American Customer Satisfaction Index (ACSI)
Voss et al.	1998	Focuses on expectations before and satisfaction after using the service
Johson et al.	2001	Satisfaction indices are embedded within a system of cause and effect relationships or satisfaction model.
Irawan	2003	5 aspects of customer satisfaction (product quality, price, service quality, emotional factors, and cost and convenience

RESEARCH METHODOLOGY

The data for the present research was gathered after the period of the COVID pandemic, more precisely between April-June 2022. The mixed methods research was used. The survey aims to examine demand in delivery focusing to be able to design optimal offers in the period following the pandemic. The subject of this study is to identify and evaluate the key factors that influence customer satisfaction and decision-making in the food delivery industry, providing actionable insights for service providers. The research is looking for the answers to the hypotheses below:

H1: The speed of food delivery positively correlates with the temperature of the ordered food and customer satisfaction.

H2: The price and quality of delivery have a significant impact on customer satisfaction and loyalty.

H3: The price-value ratio negatively correlates with the price and influences customer decision-making.

H4: There is a negative relationship between the store's selection and the availability of contactless payment options.

The selected research approach involved a survey, with participants being recruited through a random cluster sampling technique. In addition to demographic and educational data inquiries, the survey focused on several key areas. The questionnaire was comprised of 28 scaled questions (20 featuring 4-point Likert scales, while 8 utilized 8-point Likert scales, where 1 indicated strong agreement and 4 or 8 represented strong disagreement), 12 closed-ended multiple-choice questions, and one open-ended question. The data were processed by IBM SPSS 25.0 statistical program package, in which showed descriptive statistical analysis, count/percent), analysis were done. As illustrated in the flow chart shown below in Figure 1, our research was structured as follows: The outlining of the topic was followed by a literature review, in which a review of the literature and analysis of previous researches take place to define the field and context of the research. Practical Background:

Here we present the practical aspects of the research, and then in the resource questions section, we define the fundamental questions of the research that we wish to answer. This is followed by the presentation of the goals or objectives of the research, which dictate the direction and scope of the execution of the research, onto which the hypotheses can be strung: here we formulate the assumptions or forecasts that can be made based on the research, which were later tested. In the methodological section, we present the design of the research and the methods used, touching upon the type of questionnaire used in the research. This is then followed by the analysis of the collected data and the presentation of the results. At the end of the research, we summarize the results and draw conclusions, showcasing the contribution of the research to the topic.

[1]It is important to note that quality of service leads to satisfaction and satisfaction leads to customer loyalty

RESULTS AND DISCUSSION

In our research, we constructed a correlation network map in Figure 2, illustrating the relationships and their strength, while Table 3 below presents the socio-demographic data of the individuals involved in the study. In our research, we found a significant positive relationship between the importance of food delivery speed and the temperature of the ordered food experienced upon receipt (Q13/Q14).

An increasing number of studies support the finding that there is a positive relationship between food delivery speed and temperature, as well as customer satisfaction in the food delivery industry. The speed of food delivery significantly affects customer satisfaction, with faster delivery times resulting in higher customer satisfaction ratings. Temperature is one of the most critical factors in assessing food quality, and customers logically associate warm food with higher quality in terms of delivery (Gil-Pérez et al., 2019). The positive relationship between the speed of food delivery and temperature can be scientifically understood through the principle of thermodynamics. The temperature of food is directly related to the time it takes for the food to cool down or warm up to the ambient temperature.

Therefore, the longer the delivery time, the greater the heat loss or gain in the food, leading to a decrease in the perceived quality of the food and customer satisfaction. Furthermore, Shroff et al. (2021) conducted a systematic review examining the factors affecting customer satisfaction during online food delivery and found that both delivery speed and food temperature had a significant positive impact on customer satisfaction. The literature review also reveals that fast delivery times and warm food are essential for building customer loyalty and encouraging repeat purchases.

We found an additional strong relationship between the quality of delivery, the price, and the variety offered by the restaurant location indicated as the source of the order. A significant number of studies investigate the factors affecting consumer behaviour and decision-making in relation to food delivery services. Specifically, several studies support the finding that there is a positive relationship between food delivery quality, price, and restaurant choice. A study conducted by Homburg et al. (2010) examined the impact of service quality, price, and brand image on customer loyalty in the food delivery sector. The study found that service quality and price had a significant effect on customer loyalty, with higher quality and lower prices leading to greater customer satisfaction and repeat purchases. Another study by Zhong and Moon (2020) found that menu diversity was an important factor in customer satisfaction and loyalty, with a greater variety of menu items leading to higher ratings. Additionally, research has shown that customers are often willing to pay more for higher-quality food and better service.

Customers are frequently willing to pay a premium for food delivery services that offer faster delivery times, better quality food, and greater convenience.

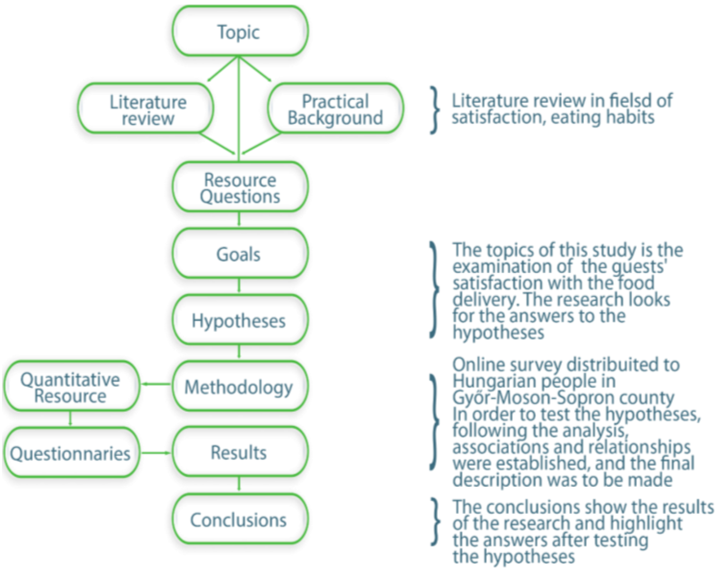


Figure 1. Flow chart (Source: authors own research)

Table 3. Demographic information (Source: authors own research)

Background variable	participant	%
By gender N=452		
Male	149	33,0
Female	303	67,0
By age groups N=393		
Youngsters (16-30 years)	98	24,9
Middle-aged (31-50 years)	190	48,3
Elderly (51-80 years)	105	26,7
By educational level N=452		
Ph.D	13	2,9
MSc (former university)	111	24,6
BSc (former college)	140	31,0
Higher-level vocational training	10	2,2
OKJ training[2]	16	3,5
Technical school	21	4,6
Vocational training	24	5,3
OKJ institution	8	4,3
High school diploma (vocational/high school)	107	23,7
Elementary school	10	2,2
By place of residence N=452		
Capital	27	6,0
County-seat residents	177	39,2
City residents	121	26,8
Villagers	127	28,1

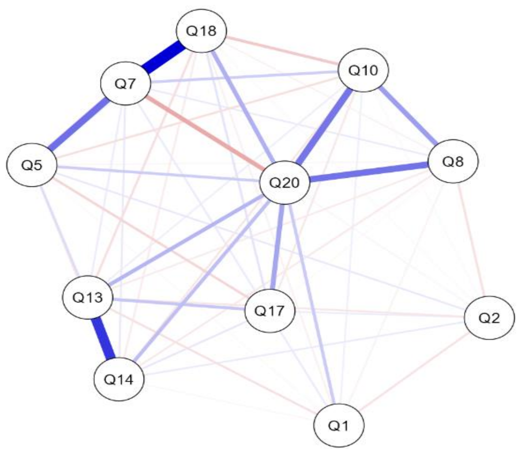


Figure 2. Correlation network map (Source: authors own research)

[2] National Qualifications Register, the official list of vocational qualifications obtainable in our country. Accessed 2021.12.15. https://www.nive.hu/index.php?option=com_content&view=article&id=297

The negative relationship between price and price-value ratio is a long-established phenomenon in market research. Several studies have confirmed this relationship in the customer decision-making process. For example, Kwun and Oh's 2004 study on restaurant food found that the relationship between price-value ratio and satisfaction played a crucial role in customer decision-making. A low price-value ratio causes poorer satisfaction, which in turn reduces the purchasing intention.

Lai-Ming's 2012 study investigated the impact of product price-value ratios on customer satisfaction and loyalty. The research findings indicated that consumers were more likely to maintain brand loyalty if they were satisfied with the price-value ratio. Based on the results of these studies, it can be concluded that there is a negative relationship between price and price-value ratio. The higher the price is, the lower the price-value ratio is, which may reduce consumers' willingness to purchase. These relationships were also confirmed in our own research concerning the examined market, and as shown in Table 4, as a result of the negative correlation between the answers to questions Q7 and Q20. A moderately strong negative relationship can also be observed between the store's variety and the availability of contactless payment options.

Table 4. Centrality measures per variable
(Source: authors own research)

Variable	Betweenness	Closeness	Strength	Expected influence
Q1	-0.449	-0.949	-1.313	-1.283
Q2	-0.449	-1.921	-1.450	-1.266
Q5	-0.329	-0.382	-0.266	-0.396
Q7	0.274	0.334	1.060	1.230
Q8	0.033	0.674	-0.309	-0.418
Q10	-0.449	0.434	0.140	-0.185
Q13	-0.208	0.064	0.456	0.385
Q14	-0.449	-0.353	0.031	0.061
Q17	-0.449	-0.114	-0.775	-0.402
Q18	-0.449	0.128	0.467	0.146
Q20	2.926	2.086	1.959	2.130

Previous research has also pointed to the negative relationship between store variety and the availability of contactless payment options. In a 2020 survey examining consumer preferences regarding contactless payment options in the United States, the conclusion was drawn that the use of contactless payment options was associated with higher income, as well as being more popular among younger and more highly educated consumers. However, consumers who feel that the merchant does not offer enough variety are less willing to use contactless payment options (Park et al., 2007).

Subsequently, we analysed the correlation network drawn based on the correlation matrix in terms of network topological indicators, further supporting our previous findings. Based on the betweenness and closeness metrics, the answers to the questions listed in the questionnaire are related to the importance of the price-value ratio (Q20), which is also supported by the number of edges and the metric values (betweenness 2.926 and closeness 2.086). We identified price (Q7) as the second most important central factor, which also plays a central role in the correlation network.

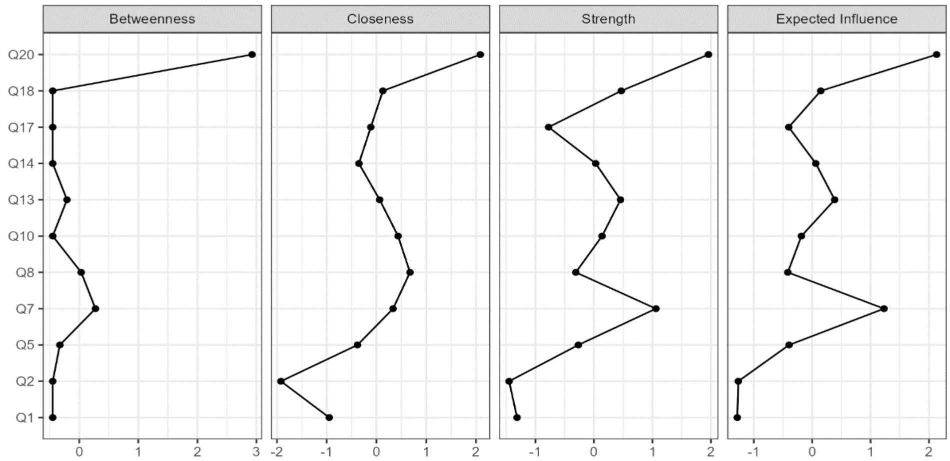


Figure 3. Centrality Plot (Source: authors own research)

CONCLUSIONS

The purpose of this research was to explore the factors that most influence customer satisfaction and decision-making in food delivery services. Building on a literature review, we identified several important relationships based on our own research findings that can help companies become more competitive and improve customer satisfaction. During the research, we confirmed the hypothesis that the speed and temperature of food delivery were of crucial importance to customers. A fast and properly temperature-controlled delivery has a positive effect on customer satisfaction and willingness, which in turn can lead to an increase in returning customers. In examining the relationship between price and price-value ratio, we found that consumers experienced lower satisfaction and purchasing willingness at a lower price-value ratio. Therefore, it is important for companies to maintain competitive pricing while preserving the quality of their products and services. The research also pointed out that the quality of service, including the attitude of delivery personnel and the quality of packaging, also affected customer satisfaction. It is important for service providers to ensure proper training and support for their employees, as well as pay attention to the quality of packaging, to ensure the desired customer experience.

The selection, including food specialties and contactless payment options, as well as the online presence of restaurants and the availability of reviews, also significantly influence customer decisions. The research findings suggest that companies should strive to expand their selection, offer contactless payment options, and establish a strong online presence, ensuring visible reviews for consumers. All these factors can contribute to increasing customer satisfaction and influencing decision-making. Overall, the results of this study provide useful guidance for food delivery services to increase competitiveness and improve customer satisfaction. The research highlights the need for companies to pay special attention to delivery speed, temperature, price-value ratio, quality, selection, and online presence in order to effectively develop their services and increase customer satisfaction. Further research is needed to determine how these factors affect long-term customer loyalty and repeat purchases, as well as how they influence the decisions of customers in different age groups, income levels, and geographical regions. Future research can further deepen the understanding of the food delivery market and help companies develop even more tailored and effective solutions for their customers.

Author Contributions: Conceptualization, CS.K. and M.K.; methodology, M.K. and CS.K.; software, M.K. and CS.K.; validation, M.K. and CS.K.; formal analysis, CS.K. and M.K.; investigation, CS.K. and M.K.; data curation, M.K. and CS.K..; writing - original draft preparation, CS.K. and M.K.; writing - review and editing, CS.K. and M.K.; visualization, M.K. and CS.K.; supervision, CS.K.; project administration, CS.K. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.
Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Anwar, K., & Louis, R. (2017). Factors Affecting Students' Anxiety in Language Learning: A Study of Private Universities in Erbil, Kurdistan. *International Journal of Social* Sciences & Educational Studies, 4(3), 160. http://dx.doi.org/10.22161/ijebm.5.3.2

Aslan, H. (2023). The influence of halal awareness, halal certificate, subjective norms, perceived behavioral control, attitude and trust on purchase intention of culinary products among Muslim costumers in Turkey. *International Journal of Gastronomy and Food Science* (32, 100726). https://doi.org/10.1016/j.ijgfs.2023.100726

Bába, S. (2020). *Külhoni falusi turizmus. Módszertani szempontok [Foreign rural tourism. Methodological aspects]*, Napkút Kiadó Kft: Budapest. ISBN 978 963 8478 78 8

Brotherton, B. (1999). Hospitality management reserch: Towards the future? In: Brotherson, B. (Ed.), *The handbook of contemporary hospitality management research*. Chichester: John Wiley, p.168.

Burkáné, S.Á. (1999). *Vendéglátás és gazdálkodás szakiskolásoknak. II. osztály. [Hospitality and management for vocational students. II. class]*, Budapest: Műszaki Kiadó.

Csizmadia, L. (1996). *Értékesítés a vendéglátásban [Sales in hospitality industry] Budapest: Kereskedelmi*, Vendéglátóipari és Idegenforgalmi Főiskola. F–401, 17-21.

Darabos, F., Kőmíves, C., & Molnar, I. (2022). Examination of Holiday Habits in Hungary, with special regard to rural Tourism, *GeoJournal of Tourism and Geosites*, 44(4), 1403-1410. http://doi.org./10.30892/gtg.44427-959

Derrida, J. (2022). *Acts of religion*. New York: Routledge, p.361.

Dinç, A., Bahar, M., & Topskal, Y. (2023). Eco-tourism research: a bibliometric rewiew. *Tourism & Management Studies* 19(1), 29-40. https://doi.org/10.18089/tms.2023.1901

Endrődy, G., & Veres, P. (2005). *A vendéglátó üzleti tevékenység szervezése és gazdálkodása I. [Organization and management of catering business I.]*, Budapest: Duál Budapest Bt., 7-10.

Fornell, C., Johnson, M.D., Anderson, E.W., Cha, J., & Bryant, B.E. (1996). "The American Customer Satisfaction Index: Nature, Purpose, and Findings", *Journal of Marketing*, 60(4), 7-18. https://doi.org/10.1177/002224299606000403

Gil-Pérez, I., Rebollar, R., Lidón, I., Martín, J., van Trijp, H.C., & Piqueras-Fiszman, B. (2019). Hot or not? Conveying sensory information on food packaging through the spiciness-shape correspondence. *Food quality and preference*, *71*, 197-208. https://doi.org/10.1016/j.foodqual.2018.07.009

Glücksmann, R. (1935). *Allgemeine Fremdenverkehrskunde [General teaching in tourism]*. Bern: Verlag von Stämpfli & Cie.p.6.

Happ, É. (2015). Consumer behaviour study on international conference tourism in Hungary. *International Journal of Sales, Retailing And Marketing*, 4:2, 106-117. https://www.researchgate.net/publication/292131435_Consumer_Behaviour_Study_on_International_Conference_Tourism_in_Hungary

Happ, É. (2019). *Középpontban az aktív és az ökoturizmus: Elméleti összefoglaló*, Lépések: A Fenntarthatóság Felé, 24(2), 14-15, (in Hungarian). https://kovet.hu/wp-content/plugins/magazin_lista/pdf/lepesek_76_press-pages-14-15.pdf

Happ, É., & Ivancsóné Horváth, Z. (2018). *A digitális turizmus a jövő kihívása – új szemléletmód a turizmusban: Digital Tourism is the Challenge of Future – a New Approach to Tourism*. In: Csapó J.– Gerdesics V.–Törőcsik M. (szerk.): Generációk a turizmusban. I. Nemzetközi Turizmusmarketing Konferencia: Tanulmánykötet Pécs: Pécsi Tudományegyetem Közgazdaságtudományi Kar (PTE KTK), 237–24. https://www.researchgate.net/publication/323995986_A_digitalis_turizmus_a_jovo_kihivasa_-_uj_szemleletmod_a_turizmusban

Homburg, C., Klarmann, M., & Schmitt, J. (2010). Brand awareness in business markets: when is it related to firm performance? *International Journal of Research in Marketing*, 27(3), 201-212. https://doi.org/10.1016/j.ijresmar.2010.03.004

Irawan, H. (2003). *10 Principles of Satisfaction*. Elex Media Komputindo.

Ivancsóné, H.Z., & Kupi, M. (2023). *A Szigetköz horgász imázsa* In: Albert, Tóth Attila; Happ, Éva; Kőmíves, Csaba; Printz-Markó, Erzsébet (szerk.) „Új turizmus? – Lehetőségek és kihívások": XIII. Nemzetközi Turizmus Konferencia Tanulmánykötet [The fishing image of Szigetköz In: Albert, Attila Tóth; Happ, Eva; Kőmíves, Csaba; Printz-Markó, Erzsébet (ed.) "New tourism? "Opportunities and challenges": XIII. International Tourism Conference Study Volume] Győr, Hungary: Széchenyi István University, 43-58, (in Hungarian).

Johnson, M.D., Gustaffson, A., Andreassen, W.T., Lervik, L., & Cha, J. (2001). The evolution and future of national customer satisfaction index models, *Journal of Economic Psychology* 22 72001) 217. https://doi.org/10.1016/S0167-4870(01)00030-7

Juhász, J., Szőke, I.O. Nagy, G., & Kovalovszky, M. (2000). *Magyar Értelmező Kéziszótár*. [Hungarian Interpretive Dictionary] Budapest: Akadémiai Kiadó. p. 273.
Juhász, J., Szőke, I.O. Nagy, G., & Kovalovszky, M. (2006). *Magyar Értelmező Kéziszótár*. L – ZS. 9, Változatlan kiadás [Hungarian Interpretive Dictionary] Budapest: Akadémiai Kiadó, p. 1414.
Kaspar, C., & Fekete, M. (1999). *Menedzsment a turizmusban*. [Management in tourism], Budapest: Budapesti Gazdasági Főiskola. Kereskedelmi, Vendéglátóipari és Idegenforgalmi Kar. p. 160.
Keller, V., & Printz-Markó, E. (2020). The Role of Marketing Innovations in the Spa Sector. *Polgári Szemle,* 16, évf, 4–6, szám, 2020, 285–297. https://doi.org/10.24307/psz.2020.1021
Kotler, P. (1998). *Marketing Menedzsment*, Budapest Műszaki Könyvkiadó, p.74
Kovács, T., Papanek, G., & Papanek, Z. (2013). A turizmus magyar vonzerőiről. [Hungarian tourist attractions]. *Vezetéstudomány,* (5). p.45, (in Hungarian). https://doi.org/10.14267/veztud.2013.05.04
Kőmíves, Cs. (2020). *Az emberi erőforrás menedzsment fejlesztési lehetőségei a vendéglátásban Győr-Moson-Sopron megyében* [Possibilities for improvement of human resources management in catering in Győr-Moson-Sopron county], Doctoral dissertation, University of Sopron, Hungary. http://doktori.uni-sopron.hu/id/eprint/734/
Kwun, J.W., & Oh, H. (2004). Effects of brand, price, and risk on customers' value perceptions and behavioral intentions in the restaurant industry, *Journal of Hospitality & Leisure Marketing*, 11(1), 31-49. 10.1300/J150v11n01_03
Lai-Ming Tam, J. (2012). The moderating role of perceived risk in loyalty intentions: an investigation in a service context. *Marketing intelligence & planning,* 30 (1), 33-52. http://dx.org/10.1108/02634501211193903
Lapko, A., Hacia, E., Strulk-Wójcikiewicz, Cinar, K., Panai, E., & Lučic, L. (2022). Eco-Friendly Tourism Decision Making during COVID-19—Sailing Tourism Example. *Sustainability, 14*(1), 134. https://doi.org/10.3390/su14010134
Lashley, C., Lynch, P., & Morrison, A. (2007). Hospitality. A Social Lens. *Advances in Tourism Research Series*. Elsevier: Oxford. p.17.
Lexhagen, M., Ziakas, V., & Lundberg, C. (2022). Popular Culture Tourism: Conceptual Foundations and State of Play, *Journal of Travel Research* 2023, 62(7) 1391–1410. https://doi.org/10.1177/00472875221140903
Longman Dictionary of Contemporary English (1981). Satisfaction: Longman Group Ltd. Low-Priced Edition
Lynch, P., Germann Molz, J., Mcintosh, A., Lugosi, P., & Lashley, C. (2011). Editorial - Theorizing Hospitality. *Hospitality & Society*, 1(1), 3-24. https://doi.org/10.1386/hosp.1.1.3_2
Martos, G., Thurzó, B., & Törő, L. (2007). *Vendéglátósok Kézikönyve. Hatodik átdolgozott kiadás*. [Handbook of Hospitality Providers. Sixth Revised Edition], Budapest: Raabe Kiadó Kft.
Michalkó, G. (2012). Turizmológia. Elméleti alapok. [Tourismology. Theoretical foundations.] Budapest: Akadémiai Kiadó. ISBN 978 963 05 9717 3. http://dx.doi.org/10.1556/9789630597173
Morrison, A., & O'Gorman, K. (2006). *Hospitality studies: Liberating the power of the mind*. Paper presented CAUTHE 2006. Melburne. https://www.researchgate.net/publication/258283239_Hospitality_Studies_liberating_the_power_of_the_mind
Morkunas, M., & Rudiené, E. (2020). The Impact of Social Servicescape Factors on Customers' Satisfaction and Repurchase Intentions in Mid-Range Restaurants in Baltic States. *Journal of Open Innovation: Technology, Market and Complexity,* 6(3), 77. https://doi.org/10.3390/joitmc6030077
Norval, A.J. (1936). The Tourist Industry, Pitman, London.
Richards, G. (2018). Cultural tourism: A review of recent research and trends. *Journal of Hospitality and Tourism Management*, Volume 36. pp.12-21. https://doi.org/10.1016/j.jhtm.2018.03.005
Ryan, R.M., Deci, E.L., & Grolnick, W.S. (1995). Autonomy, relatedness, and the self: Their relation to development and psychopathology. In D. Cicchetti & D.J. Cohen (Eds.), *Developmental psychopathology*, Theory and methods, 1, 618–655, John Wiley & Sons.
Shroff, A., Shah, B.J., & Gajjar, H. (2022). Online food delivery research: A systematic literature review. *International Journal of Contemporary Hospitality Management*, (ahead-of-print). https://doi.org/10.1108/IJCHM-10-2021-1273
Stokburger-Sauer, N., & Hofmann, V. (2023). Can a smile help healing service failures? The interplay of employee emotions, guest emotions and justice perceptions for successful service recoveries in the hospitality industry. *Journal of Hospitality and Tourism Management*, 5, 261-276. https://doi.org/10.1016/j.jhtm.2023.03.018
Supeková, C.S., Foret, M., Szwajcza, D., Happ, É., & Průša, P. (2016). Marketing communications in the conditions of V4 countries, Nitra, Szlovákia: ForPress Nitrianske tlačiarne, p.156. (Pbk.) https://www.researchgate.net/publication/356391482_MARKETING_COMMUNICATIONS_IN_THE_CONDITIONS_OF_V4_COUNTRIES
Schwink, O. (1929). Die Bedeutung des Fremdensverkehrs für die Bayerische Wirtschaft, Monatliche Mitteilungen des Bundesdeutscher Verkehrsvereine, 10-71.sz. 1929.december-1930 január
Oliver, R.L. (1997). Satisfaction: A Behavioral Perspective on the Consumer, McGraw-Hill, New York, NY.
Oxford Advanced Learners; Dictionary (2000) Definition of satisfaction, p. 1044,
Park, D.H., Lee, J., & Han, I. (2007). The effect of on-line consumer reviews on consumer purchasing intention: The moderating role of involvement. *International journal of electronic commerce*, 11(4), 125-148. https://doi.org/10.2753/JEC1086-4415110405
Voleszák, Z. (2008). Érettségi felkészítő. Vendéglátó – Idegenforgalmi alapismeretekből. [Preparation Hospitality-Tourism basic knowledge]. Sopron: VÉK084.
Voss, G.B., Parasuraman, A., & Grewal, D. (1998). The Roles of Price, Performance, and Expectations in Determining Satisfaction in Service Exchanges. *Journal of Marketing*, 62(4), 46-61. https://doi.org/10.1177/002224299806200404
Yen, C.H. (2023). Customer value cocreation behaviors in hospitality: Antecedents and mediators, *International Jornal of Hospitality Management*, Volume 110, 103456. https://doi.org/10.1016/j.ijhm.2023.103456
Zhong, Y., & Moon, H.C. (2020). What drives customer satisfaction, loyalty, and happiness in fast-food restaurants in China? Perceived price, service quality, food quality, physical environment quality, and the moderating role of gender. Foods, 9(4), 460. https://doi.org/10.3390/foods9040460
Zibarzani, M., Abumalloh, R.A., Nilashi, M., Samad, S., Alghamdi, O.A., Nayer, F.K., Muhammed, Y.I., Mohd, S., & Akib, N.A.M. (2022). Customer satisfaction with Restaurants Service Quality during COVID-19 outbreak: A two-stage methodology. *Technology in Sotiety*. Volume 70, August 2022, 101977. https://doi.org/10.1016/j.techsoc.2022.101977
2005. évi CLXIV. *Törvény a kereskedelemről*, [Act CLXIV of 2005 On trade]. https://net.jogtar.hu/jogszabaly?docid=A0500164.TV, http ://195.228.130.7/translated/doc/J2005T0164P_20191228_FIN.PDF
National Qualifications Register, the official list of vocational qualifications obtainable in our country. https://www.nive.hu/index.php?option=com_content&view=article&id=297
*** *Tourism definition.* https://www.unwto.org/glossary-tourism-terms

Article history: Received: 17.06.2023 Revised: 22.08.2023 Accepted: 27.09.2023 Available online: 26.10.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1260-1267
DOI 10.30892/gtg.50406-1124

EVALUATION OF COMMUNITY-BASED GASTRONOMIC TOURISM IN SATUN PROVINCE, THAILAND, REGARDING MANAGEMENT FOR ZERO FOOD WASTE

Melissa YODKHAYAN
Faculty of Environmental Management, Prince of Songkla University, Hat Yai, Thailand, e-mail: mymelizz@gmail.com

Umaporn MUNEENAM*
Faculty of Environmental Management, Prince of Songkla University, Hat Yai, Thailand, e-mail: umaporn.m@psu.ac.th

Citation: Yodkhayan, M., & Muneenam, U. (2023). EVALUATION OF COMMUNITY-BASED GASTRONOMIC TOURISM IN SATUN PROVINCE, THAILAND, REGARDING MANAGEMENT FOR ZERO FOOD WASTE. *GeoJournal of Tourism and Geosites*, 50(4), 1260–1267. https://doi.org/10.30892/gtg.50406-1124

Abstract: This study aimed to evaluate community-based gastronomic tourism in Satun province, Thailand, regarding the management for zero food waste, both by the entrepreneurs' and by the tourists' evaluations. Face-to-face interviews were done with 12 representative respondents from six community-based gastronomic tourism sites, and self-administered or on-line questionnaires were used by quota sampling with 402 representative tourists visiting these six community-based gastronomic tourism areas. 11 quantitative indicators of zero food waste management were analyzed, and it was found that 'Tonpanan-Bornamron' received high scores both from self-evaluation (mean = 4.50) and from the tourists (mean = 4.21, total mean = 4.36).

Key words: Evaluation, Zero Food Waste, Community-Based Gastronomic Tourism, Satun Province, Thailand

* * * * * *

INTRODUCTION

Food or gastronomic tourism is getting popular in many places around the world, such as Australia, Egypt, Finland, India, Indonesia, Italy, Latvia, Portugal, Romania, Taiwan, and Vietnam (Kumar, 2019; Rivza et al., 2022; Kar et al., 2023; Sutiadiningsih et al., 2023). Thailand, whose economy is strongly dependent on tourism, also promotes gastronomic tourism as an alternative attraction complementing the more traditional ones (Prasongthan and Silpsrikul, 2023). For example, Phuket and Phetchaburi provinces in Thailand have been honored by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) naming them creative sites for gastronomy since 2015 and 2021, respectively (Bangkok Post, 10. 11. 2021). The CNN Travel Staff (27. 2. 2021) reported that *Massaman* curry, *Tom Yum Goong*, and *Som Tam* Thai foods ranked 1st, 8th, and 48th among the world's best foods. This attracts tourists who want to experience tastes that are novel and exotic to them. In addition, spending on food is one-third to one-fourth of the expenditures while travelling, the rests consisting of accommodation, souvenirs, etc. (Kumar, 2019).

Undeniably the food experiences are essential while travelling. At present, gastronomic tourism or food tourism is not limited to only eating the local servings, but also includes experiences with production, harvesting, processing, cooking, and tasting, for both entertainment and learning. For example, Mora et al. (2021) reported that professional chefs from famous restaurants take gastronomic tours to seek new culinary techniques, products, flavors, and textures. In addition, there are many types of tour providers for gastronomic tourism, including hotels, restaurants, local chefs, or tour guides. This study focuses on community-based gastronomic tourism (CBGT) in the Satun province of Thailand.

Gastronomic tourism is a creative form of tourism that Thailand and many other countries promote as an attraction that can contribute unforgettable experiences and memories, while providing revenue to the locals (Tan et al., 2014). Satun province of Thailand has high potential for further expanding tourism due to being rich in culture (Thai and Malay cultures; Buddhist and Islamic religions) as well as its rich natural and geographical resources (Satun UNESCO Global Geopark), while supporting unique tasting foods for gastronomic tourism and welcoming all types of tourists, both domestic and international (Yodkhayan, 2023). For example, statistics before COVID-19 in 2019 (Satun Province, 2022) showed that the Thai tourists (88%) dominated over foreign tourists (12%), the latter mainly from Malaysia, UK, Singapore, Japan, and Germany.

At the same time, gastronomic tourism may also create solid waste and wastewater. However, recent research studies (Papargyropoulou et al., 2019; Dhir et al., 2020; and Kattiyapornpong et al., 2023) focused on the hospitality and food service sector (the HaFS) including restaurants, hotels, health care, food industries, education and staff catering; but none studied CBGT. This research study assesses how well the community-based gastronomic tourism in Satun performs in food waste management by applying two indicators; food service standard for tourism and Thailand's community-based tourism indicators, based on the entrepreneurs' self-assessments and evaluations by tourists. The sampled community-based gastronomic tourism sites in Satun province of Thailand are ranked in this regard, and recommendations for improvement are given. Consequently, the results from this research extend the prior studies from their context of hospitality and food service sector (HaFS), and contribute proposed indicators to food waste management hierarchy theory.

* Corresponding author

LITERATURE REVIEW

Food Waste

Food waste means the residual food, initially intended for human consumption, remaining at the end of the food chain providing edible products to people (after retail and final consumption), and it relates to retailers' and consumers' behaviors (Parfitt et al., 2010; Food and Agriculture Organization of the United Nations, 2011, 2). This definition is also similar to that of Beretta et al. (2017), and does not include the inedible parts of food such as bones, shells, or peels. However, in reality the waste related to food may also include inedible parts of food, as well as non-food items such as tissue paper, chopsticks, and wood sticks from a restaurant, a food market, or a household kitchen (Tuphoon, 2015) and these are contaminants in the food waste. Food waste is different from the food losses that take place in production, in the post-harvest and processing stages of the food supply chain, as shown in Figure 1 (Food and Agriculture Organization of the United Nations, 2011, 2). However, the work of Parfitt et al. (2010) included food losses as food waste. About one-third of food is wasted in food loss and food waste stages (Puangkeaw et al., 2018; Srijuntrapun et al., 2022). Consequently, food waste management is as important as other types of waste management. Dr Dan Mongtaangdan (2014) mentioned that the European Union (EU) countries are trying to reduce by half the food waste of about 40%, by 2025. This is similar to the information from Srijuntrapun et al. (2022) and Delgado et al. (2023) who reported that the stakeholders in SDG 12.3 committed to food losses and waste reduction by 2030, this being included in the national agenda of Thailand.

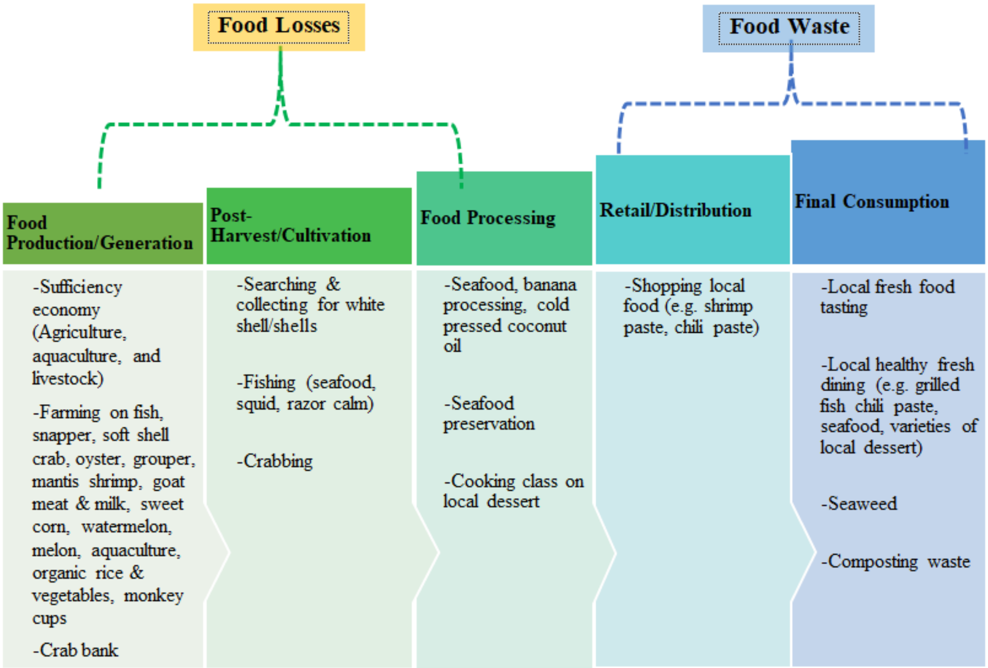


Figure 1. Example of CBGT in Satun province, Thailand, divided to *food losses* and *food waste* in the supply chain
(Source: Applied from Food and Agriculture Organization of the United Nations, 2011; and summarized from Satun Province 2022, 118-127)

Methods for Zero Food Waste

The goal of zero food waste can be pursued as follows (Filimonau and Coteau, 2019; Charoennaiwongpao, 2020; Thai Health Promotion Foundation, 2019, cited in Charoennaiwongpao, 2020):

[1] Food waste prevention means attitudes, choices and practices that stakeholders adopt before food is produced, bought, or prepared (Moraes et al., 2021). For example, cooking plan (Schott and Cánovas, 2015) and raw food preparation planning in terms of shopping list and expiry date (Dolnicar et al., 2020).

[2] Food waste reduction or minimization means attitudes, choices and practices that stakeholders adopt after food has been produced, bought, or prepared (Moraes et al., 2021), such as reduction of food decoration, preparing food in smaller portions, charging fee for uneaten food on the plate or plate waste (Dolnicar et al., 2020) and the consumer taking only as much food as one will eat (Eriksson et al., 2019).

[3] Food sharing and donation (Eriksson et al., 2018). This also includes food use as animal feed (Schott and Cánovas, 2015; Beretta and Hellweg, 2019).

[4] Food recycling by composting, as biogas, and as RDF or refuse derived fuel from solid waste and liquid waste (Tuphoon, 2015; Eriksson et al., 2018; Puangkeaw et al., 2018).

[5] Sewage and waste disposal such as wastewater treatment and landfill (Schott and Cánovas, 2015; Eriksson et al., 2018; Beretta and Hellweg, 2019). The above management topics are similar to what Shumal et al. (2020) suggested about waste mangement hierachy from reduce, reuse, recycle, recover, and dispose.

In addition, recent information in 2022 from Satun Province (2022) showed that there have been totally two sanitary landfills, one controlled dumping landfill, one incineration facility of waste on an island, as well as waste separation, waste recycling and recycling shop, waste and wastewater composting, and waste recycling bank; but no wastewater treatment is available due to the low population density (115.70 persons/square kilometer) in Satun province.

Gastronomic Tourism and Food Waste

Gastronomic tourism is also known as food tourism, wine tourism, culinary tourism, gourmet tourism, and gastro-tourism (Pavlidis and Markantonatou, 2020). However, 'gastronomic tourism' is used in this research article to mean a leisure trip in pursuit of unique experiences in eating and drinking (Pavlidis and Markantonatou, 2020, 2) — and it is not limited to only wine. This is also applied from 'gastronomy' that means knowledge of what to eat, and how to eat it, from generating, cultivating, processing, distributing, and consuming food and drinks that affect human physical, mental, and social well-being (Navarro-Dols and González-Pernía 2020, 2). Hence, gastronomic tourism can be practiced in a cottage, on farms and related agri-food markets, in gastronomy processing, in accommodation related to gastronomy, by means of gastronomy, cooking schools and seminars, and dining areas as examples (Pavlidis and Markantonatou, 2020). Examples of community-based gastronomic tourism in Satun province, Thailand, divided by the supply chain, are presented in Figure 1. There is a continuous spectrum of gastronomic tourists by intensity from very light to very deep: from no emphasis on what to eat, to considering food as the main purpose of the trip (Guzel and Apaydin, 2016).

Gastronomic tourism may produce waste as both food losses and food waste, or from food production to human food consumption (Food and Agriculture Organization of the United Nations, 2011). When focusing on zero food waste from gastronomic tourism, as Parfitt et al. (2010) defined, this study considered both food losses and food waste in the supply chain of gastronomic tourism, as the gastronomic tourism activities are found from food production to human food consumption. Besides, food losses can be targeted by food waste management if they are related to gastronomic tour providers' and tourists' behaviors; hence, food waste at food loss stage is comparable to food waste from consumption stage, and the same guidelines of food waste management can be applied.

WRAP (2013 cited in Charoennaiwongpao, 2020); and Beretta and Hellweg (2019) stated that food waste is generated because of several reasons; for example, recent studies from Filimonau and Coteau (2019); Papargyropoulou et al. (2019); and Dhir et al. (2020) divided causes of food waste as similar to food losses and food waste stages, namely: 1) pre-kitchen (lack of technology for food production, too early harvesting due to lack of food product and farmers' lack of cash, but such food is poor nutrition, poorly stored and transported, with substandard food products in markets, or too much food products in the markets), 2) kitchen (food safety reasons, food preparation in the food industry, overproduction, deteriorated food), and 3) post-kitchen (leftovers from food decoration, leftovers from food consumption such as buffet and plate waste, overconsumption, and not satisfying preferences).

Assessment of Food Waste Management in Community-Based Gastronomic Tourism

Gastronomic tourism is an alternative sustainable tourism form that relates to economic benefits, as well as local and regional development (Pavlidis and Markantonatou, 2020). It attracts tourists who pursue culture and education.

This study applied two major indicators of community-based gastronomic tourism, especially to food waste management, firstly from food service standard for tourism (Ministry of Tourism and Sports, 2013), and secondly from Thailand's community-based tourism indicators (National Tourism Policy Committee, 2016). Twelve questions were asked of two targeted samples, as shown in Table 1.

Table 1. Indicators of food waste management surveyed in this study

Source	**Methods for Zero Waste Management**
Thailand's community-based tourism indicators (National Tourism Policy Committee, 2019)	**Food waste prevention**
	1) Community has rules for food waste management
	2) There is a carrying capacity of tourist count in terms of food waste
	3) There are rules between community and tourists on waste management in gastronomic tourism
	4) Gastronomic tourism activities are designed to not release waste to environment
	5) Food ingredients are mainly locally sourced, such as local plants or animals, for reducing food waste from spoilage during transport, and also to support local food conservation
	Food waste reduction
	6) Local food is utilized at highest value
	7) Food is processed in environmentally friendly way to preserved food (Face-to-face interviews with representatives of CBGT only)
Food service standard for tourism (Ministry of Tourism and Sports, 2013)	**Food sharing and donation**
	--Not Applicable--
	Food waste recycling
	8) Waste separation, such as organic food waste versus others
	9) Food waste recycling by composting, and by biogas generation
	Sewage and food waste disposal
	10) Cleaning water goes directly to sewage pipeline, and there is oil & grease collection
	11) The food waste residues are treated as sanitation, such as with sanitary landfill
	12) Food wastewater is treated as sanitary sewage

MATERIALS AND METHODS

Research Design and Sampling

This was a survey-based study designed to have two main samples. Firstly, purposive sampling was applied in the districts that had only one site of community-based gastronomic tourism (Khuankalong, Manang, and Khuandon districts), and after that simple random sampling was used in districts with more than one site for community-based gastronomic tourism (Muang Satun, Langu, Thungwa, and Thapae districts). After selecting the sampling of community-based gastronomic tourism, names of the sites were concealed and coded (Table 2) totally for six communities, except for the representatives from Thapae district who were excluded during the study as all of them were permanently terminated during COVID-19. Two representatives (CBGT, and chef) of each community-based gastronomic tourism site (for totally 12 participants) were then selected by purposive sampling, and 67 Thai tourist representatives of each community-based gastronomic tourism (totally 402 participants) were selected by quota sampling. The count of 402 tourists was targeted based on previous statistics on tourists (475,101 tourists) entering Satun province in 2021 (Satun Province, 2022, 129) with 95% confidence level and a ± 5 confidence interval (Table 3 and Figure 2).

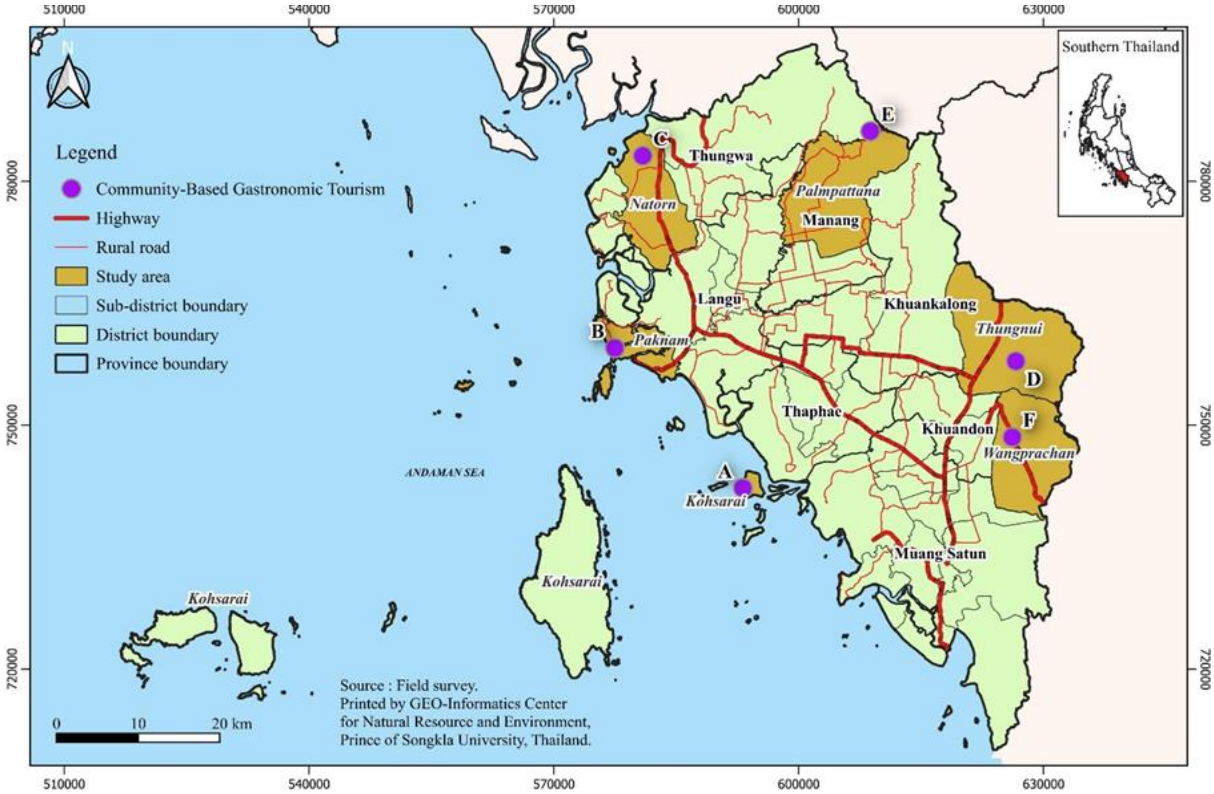


Figure 2. Locations of the sampled six Community-Based Gastronomic Tourism sites (Source: GEO-Informatics Research Center for Natural Resource and Environment, Cartographer Tongyoi, R., 2023; this figure was produced purposely for only this research article)

Research Tools and Data Collection Procedures

Semi-structured questionnaires and structured questionnaires were developed for use with the representatives from community-based gastronomic tourism, and for Thai tourists visiting the six community-based gastronomic tourism sites. The two questionnaires were investigated for validity by three experts, and for reliability with 30 pilot samples, with final revision before conducting the surveys. There were two main sections in the questionnaires: basic information about the respondent, and rating scores from the least to the highest (on five-point Likert scale) regarding food waste management. Face-to-face interviews were used to collect data from 12 representatives of community-based gastronomic tourism, and self-administered questionnaires or on-line questionnaires were applied to collect data from the 402 Thai tourists (Table 3).

Data Analysis

Frequencies, percentages, averages, and multiple response data analysis were conducted with the Statistical Package for the Social Sciences (SPSS) Version 16. In addition, qualitative data from semi-structured face-to-face interviews were narration analyzed. The community-based gastronomic tourism site that received the highest scores on zero food waste management was considered a successful model for community-based gastronomic tourism.

Table 2. Community based gastronomic tourism (CBGT) distributed in Satun Province, TH
(Source: Summarized from Satun Provincial Office of Tourism and Sports, 2021)

No.	**District**	**Community-Based Gastronomic Tourism**		**Sum**	**Sampling Design**	**Selected Sub-District**	**SUM**	**Code**
		Interested	**Not Interested**					
1	Muang Satun	8	3	11	Simple Random Sampling	Kohsarai	1	A
2	Langu	8	2	10	Simple Random Sampling	Paknam	1	B
3	Thungwa	3	4	7	Simple Random Sampling	Natorn	1	C
4	Khuankalong	1	1	2	Purposive Sampling	Thungnui	1	D
5	Manang	1	1	1	Purposive Sampling	Palmpattana	1	E
6	Khuandon	1	-	1	Purposive Sampling	Wangprachan	1	F
7	Thapae	2	-	2	Exclusion due to all closing during COVID-19	Sakorn	N.A.	N.A.
Sum		**24**	**11**	**35**	**6**			

Table 3. Survey participants (n = 402) and face-to-face interviews (n = 12) of CBGT in Satun (Source: The authors' elaboration)

Code	District	Sub-District	Quota Sampling Survey			Face-to Face Interviews		
			Self-Administered	On-Line	SUM	Participants' ID	Position	Date of interviews in 2022
A	Muang Satun	Kohsarai	52 (77.61%)	15 (22.39%)	67 (16.67%)	C1	Head of CBGT	19 March
						C2	Chef	19 March
B	Langu	Paknam	47 (70.15%)	20 (29.85%)	67 (16.67%)	C3	Head of CBGT	15 May
						C4	Chef	15 May
C	Thungwa	Natorn	32 (47.76%)	35 (52.24%)	67 (16.67%)	C5	Head of CBGT	13 March
						C6	Chef	13 March
D	Khuankalong	Thungnui	43 (64.18%)	24 (35.82%)	67 (16.67%)	C7	Chef	8 July
						C8	CBGT Committee	19 September
E	Manang	Palmpattana	39 (58.21%)	28 (41.79%)	67 (16.67%)	C9	Head of CBGT	15 July
						C10	Chef	15 July
F	Khuandon	Wangprachan	50 (74.53%)	17 (25.37%)	67 (16.67%)	C11	Head of CBGT	6 March
						C12	Chef	6 March
SUM = 6			263 (65.42%)	139 (34.58%)	402 (100.00%)	12 (Participants)		

RESULTS

Basic information of the six community-based gastronomic tourism sites

Table 4 summarizes basic information on the six community-based gastronomic tourism sites in Satun province, Thailand, from the perspective of the communities themselves.

Table 4. Information on six CBGTs in Satun province from face-to-face interviews (n = 12) (Source: The authors' elaboration)

Community-Based Gastronomic Tourism Information	Community					
	A	B	C	D	E	F
Community's Main Religion	Islamic	Islamic	Islamic	Islamic	Buddhism	Islamic
Food Alternatives						
Halal	√	√	√	√	×	√
Vegetarian	×	√	×	√	×	√
Healthy	×	√	√	√	×	√
Others such as local food and fruits	×	×	×	×	√	√
Food Style Service						
Main Course	√	√	√	√	√	√
Break	√	√	√	√	√	√
Dessert	×	√	√	√	√	√
Drink	×	√	√	√	√	√
Gastronomic Tourism Service						
Seeing	√	√	√	√	√	√
Tasting	×	√	√	√	×	√
Cooking	×	√	√	√	×	√
Dining	√	√	√	√	×	√
Carrying Capacity (Persons)	40-50	30-50	100-150	100	100	200
Minimum Average of Food Expenditures (Thai Baht)	300	350	150	180	150	300
Community Accommodation (Beds)	30	60	×	15-20	30	Not Specified
Transportation Service	Motor Tricycle	Van	Car	Motorcycle, Taxi	Car	Not Specified
Processed Food Products (Qualitative data of food waste reduction; No.7)	1) Sea leech preserved in honey syrup 2) Honey 3) Shrimp paste	1) Dried seafood 2) Shrimp paste 3) Pumpkin cracker	1) Dried fish and shrimp 2) Fermented shrimp 3) Curry puff	1) Local grinded coffee 2) Coffee flower tea	×	1) Lemongrass and moringa teas 2) Raw banana powder 3) Banana in honey syrup

Food Waste Management Assessment

Figure 3 shows the self-assessment results on food waste management from 12 representatives of six CBGTs in Satun province. The representatives from CBGT C assessed themselves to the highest rank (mean = 4.77); while the representatives from CBGT A assessed themselves to the lowest rank (mean = 2.82). Comparing the results in Figure 4 with Table 5 showing the tourists' assessment indicates that tourists visiting CBGT D assessed this community's food waste management to the highest rank (mean = 4.21); while the tourists visiting CBGT E assessed this community's food waste management to the lowest rank (mean = 3.42).

Suggested appropriate approach to gastronomic tourism in Satun province, Thailand

Table 5 shows a ranking based on the results in the previous section, regarding food waste management in community-based gastronomic tourism sites in Satun province, Thailand. The community with the highest score can serve as a model for successful community-based gastronomic tourism approach.

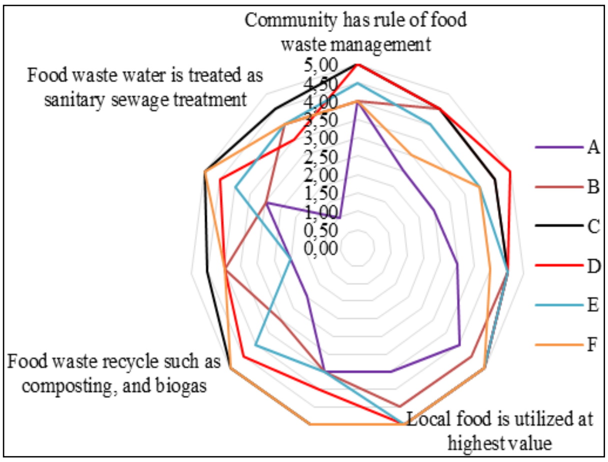


Figure 3. Self-assessment survey on food waste management in CBGTs (n = 12) (Source: The authors' elaboration)

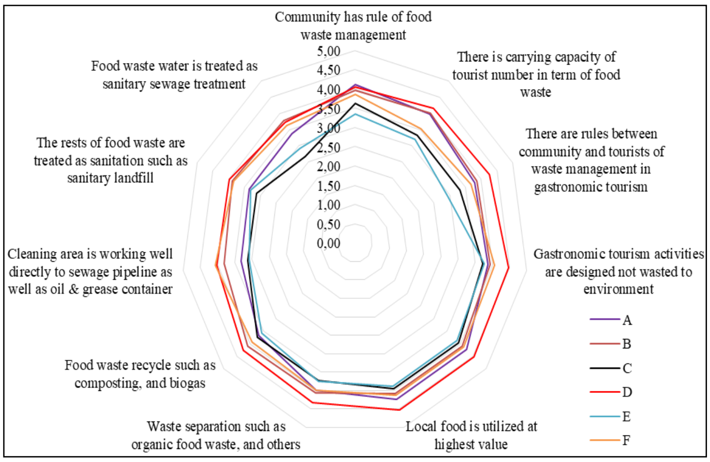


Figure 4. Tourists' results in survey on food waste management of CBGTs (n = 402) (Source: The authors' elaboration)

Table 5. Ranking of CBGTs in Satun province, Thailand Source: The authors' elaboration

Rank	Community	Self-Assessment (n = 12)	Tourists' Assessment (n =402)	Total Average Score
1	**D**	4.50	4.21	4.36
2	**C**	4.77	3.48	4.13
3	**F**	4.36	3.90	4.13
4	**B**	4.00	3.97	3.99
5	**E**	4.05	3.42	3.74
6	**A**	2.82	3.81	3.32

Figure 5. Examples of foods at 'Tonpanan-Bornamron' CBGT in Satun province, Thailand (Source: The authors' elaboration)

Basic Information of CBGT D

The community-based gastronomic tourism site D is called "Tonpanan-Bornamron" and it is situated at Village No. 5, Thungnui sub-district, Khuankalong district, Satun province, Thailand. By religion it is purely Islamic, and it is surrounded by mountains and forests. Local organic food has been served to tourists for the main course, dessert, in the morning and in the afternoon breaks, as well as with a variety of drinks. The food cultures represented are Muslim (Halal), vegetarian, and health foods. The way of cooking is a mix of Thai-southern and Malay, with banana pickle and blossom, home grown chicken meat, spicy curry, coconut milk, and coconut meat. Typical examples of foods are home chicken curry with banana pickle (1), local vegetable fern salad (2), deep-fried banana blossom (3), roasted minced coconut chili paste (4), and deep-fried bananas with local coffee (5) (Figure 5). Local seasonal fruits are durian, santol, chempedak, rambutan, and longkong. Community-based gastronomic tourism here has been managed as learning stations or from food generation to food consumption having at Station 1 cooking steam rice in bamboo tube, at Station 2 seeing, harvesting, and tasting local vegetable fern growing in the forest near a river, at Station 3 brewing and tasting local coffee; and at Station 4 cooking a local dessert.

DISCUSSION

This study applied two major indicators from food service standards for tourism, and Thailand's community-based tourism indicators, for assessing food waste management via both self-assessment and a tourists' assessment. The weak scores reflected issues on food waste management to improve, from both self-assessment as well as from the tourists' point of view. The good scores indicated good management of food waste as well as reminded the community-based gastronomic tourism to keep up the good practices. Ranking of community-based gastronomic tourism sites in Satun province was topped by "Tonpanan-Bornamron" community, situated at Thungnui sub-district, Khuankalong district, in Satun province of Thailand. The CBGT route design for visitors could suggest trips of one or more days among CBGTs in Satun province, possibly also with plans mixing community-based gastronomic tourism with geo-tourism, health and wellness tourism, and sea-sand-sun tourism.

Twelve indicators of food waste management reflected the status of CBGTs in Satun province, Thailand, and the survey results of course depend on the choice of these indicators. The results on the suggested CBGT approach from this study are concordant with results of Yodkhayan (2023) who assessed four main indicators, namely on resources and environmental management; food standard and food safety; tourist services; and CBGT activities. However, only a select subset of CBGTs in Satun province were studied, while in a separate study all the CBGTs could be reinvestigated for comprehensive ranking and improvement suggestions. Comparing gastronomic tourism activities in supply chain and food waste management indicates that some management activities overlap between food losses and food waste, so that food waste management can apply to the food losses as well, and this influenced the definition of food waste management used in this study. For example, in an activity of visiting or seeing the local vegetable fern at food production stage the tourists may taste the fern directly at the farm, witness harvesting local vegetable fern (post-harvest stage), as well as participate in a cooking class (food processing stage) and food tasting; they might also dine together after the class. It appears that food waste management should naturally target the whole supply chain incurring food losses and food wastes. Food waste management survey in this study provides some guidlines and suggestions for tourism organisation, for community-based gastronomic tourism in Satun province, Thailand, and is of interest outside this limited context. The information from Satun Province (2022) showed some shortcomings in the management as there is no wastewater treatment available. Whether they can build their own sewage system — such as using a septic tank (Miller and Spoolman, 2015) — at touristic places, or use food waste prevention, reduction, sharing, and recycling, the food waste management can still be improved.

CONCLUSION

This study applied two indicators, firstly of food service standard for tourism; and secondly, Thailand's community-based tourism indicators, for assessing zero food waste management in community-based gastronomic tourism of Satun province. Ranking and appropriate approach to community-based gastronomic tourism in Satun province are presented for the benefit of gastronomic tourism entrepreneurs as well as for use by relevant organizations.

Author Contributions: Conceptualization, M.Y. and U.M.; methodology, M.Y. and U.M.; software, M.Y.; validation, M.Y. and U.M.; formal analysis, M.Y. and U.M.; investigation, M.Y. and U.M.; data curation, M.Y. and U.M.; writing - original draft preparation, M.Y. and U.M.; writing - review and editing, M.Y. and U.M.; visualization, M.Y. and U.M.; supervision, U.M.; project administration, M.Y. and U.M. All authors have read and agreed to the published version of the manuscript.

Funding: The Faculty of Environmental Management, Prince of Songkla University in the fiscal year 2021–2022, and the Graduate School, Prince of Songkla University, in the fiscal year 2022.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The authors wish to thank graduate studies grant from the Faculty of Environmental Management, Prince of Songkla University in the fiscal year 2021–2022, and research grant from the Graduate School, Prince of Songkla University, in the fiscal year 2022, as well as all representative survey respondents.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Bangkok Post. (2021). *Phetchaburi gets creative city status*. *Bangkokpost.* https://www.bangkokpost.com/thailand/general/2212791/phetchaburi-gets-creative-city-status.

Beretta, C., Stucki, M., & Hellweg, S. (2017). Environmental impacts and hotspots of food losses: Value chain analysis of Swiss food consumption. *Environ. Sci. Technol.*, 51(19), 11165-11173. https://doi.org/10.1021/acs.est.6b06179

Beretta, C., & Hellweg, S. (2019). Potential environmental benefits from food waste prevention in the food service sector. *Resources, Conservation and Recycling,* 147(2019), 169-178. https://doi.org/10.1016/j.resconrec.2019.03.023

Charoennaiwongpao, S. (2020). *แนวทางการลดปริมาณอาหารเหลือทิ้งจากการบริโภคภายในมหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี [Food waste reduction for King Mongkut's University of Technology Thonburi]*. Master Dissertation, King Mongkut's University of Technology Thonburi, Graduate School of Management and Innovation, Bangkok, Thailand (in Thai).

CNN Travel Staff. (2021). *The world's 50 best foods*. *CNN.* https://edition.cnn.com/travel/article/world-best-food-dishes/index.html

Delgado, A., Rodriguez, R., & Staszewska, A. (2023). Tackling Food Waste in the Tourism Sector: Towards a Responsible Consumption Trend. *Sustainability,* 15(17), 1-9. https://doi.org/10.3390/su151713226

Dhir, A., Talwar, S., Kaur, P., & Malibari, A. (2020). Food waste in hospitality and food services: A systematic literature review and framework development approach. *Journal of Cleaner Production*, 270(2020), 1-16. https://doi.org/10.1016/j.jclepro.2020.122861
Dolnicar, S., Juvan, E., & Grün, B. (2020). Reducing the plate waste of families at hotel buffets – A quasi-experimental field study. *Tourism Management*, 80(2020), 1-12. https://doi.org/10.1016/j.tourman.2020.104103
Dr Dan Mongtaangdan (2014). *"อาหารที่ถูกทิ้ง" (Food Wastes): ผลกระทบของปัญหาอาหารที่ถูกทิ้ง (3) [Food Wastes: Impacts of food waste (3)]. Bangkokbiznews,* (in Thai). https://www.bangkokbiznews.com/blog/detail/603554
Eriksson, M., Osowski, C.P., Björkman, J., Hansson, E., Malefors, C., Eriksson, E., & Ghosh, E. (2018). The tree structure. A general framework for food waste quantification in food services. *Resources, Conservation and Recycling*, 130(2018), 140-151. https://doi.org/10.1016/j.resconrec.2017.11.030
Eriksson, M., Malefors, C., Callewaert, P., Hartikainen, H., Pietiläinen, O., & Strid, I. (2019). What gets measured gets managed – Or does it? Connection between food waste quantification and food waste reduction in the hospitality sector. *Resources, Conservation & Recycling: X*, 4(2019), 1-8. https://doi.org/10.1016/j.rcrx.2019.100021
Filimonau, V., & Coteau, D.A.D. (2019). Food waste management in hospitality operations: A critical review. *Tourism Management*, 71(2019), 234-245. doi:https://doi.org/10.1016/j.tourman.2018.10.009
Food and Agriculture Organisation of the United Nations. (2011). *Global food losses and food waste*, Food and Agriculture Organization of the United Nations, Rome, Italy.
GEO-Informatics Research Center for Natural Resource and Environment (Cartographer: Tongyoi, R.). (2023). Locations of the sampled six Community-Based Gastronomic Tourism sites [Map]. GEO-Informatics Research Center for Natural Resource and Environment, Prince of Songkla University Hat, Yai, Thailand.
Guzel, B., & Apaydin, M. (2016). Gastronomy tourism, motivations and destinations. Avcikurt, C., Dinu, M.S., Efe, N., Hacioglu, R., Soykan, A. & Tetik, N. (Eds), In *Global issues and trends in tourism*, 394-404, St. Kliment Ohridski University Press, Sofia, Bulgaria.
Kar, P., Mohanty, S., & Mohanty, A. (2023). Examining the dimensions affecting food tourism intentions on local foods in Odisha, India. *GeoJournal of Tourism and Geosites*, 48(2 Supplement), 832-840. https://doi.org/10.30892/gtg.482spl17-1083
Kattiyapornpong, U., Ditta-Apichai, M., & Chuntamara, C. (2023). Sustainable Food Waste Management Practices: Perspectives from Five-Star Hotels in Thailand. *Sustainability*, 15(13), 1-19. https://doi.org/10.3390/su151310213
Kumar, G.M.K. (2019). Gastronomic tourism— A way of supplementing tourism in the Andaman & Nicobar Islands. *International Journal of Gastronomy and Food Science*, 16(2019), 1-6. https://doi.org/10.1016/j.ijgfs.2019.100139
Miller, G.T., & Spoolman, S. (2015). *Living in the Environment*, 18th ed. Cengage Learning, Canada.
Ministry of Tourism and Sports. (2013). *มาตรฐานบริการอาหารเพื่อการท่องเที่ยว [Food service standard for tourism]*, CUPrint, Bangkok, Thailand (in Thai).
Mora, D., Solano-Sánchez, M.A., López-Guzmán, T., & Moral-Cuadra, S. (2021). Gastronomic experiences as a key element in the development of a tourist destination. *International Journal of Gastronomy and Food Science*, 25(2021), 1-8. https://doi.org/10.1016/j.ijgfs.2021.100405
Moraes, N.V., Lermen, F.H., & Echeveste, M.E.S. (2021). A systematic literature review on food waste/loss prevention and minimization methods. *Journal of Environmental Management*, 286(2021), 1-12. https://doi.org/10.1016/j.jenvman.2021.112268.
National Tourism Policy Committee. (2016). *เกณฑ์การพัฒนาการท่องเที่ยวโดยชุมชนของประเทศไทย [Thailand's community-based tourism indicators]*, n.p., n.p (in Thai).
Navarro-Dols, J., & González-Pernía, J.L. (2020). Gastronomy as a real agent of social change. *International Journal of Gastronomy and Food Science*, 21(2020), 1-7. https://doi.org/10.1016/j.ijgfs.2020.100240
Papargyropoulou, E., Steinberger, J.K., Wright, N., Lozano, R., Padfield, R., & Ujang, Z. (2019). Patterns and Causes of Food Waste in the Hospitality and Food Service Sector: Food Waste Prevention Insights from Malaysia. *Sustainability*, 11(21), 1-21. https://doi.org/10.3390/su11216016
Parfitt, J., Barthel, M., & Macnaughton, S. (2010). Food waste within food supply chains: quantification and potential for change to 2050. *Philosophical Transactions of The Royal Society B*, 365(2010), 3065-3081. https://doi.org/10.1098/rstb.2010.0126
Pavlidis, G., & Markantonatou, S. (2020). Gastronomic tourism in Greece and beyond: A thorough review. *International Journal of Gastronomy and Food Science*, 21(2020), 1-10. https://doi.org/10.1016/j.ijgfs.2020.100229
Prasongthan, S., & Silpsrikul, R. (2023). The connection of slow food principle with community-based tourism in Thailand: Investigating generation Y perception. *GeoJournal of Tourism and Geosites*, 48(2 Supplement), 709-719. https://doi.org/10.30892/gtg.482spl04-1070
Puangkeaw, R., Rattanapan, C., & Ounsaneha, W. (2018). *แนวทางเพื่อการจัดการขยะอาหารในตลาดสดขนาดใหญ่ของประเทศไทย: กรณีศึกษาตลาดกลางผลไม้ในจังหวัดปทุมธานี [Option for food waste management of large fresh markets of Thailand: A case study of central fruit market in Pathum Thani Province]*. In 6th Academic Science and Technology Conference 2018, 553-558, Huachiew Chlermprakiet University, Samutprakarn, Thailand (in Thai).
Rivza, B., Foris, D., Foris, T., Privitera, D., Uljanova, E., & Rivza, P. (2022). Gastronomic heritage: A contributor to sustainable local tourism development. *GeoJournal of Tourism and Geosites*, 44(4), 1326-1334. https://doi.org/10.30892/gtg.44418-950
Satun Province (2022). *ข้อมูลทั่วไปจังหวัดสตูล ปี 2565 [Satun's General Information 2022]*, Satun Provincial Office, Satun, Thailand (in Thai).
Satun Provincial Office of Tourism and Sports. (2021). *บัญชีรายชื่อเครือข่ายการท่องเที่ยวโดยชุมชนจังหวัดสตูล [Lists of Community-based tourism network at Satun province]*, Satun Provincial Office of Tourism and Sports, Satun, Thailand (in Thai).
Schott, A.B.S., & Cánovas, A. (2015). Current practice, challenges and potential methodological improvements in environmental evaluations of food waste prevention – A discussion paper. *Resources, Conservation and Recycling*, 101(105), 132-142. https://doi.org/10.1016/j.resconrec.2015.05.004
Shumal, M., Jahromi, A.R.T., Ferdowsi, A., Dehkordi, S.M.M.N., Moloudian, A., & Dehnavi, A. (2020). Comprehensive analysis of municipal solid waste rejected fractions as a source of Refused Derived Fuel in developing countries (case study of Isfahan- Iran): Environmental Impact and sustainable development. *Renewable Energy*, 146(2020), 404-413. https://doi.org/10.1016/j.renene.2019.06.173
Srijuntrapun, P., Sukwong, P., & Marshall, A. (2022). The role of food waste hierarchy as Thai hotels seek to fulfill their corporate social responsibility. *Heliyon*, 8(10), 1-10. https://doi.org/10.1016/j.heliyon.2022.e11201
Sutiadiningsih, A., Purwidiani, N., Dewi, I.H.P., Hamdani, A.T., & Le, H.T. (2023). Gastronomic experience as a motivation for tourists to choose tourist destinations in Indonesia and Vietnam. *GeoJournal of Tourism and Geosites*, 47(2), 424-431. https://doi.org/10.30892/gtg.47208-1040
Tan, S.K., Luh, D.B., & Kung, S.F. (2014). A taxonomy of creative tourists in creative tourism. *Tourism Management*, 42(2014), 248-259. https://doi.org/10.1016/j.tourman.2013.11.008
Tuphoon, N. (2015). *ขยะอาหาร: พลังแห่งดวงไฟ [Food wastes: An energy of light]*. Plastics, 44-48, (in Thai).
Yodkhayan, M. (2023). *การประเมินความพร้อมของชุมชนท่องเที่ยวในการให้บริการอาหารท้องถิ่นเพื่อส่งเสริมการท่องเที่ยวเชิงอาหารจังหวัดสตูล [Readiness Assessment of Local Food Operation in Community-Based to Promote Gastronomy Tourism in Satun Province]*, Master Dissertation, Prince of Songkla University, Faculty of Environmental Management, Hat Yai, Thailand (in Thai).

Article history: Received: 01.07.2023 Revised: 24.08.2023 Accepted: 02.10.2023 Available online: 06.11.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1268-1275
DOI 10.30892/gtg.50407-1125

FACTORS IMPACTING FINANCIAL LOSS OF SMALL TOURISM BUSINESSES DUE TO COVID-19

Farzana AFROZ
University of Dhaka, Department of Statistics, Dhaka, Bangladesh, e-mail: farzana_bd87@yahoo.com

Kamrul HASSAN*
University of Dhaka, Department of Tourism and Hospitality Management, Dhaka, Bangladesh, e-mail: hassan_bd26@yahoo.com

Jannatul FERDAUS
TEAB (Tourism Educators' Association of Bangladesh), Research Wing, Dhaka, Bangladesh, e-mail: jannatulria99@gmail.com

Citation: Afroz, F., Hassan, K., & Ferdaus, J. (2023). FACTORS IMPACTING FINANCIAL LOSS OF SMALL TOURISM BUSINESSES DUE TO COVID-19. *GeoJournal of Tourism and Geosites*, 50(4), 1268–1275. https://doi.org/10.30892/gtg.50407-1125

Abstract: Small tourism businesses are extremely affected by COVID-19 pandemic all over the world. The pandemic scenario in case of small tourism businesses in third-world country like Bangladesh was much critical. The study aims at evaluating factors responsible for financial loss of small tourism businesses due to COVID-19 pandemic in Bangladesh. To address the objective, Chi-square test, and logistic regression modeling have been applied to the quantitative primary data. This study finds that education of the owner/manager, type of organization, office location, year of establishment, main target customer and revenue earned before pandemic have significant relationship with financial loss during COVID-19. The results of the research would assist entrepreneurs and policy-makers in weighing different factors directly connected with the profit or loss in business and to formulate strategies for unpredicted crises.

Key words: Financial loss, Small tourism business, logistic regression, COVID-19, Bangladesh

* * * * * *

INTRODUCTION

Small businesses constitute the largest portion of businesses operated in Bangladesh. Hence the role of small tourism businesses in the economic and social development of the country can easily be imagined (Chowdhury, 2020). The varying nature of small businesses suggests that they are likely to suffer severe losses in any crisis as they do not have enough knowledge about risk management (Litheko, 2021; Fuchs 2022). Small tourism businesses are not different from traditional small businesses (Copp and Ivy, 2001; Tinsley and Lynch, 2001; Litheko, 2021). As the service industry is prone to face the most awful scenarios of any crisis, small tourism businesses suffer great financial losses during crisis period (World Bank Group, 2020; Gössling et al., 2021). However, one such alarming crisis was COVID-19 pandemic (Hall et al., 2020; Jaipuria et al., 2021; Rosita et al., 2022; Rogerson and Rogerson, 2023). During the pandemic, most of the small tourism businesses in Bangladesh encountered the worst scenario of financial losses. The impact of this pandemic on the tourism industry was so severe that it forced almost every tourism business to rethink whether they will be able to come back to their previous position (Fotiadis et al., 2021; Rogeson, 2021; Zhang et al., 2021).

Small tourism business belongs to small industry of Bangladesh which constitutes the firms or businesses with a fixed asset (other than land and building) costing less than BDT 150 million, (Bangladesh Bank, 2011). The SME (Small and Medium Enterprise) policy of Bangladesh Bank (2011) outlines that small businesses are not public limited companies and they employ 15 to 150 staff. However, there are two categories of small industry present in Bangladesh (Hasan et al., 2021). They are small manufacturing industry and small service industry. Small manufacturing industry differs from small service industry in terms of their fixed asset and number of employees. For instance, the amount of fixed assets (other than land and buildings) of small manufacturing industry is between BDT 7.5 to 150 million and the number of employees they have would be 31-120 (Bangladesh Bank, 2011). On the other hand, the amount of fixed assets (other than land building) of the small service industry is worth between BDT 1 to 20 million and the number of employees they have would be 16-50. Small tourism businesses fall under the category of small service industry.

Core facts deriving from the SME policy of Bangladesh Bank is that the basic difference between any small and large tourism business organizations are mainly associated with the amount of their fixed asset and number of staff they have for daily operation. It implies that small tourism businesses usually start with a nominal capital unlike large tourism businesses or operations (star-rated hotels, resorts, restaurants). Hence their business revenue as well as profit and loss is small compared to large tourism business organizations. But when it comes to losses, it becomes an existential crisis for small tourism businesses (Litheko, 2021; Kim et al., 2021; Fuchs, 2022). During the COVID-19 pandemic, majority of small tourism businesses in Bangladesh had faced such a situation (Chowdhury, 2020). According to a report by the COMCEC

* Corresponding author

Covid response program, during COVID-19 pandemic small tourism businesses were faced with almost 82.90% customer decline (Hasan et al., 2021). Besides, about 15% of small tourism businesses had to close their businesses (Hasan et al., 2021).

COVID-19 has been one of the most destructive crises the tourism industry has ever seen (Karabulut et al., 2020; Qiu et al., 2020; Islam et al., 2022). The global economic impact and trends report by World Travel and Tourism Council (WTTC) has shown the devastating impact of COVID-19 on regional tourism. The report reveals that the contribution of travel and tourism to regional GDP decreased significantly around the world such as 53.7% decrease in Asia Pacific Region followed by 51.4% in Europe, 51.1% in Middle East, 49.2% in Africa and 42.4 % in America as a result of COVID-19 pandemic (WTTC, 2021). International tourist arrival declined by 84% in 2021 due to Covid-19 pandemic (UNWTO, 2021). The pandemic started with a severe health crisis but soon it turned into an economic and social crisis (European Commission, 2020; Mehrolia et al., 2020; Foo et al., 2020). Around 62 million people have lost their jobs in travel and tourism industry during the pandemic which provides a clear idea about the acuteness of the crisis (WTTC, 2021).

The catastrophe of COVID-19 pandemic over the tourism industry of Bangladesh is unimaginable (Al-Zaman, 2020; Zafri et al., 2021; Rahman et al., 2021). Figure 1 presents data on revenue earned from the tourism sector in Bangladesh from the year 2011 to 2021 (CEIC, 2021). Where it is depicting, the tourism industry of Bangladesh was growing rapidly with an increasing amount of revenue each year. But suddenly a conspicuous decrease in revenue is noticed in the year 2020. Meanwhile, COVID-19 pandemic is primarily responsible for this visible decrease. According to Afroz et al., (2022), the travel behavior pattern of tourists changed during COVID-19 pandemic as tourists are very sensitive to any crisis, especially health crisis. Consequently, the number of tourists had noticeably decreased around the world so as in Bangladesh. According to WTTC (2021), international and domestic visitor spending decreased by 59.7% and 33.9% respectively in 2020 compared to 2019 in Bangladesh. As a result, many small tourism businesses were forced to close their business and others had to bear huge losses to come back into operation (Hasan et al., 2021).

As Bangladesh is a developing country, many people demand inexpensive trips (Bhuiyan et al., 2021). To meet such demands many small tourism businesses have sprung up such as: tour operators and travel agents providing tour management services; hotels, motels, resorts providing accommodation services; restaurants providing food services; gift shops; and others providing transportation services (Hasan et al., 2021). Such small businesses are located in different places in the country depending on the nature of their business. For instance, most of the tour management businesses are located in the capital. On the other hand, most of the accommodation and food service businesses are located on different tourist sites. Additionally, these small tourism businesses target different types of customers (e.g., domestic, inbound, and outbound tourists) based on their business operation policy (Nieman and Nieuwenhuizen, 2014; Litheko, 2021). Most of the small tourism businesses focusing on the international tourism market operate their business in the capital city Dhaka and others focusing on domestic tourism market operate their business in different tourism destinations of the country.

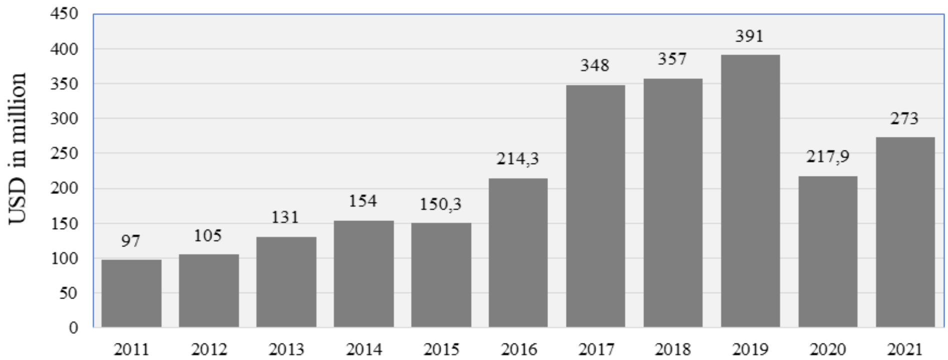


Figure 1. Revenue Earned from Tourism (2011-2020) Source: CEIC (2021) and UNWTO (2022)

The ownership structure of many small tourism businesses varies from sole proprietorship to partnership depending on the scope of business (Nieman and Nieuwenhuizen, 2014; Litheko, 2021). Generally, small tourism businesses whose scope of business is relatively very small (e.g., gift shop, single food service), operate as sole proprietorship. In opposition, relatively large-scale small tourism businesses (e.g., hotels, motels, resorts) operate under partnership.

However, the tourism industry is mainly dominated by males and most of the owners/managers of various small tourism businesses are highly educated. The education level of management people of these businesses influences profit or loss of the business (Hasan et al., 2021). In addition to the education level, the lifespan of the business also affects the possible financial profit or losses. For instance, a small business with a long lifespan has comparatively more experience in coping with sudden events than relatively new small businesses so as making profit or loss (Copp and Ivy, 2001; Fuchs, 2022; Issakov et al., 2023). Hence, experience is a significant factor in managing business effectively during crisis periods (Nikraftar and Hosseini, 2016; Lukac et al., 2023).

Though most of the tourism businesses run in Bangladesh fall under the category of small tourism businesses, they suffer most in any sudden event or crisis. Several reasons are responsible for such suffering of various small tourism businesses. For instance, not having enough resources to face crisis, lack of knowledge about identifying crisis, and managing the crisis tactfully are some notable ones (Hassan and Ferdaus, 2020; Nguyen et al., 2022; Sharma and Upneja, 2005). However, losses suffered by different small tourism businesses vary depending on a number of factors such as: demographic characteristics of the owner/manager (e.g., gender, education), type of organization, office location, lifespan of the business, ownership structure, main target customer, and revenue. Though many researchers such as: Hall et al., (2020); Holy (2020), Fotiadis et al., (2020); Hassan and Ferdaus (2020); Kaushal and Srivastava (2021), have scrutinized the reasons behind losses in tourism businesses due to COVID-19, but no one had concentrated on the factors responsible for variation in financial losses of these businesses. Thus, this study aims at evaluating factors responsible for financial loss of small tourism businesses due to COVID-19 pandemic in Bangladesh. It examines the association between financial loss and a few factors (a couple of demographic features of owner/manager and some selected characteristics of businesses) in relation to COVID situation.

METHODOLOGY

To meet the aim of this study a quantitative research method has been utilized. The quantitative research approach is quite a popular tool among tourism researchers (Afroz et al., 2021; Mia and Hassan, 2021) to measure different variables against other variables or factors. Hence, in order to weigh the factors for which financial losses varied between different small tourism businesses during COVID-19, the quantitative research method is considered as a suitable approach. To collect the necessary data for this study, a survey was conducted among different small tourism businesses in Bangladesh. A total of 500 people from some well-known tourist destinations (Dhaka city, Chattogram division, Khulna region, Sylhet district) of the country participated in the survey. The participants were mainly associated with various small tourism businesses. For instance, owners, managers (i.e., top-level staff) of different small tourism businesses were the main respondents to the survey. Figure 2 presents the flow chart of the methodology steps followed in this research.

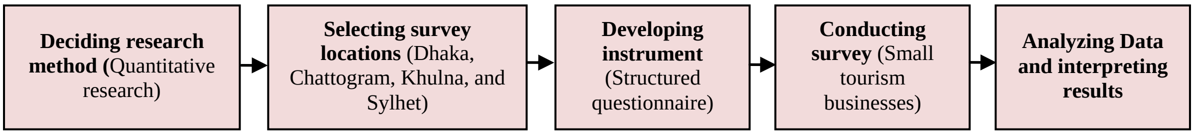


Figure 2. Flow Chart of Methodology Steps

Table 1 provides detailed information about the survey. To carry out the survey effectively, all small tourism businesses were divided into three categories such as: tour management operators, accommodation and food shops, and transportation and gift shops. Several tour operators and travel agencies were under the category of tour management group; different small hotels, motels, resorts, restaurants, and food carts were under the category of accommodation and food shops; various handicraft and souvenir shops along with some transportation operators were under the category of transportation and gift shops. The total number of participants in each group is listed in Table 1. The table shows that tour management group constitutes the largest share (64.4%) of the participants. Additionally, among the four fieldwork locations maximum number (55.4%) of responses had been collected from Dhaka city.

Table 1. Description of the Survey

Type of organization	Survey locations and number of participants				
	Dhaka city	**Chattogram division**	**Khulna region**	**Sylhet district**	**Total**
Tour Management	178 (35.6%)	85 (17.0%)	27 (5.4%)	32 (6.4%)	322 (64.4%)
Accommodation and Food Shop	62 (12.4%)	19 (3.8%)	0 (0.0%)	13 (2.6%)	94 (18.8%)
Transportation and Gift Shop	37 (7.4%)	23 (4.6%)	14 (2.8%)	10 (2.0%)	84 (16.8%)
Total	**277 (55.4%)**	**127 (25.4%)**	**41 (8.2%)**	**55 (11.0%)**	**500 (100%)**

A structured questionnaire was developed to support the survey and collect responses. The questionnaire contained two parts: the first part seeks information about the demographic characteristics of the respondents, and second part seeks information regarding the financial status of their business before and during the COVID-19 pandemic. The respondents were requested to share some of their business-related data through the questionnaire. Among them, some notable ones are type of organization, office location, year of establishment, ownership structure, main target customer, revenue, and approximate financial loss during COVID-19 pandemic. The questions were pre-tested by the researchers for great accuracy. Statistical Package for Social Science (SPSS) version 25.0 data analysis software was used for coding and analyzing the collected data. In addition to that, several statistical techniques (e.g., descriptive statistics, Chi-square test, and Logistic regression modeling) have been applied in this study to meet the objective.

FINDINGS

1. Bivariate Analysis

Primarily, this research has carried out a bivariate analysis to examine the relationship between the chosen explanatory variables and the dependent variable ‘average financial loss’. The explanatory variables of this study are education and gender of the owner/manager, type of organization, office location, year of establishment, type of ownership, main target customer and revenue earned before COVID-19. For testing the significance of the relationship, a chi-square test is conducted. Table 2 contains the results of the bivariate analysis.

From Table 2, it is evident that owners/managers with MS degrees and above tend to lose more compared to those who have Bachelor degrees or below. The result also shows that only a few numbers (15) of organizations are belong to women, also loss above 1.5M was more frequent for females compared to their male counterparts. Moreover, transportation and gift shops were less likely to lose more than 1.5M than the others. In addition, organizations with offices in Dhaka have a higher tendency (59.6%) to have losses above 1.5M compared to those with main offices outside Dhaka (28.7%). The graphical representation of financial loss with office locations in Dhaka and outside Dhaka is presented in Figure 3.

Table 2. Association between financial loss and explanatory variables

Variables	Category	Financial Loss		Total (n)	P-value
		<1.5M	>1.5M		
Education	HSC and below	103 (78.0%)	29 (22.0%)	132	0.000
	Bachelor	98 (49.7%)	99 (50.3%)	197	
	MS and above	70 (40.9%)	101 (59.1%)	171	
Gender	Female	5 (33.3%)	10 (66.7%)	15	0.045
	Male	267 (55.1%)	218 (44.9%)	485	
Type of Organization	Transportation and gift shop	76 (86.4%)	12 (13.6%)	88	0.002
	Accommodation and food shop	36 (40.0%)	54 (60.0%)	90	
	Tour Management	159 (49.4%)	163 (50.6%)	322	
Office Location	Dhaka	112 (40.4%)	165 (59.6%)	277	0.000
	Outside Dhaka	159 (71.3%)	64 (28.7%)	223	
Year of Establishment	1962-2000	32 (45.1%)	39 (54.9%)	71	0.000
	2001-2010	55 (45.8%)	65 (54.2%)	120	
	2011-2015	62 (47.0%)	70 (53.0%)	132	
	2016-2021	122 (68.9%)	55 (31.1%)	177	
Ownership	Sole Proprietorship	212 (49.4%)	144 (50.6%)	356	0.002
	Partnership and others	59 (62.9%)	85 (37.1%)	144	
Main target customer	Domestic tourists	201 (65.9%)	104 (34.1%)	305	0.000
	Inbound and outbound	70 (35.9%)	125 (64.1%)	195	
Revenue	Below 1M	145 (77.5%)	42 (22.5%)	187	0.000
	1M and above	126 (40.3%)	187 (59.7%)	313	

Furthermore, the year of establishment seems to be an important predictor for loss. Figure 4 provides significant insight into the relationship between financial loss and the lifetime of the businesses. It is evident from the figure that small tourism businesses having a long lifetime, generally the older ones are inclined to face a greater loss compared to new ones. From Table 2, for instance, 54.9% of the businesses that were established from 1962 to 2000 have lost more than 1.5 million during the pandemic. On the other hand, 31.1% of the businesses that were established between 2016 and 2021 have lost more than 1.5 million during the pandemic. Businesses, those are of sole proprietorship (50.6%), get higher losses compared to the partnership and other forms of business (37.1%).

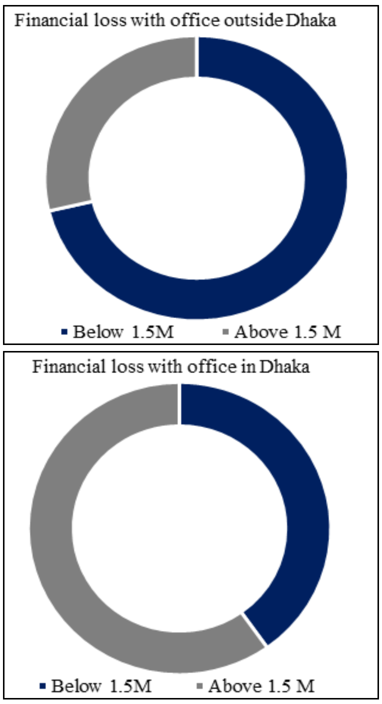


Figure 3. Financial loss depending on office location

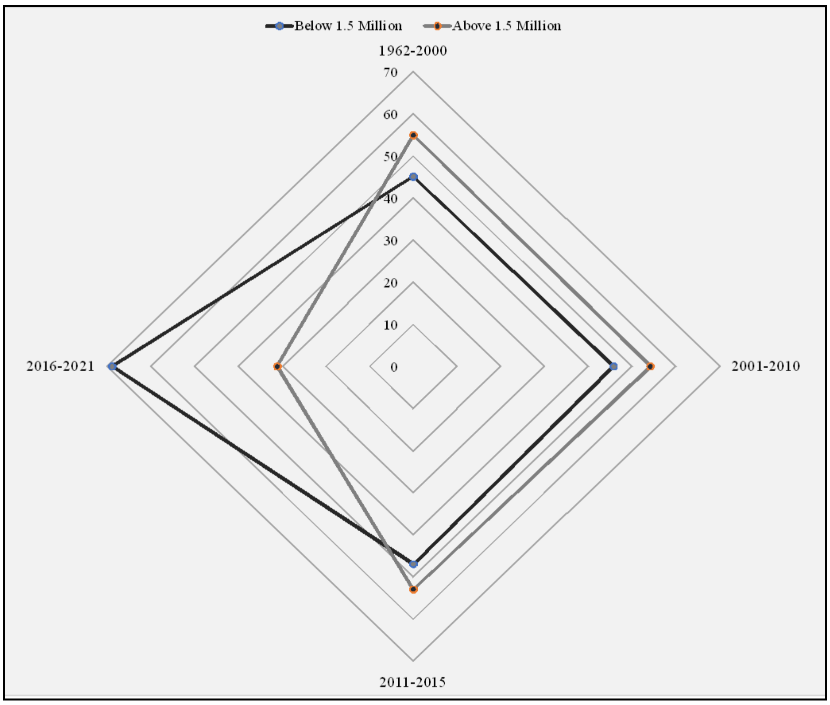


Figure 4. Financial Loss Based on Business Lifetime

Besides, businesses targeting domestic tourists made less losses compared to those targeting inbound and outbound tourists. Disappointingly, it is found that increasing revenue resulted in greater losses. In wrapping up, from the chi-square test results, it has been found that all the explanatory variables are significantly associated with loss being higher than 1.5M.

2. Binary Logistic Regression

The data used in this study is cross-sectional, and the dependent variable is dichotomous. The logistic regression under cross-sectional setup provided by Cox (1958) is:

$$Pr(y_i = 1|x_i) = \pi(x_i) = \frac{exp(x_i^\tau \beta)}{1 + \exp(x_i^\tau \beta)}$$

where, y_i is the response of the i^{th} individual, $x_i = (x_{i1}, \ldots, x_{ip})^T$ is associated covariates vector, with $p = 8$. The parameter estimates of $\beta = (\beta_1 \ldots \beta_p)'$ are obtained by the maximum likelihood estimation approach using the Newton-Raphson iteration procedure. In the m^{th} iteration, the MLE of β will be,

$$\hat{\beta}^{(m)} = \hat{\beta}^{(m-1)} + [I(\beta)]^{-1}|_{\beta=\hat{\beta}^{(m-1)}} U(\beta)|_{\beta=\hat{\beta}^{(m-1)}}$$

where, $U(\beta)$ is the score function, which is defined as

$$U(\beta) = \frac{\partial}{\partial \beta} logL(\beta)$$

with $L(\beta)$ being the likelihood function is defined as

$$L(\beta) = \Pi_{i=1}^{n} \pi_i(x_i)^{y_i}(1 - \pi_i(x_i))^{\ 1-y_i}$$

Again, $I(\beta)$ is the information matrix, which is defined as

$$I(\beta) = -E\left[\frac{\partial}{\partial \beta'} U(\beta)\right]$$

The variables that have been found significant in the bivariate analysis are included in the logistic regression model. Table 3 contains the estimates of the logistic regression model parameters along with Wald test statistics.

It is observed that the odds of making loss above 1.5M for owners/managers with MS degrees and above are 2.245 times the odds for those with HSC and below degrees. That means more educated people tend to lose more than 1.5M more often than others. This result has been found significant (p=0.017). Male owners tend to loss less compared to their female counterparts; however, this result is found to be insignificant (p=0.486).

The odds of loss above 1.5M for owners of accommodation and food shop and that for the tour management company are 10.532 times and 3.401 times the odds for owners of transportation and food shop respectively.

Table 3. Logistic Regression Coefficient of Explanatory Variables for Financial Loss

Variables	$\hat{\beta}$	SE	Wald	P-value	OR
Education (Ref: HSC and below)					
Bachelor	0.475	0.339	5.703	0.137	1.609
MS and above	0.809	0.257	1.685	0.017	2.245
Gender (Ref: Female)					
Male	-0.493	0.708	0.485	0.486	0.611
Type of Organization (Ref: Transportation and Gift Shop)					
Accommodation and Food shop	2.354	0.421	8.449	0.004	10.532
Tour Management	1.224	0.328	11.905	0.001	3.401
Office Location (Ref: Dhaka)					
Outside Dhaka	-1.096	0.249	19.379	0.000	0.334
Year of Establishment (Ref: 1962-2000)					
2001-2010	-0.513	0.365	14.832	0.000	0.599
2011-2015	-0.627	0.303	8.699	0.003	0.534
2016-2021	-1.406	0.289	7.262	0.007	0.245
Ownership (Ref: Partnership and others)					
Sole Proprietorship	-0.208	0.250	0.695	0.405	0.812
Main target customer (Ref: Inbound and outbound)					
Domestic tourists	-0.638	0.258	6.110	0.013	0.528
Revenue (Ref: Below 1M)					
1M and above	1.635	0.251	42.417	0.000	5.130

Business with main office located outside of Dhaka is less likely to lose more than 1.5M compared to those located in the capital city of Dhaka (p<0.01). The odds of loss above 1.5M for businesses those are established in the years 2001-

2010, 2011-2015 and 2016-2021 are 0.599 times, 0.534 times and 0.245 times the odds for the businesses those are established in the year 1962-2000. These results have been found significant ($p<0.05$). Sole proprietorship leads to less loss compared to partnership; although, this result is found to be statistically insignificant ($p=0.812$).

Businesses that serve domestic tourists are less likely to lose more than 1.5M compared to those who entertain inbound and outbound tourists. More clearly, the odds of loss above 1.5M for businesses that serve domestic tourists is 0.528 times the odds for businesses that serve inbound and outbound tourists. In addition, businesses with revenue more than 1M and above are more likely to lose higher than 1.5M compared to those with revenue less than 1M.

DISCUSSION

This study has evaluated some factors responsible for financial loss of small tourism businesses due to COVID-19 pandemic. The findings reflect a strong relationship between financial loss and those factors. According to this study, the education level of owners/managers has a strong relationship with financial loss which partially resembles the study by Qi and Tian (2012). However, it doesn't mean that owners/managers with higher educational qualifications have the greater capacity to incur less loss than others with lower educational qualifications. Because education is surely a significant element of managers in operating a business but there are some other elements that go before education. For instance, experience or the practical knowledge of managers is regarded as more important than education in business operations. Moreover, presence of women in the travel and tourism sector is comparatively lower than in other economic sectors and so their amount of loss is comparatively higher than their male counterparts.

The nature of business is a crucial factor in revenue and loss of any business (Hasan et al., 2021). This study also suggests so. This study finds transportation and gift shops as more proficient than others (e.g., accommodation & food shop, and tour management) as they incurred less loss. However, the underlying fact behind this could be related to the scale of the business which means transportation and gift shops may have lower investment and revenue thus they incurred less loss. Another factor associated with financial loss is office location. This study reveals that small businesses having their main office in capital Dhaka incurred higher losses than others having their main office outside Dhaka. Because operating a business from the capital city of any country has to bear a greater cost than operating the business from any other location hence when it comes to profit or loss, it is generally higher than others. Besides, the lifespan of a small tourism business affects the financial loss or profit. This study has found older businesses have faced more losses than newer ones. The reason behind this relates to the advancement of services with the passage of time. The business world is transforming rapidly with the digitalization of business technologies. So, to cope with the new business world, organizations now provide greater concentration on customer needs. Thus, newer businesses with newer technologies have stronger capacity to cope with risk than older businesses.

Partnership business excels at the experience of different persons rather than just one person. Additionally, partnership businesses combine larger scale compared to sole proprietorship. Consequently, sole proprietorship businesses have incurred more losses than partnership businesses during the pandemic. One of the biggest aspects of COVID-19 pandemic was imposing restrictions on movement of people through 'lockdown', which almost impeded the international tourism because during this time people were not allowed to travel to other countries if not having an emergency. Apart from that, when the lockdown period ended people were desperate to travel but could not travel outside the country, so they had to travel within the country. As a result, inbound and outbound tourism demands turned into domestic tourism and caused huge losses for tourism businesses operating international tourism. This result reflects the study by Afroz et al., (2021).

The final factor studied in this research is revenue where it reveals that revenue and losses are entirely connected with each other because both the terms are associated with sales. During the first phase of COVID situation, all tourism businesses faced a sales drop. Accordingly, businesses with higher revenue or sales have faced higher sales drops as well as lower revenue and greater financial loss. There exists no universally accepted definition for small tourism businesses. The meaning and characteristics vary from one country to another. Hence, there are some dissimilarities between the findings of this study and other studies conducted in different contexts (Litheko, 2021; Fuchs, 2022). Even though there are contextual differences in the reasons for financial loss by small tourism businesses under unforeseen crisis situations such as COVID-19, this study reveals the results beyond common understandings.

CONCLUSIONS

The loss and distress suffered by many small tourism businesses during the COVID-19 pandemic in Bangladesh is indescribable. Various factors behind financial loss have not been assessed with deserved attention. This study has attempted to bridge the research gap by evaluating significant factors responsible for the financial loss of different small tourism businesses during the COVID-19 pandemic. The findings of this study suggest a strong relationship between the financial loss suffered by many small tourism businesses and the explanatory variables - education and gender of the owners/entrepreneurs/managers, type of organization, office location, year of establishment, ownership, main target customer, and revenue earned before COVID-19. The outcomes of this study can assist policymakers in formulating various strategies regarding crisis management for tourism businesses. In addition to that, this study can act as an important component for small tourism businesses in considering factors connected with managing operations during crisis situations.

Small tourism businesses have only been the prime concentration of this study. Such type of study is also required for medium and large tourism businesses. It might be interesting to know how the factors affecting financial loss of small tourism businesses during crisis work in the context of developed countries. Besides, future researchers may also examine other relevant factors associated with financial loss in tourism businesses and suggest the path to fully utilize such studies in strengthening adaptation and resilience policy for the business. This study has recognized a limitation that the relative extent of the factors affecting financial loss is not addressed here. Incorporating some primary qualitative data in the current study could help to better understand the insights into the research objective. For the whole world, COVID-19 pandemic was a sudden crisis which has been ever seen or imagined by anyone. Among various adverse impacts of the pandemic, there was one practical thing that taught all businesses how to fight and survive in tough times. Hence, this crisis is a great learning for all the tourism businesses which will help them to face any other crisis in future.

Author Contributions: Conceptualization, F.A. and K.H.; methodology, K.H. and F.A.; software, F.A. and K.H..; validation, F.A. and K.H.; formal analysis, F.A. and K.H.; investigation, J.F. and K.H.; data curation, K.H. and F.A.; writing - original draft preparation, J.F. and F.A.; writing - review and editing, K.H. and J.F.; visualization, J.F. and F.A.; supervision, K.H.; project administration, K.H. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Afroz, F., Hassan, K., & Ferdaus, J. (2022). Impacts of COVID-19 On Travel Behavior of the People in Bangladesh. *GeoJournal of Tourism and Geosites*, 40(1), 56–63. https://doi.org/10.30892/gtg.40106-802

Al-Zaman, M.S. (2020). Healthcare Crisis in Bangladesh during the COVID-19 Pandemic. *The American Society of Tropical Medicine and Hygiene,* 103(4), 1357–1359. https://doi.org/10.4269/ajtmh.20-0826

Bangladesh Bank. (2011). Small and medium enterprise (SME) credit policies & programmes. SME & Special Programmes Department. Available at: file:///C:/Users/HP/Downloads/smepolicye.pdf

Bhuiyan, M.B., Islam, M.A., Haque, M.Z., & Hassan, M.K. (2021). Dynamics and Causality Among Economic Growth, Financial Development and Budgetary Allocation to The Tourism Sector of Bangladesh. *GeoJournal of Tourism and Geosites,* 35(02), 419–427. https://doi.org/10.30892/gtg.35221-668

CEIC. (2021). Bangladesh Tourism Revenue. Available at: https://www.ceicdata.com/en/indicator/bangladesh/tourism-revenue

Chowdhury, D.E.K. (2020). Catastrophic Impact of Covid-19 on Tourism Sector in Bangladesh: An Event Study Approach. *The Cost Management*, 48(04), 43–52. http://www.icmab.org.bd/wp-content/uploads/2020/09/4.Catastrophic.pdf

Copp, C.B., & Ivy, R.L. (2001). Networking Trends of Small Tourism Businesses in Post-Socialist Slovakia. *Journal of Small Business Management*, 39(4), 345-353. https://doi.org/10.1111/0447-2778.00031

Cox, D.R. (1958). The regression analysis of binary sequences. *Journal of the Royal Statistical Society: Series B (Methodological)*, 20(2), 215–232. http://www.jstor.org/stable/2983890

European Commission. (2020). Behavioural changes in tourism in times of Covid-19: Employment scenarios and policy options. (Behavioural Changes in Tourism in Times of Covid-19). Publications Office. https://data.europa.eu/doi/10.2760/00411

Foo, L.P., Chin, M.Y., Tan, K.L., & Phuah, K.T. (2020). The impact of COVID-19 on tourism industry in Malaysia. *Current Issues in Tourism*, 1-5. https://doi.org/10.1080/13683500.2020.1777951

Fotiadis, A., Polyzos, S., & Huan, T.C.T. (2021). The good, the bad and the ugly on COVID-19 tourism recovery. *Annals of Tourism Research*, 87, 103-117. https://doi.org/10.1016/j.annals.2020.103117

Fuchs, K. (2022). Small Tourism Businesses Adapting to the New Normal: Evidence from Thailand. *Tourism*, 70(2), 258-269. https://doi.org/10.37741/t.70.2.7

Gössling, S., Scott, D., & Hall, C.M. (2021). Pandemics, tourism and global change: A rapid assessment of COVID-19. *Journal of Sustainable Tourism*, 29(1), 1–20. https://doi.org/10.1080/09669582.2020.1758708

Hall, C.M., Scott, D., & Gössling, S. (2020). Pandemics, transformations and tourism be careful what you wish for. *Tourism Geographies*, 22(3), 577-598. https://doi.org/10.1080/14616688.2020.1759131

Hasan, S.R., Hassan, K., Hasan, M.S., Afroz, F., & Islam, M.S. (2021). Rejuvenation of Small Businesses Affected by COVID-19: A Case on Tour Operators in Bangladesh. Dhaka, Bangladesh: Ministry of Civil Aviation and Tourism, Bangladesh. http://tourismboard.portal.gov.bd/sites/default/files/files/tourismboard.portal.gov.bd/page/a548701b_ba97_44dd_9425_93435ae8d4c4/2022-01-13-09-08-12f1953615fd520c66f60d1b5c074210.pdf

Hassan, K., & Ferdaus, J. (2020). Crisis Management in the Hospitality Industry: Issues and Future Strategies. In S. R. Hasan, S. Nagpal, & D.P. Sahu (Eds.), Recent Trends in Hospitality Operation, 38-61, Wisdom Publication.

Holy, I.J. (2020). Covid-19 & Tourism: A Tragic End to the Thriving Industry. https://www.lightcastlebd.com/insights/2020/06/02/covid-19-tourism-a-tragic-end-to-the-thriving-industry

Islam, M.S., Kabir, M.M., & Hassan, K. (2022). Resilience Strategies of Tour Operators During the Uncertainty of COVID-19: Evidence from Bangladesh. *Tourism Planning & Development.* https://doi.org/10.1080/21568316.2022.2144429

Issakov, Y., Kamelkhan, G., Imanbekova, B., Zhoya, K., Zheldibayev, A., Molzhigitova, D., & Dávid, L.D. (2023). Study of the problems and prospects of small tourism business development in the city of Almaty. *GeoJournal of Tourism and Geosites, 46*(1), 293–303. https://doi.org/10.30892/gtg.46133-1027

Jaipuria, S., Parida, R., & Ray, P. (2021). The impact of COVID-19 on tourism sector in India. *Tourism Recreation Research*, 46(2), 245–260. https://doi.org/10.1080/02508281.2020.1846971

Karabulut, G., Bilgin, M.H., Demir, E., & Doker, A.C. (2020). How pandemics affect tourism: International evidence. *Annals of Tourism Research*, 84. https://doi.org/10.1016/j.annals.2020.102991

Kaushal, V., & Srivastava, S. (2021). Hospitality and tourism industry amid COVID-19 pandemic: Perspectives on challenges and learnings from India. *International Journal of Hospitality Management*, 92, 102707. https://doi.org/10.1016/j.ijhm.2020.102707

Kim, J., Kim, J., & Wang, Y. (2021). Uncertainty risks and strategic reaction of restaurant firms amid COVID-19: Evidence from China. *International Journal of Hospitality Management*, 92, 102752. https://doi.org/10.1016/j.ijhm.2020.102752

Litheko, A. (2021). Small Tourism Business Growth Through Eco-tourism in Mahikeng, South Africa. *African Journal of Hospitality, Tourism and Leisure*, 10(1):256-269. https://doi.org/10.46222/ajhtl.19770720-100

Lukac, J., Gallo, P., & Balogova, B. (2023). Financial performance of tourism businesses under the influence of measures related to COVID-19. *GeoJournal of Tourism and Geosites, 46*(1), 279–284. https://doi.org/10.30892/gtg.46131-1025

Mehrolia, S., Alagarsamy, S., & Solaikutty, V.M. (2020). Customers response to online food delivery services during COVID-19 outbreak using binary logistic regression. *International Journal of Consumer Studies*. https://doi.org/10.1111/ijcs.12630

Mia, M.N., & Hassan, K. (2021). Post COVID challenges to the tourism and hospitality industry: a study on Bangladesh, *Can. J. Bus. Inf. Stud*., 3(6), 109-119. https://doi.org/10.34104/cjbis.021.01090119

Nguyen, V.K., Pyke, J., Gamage, A., de Lacy, T., & Lindsay-Smith, G. (2022). Factors influencing business recovery from compound disasters: Evidence from Australian micro and small tourism businesses. *Journal of Hospitality and Tourism Management, 53*, 1–9. https://doi.org/10.1016/j.jhtm.2022.08.006

Nieman, G., & Nieuwenhuizen, C. (2014). *Entrepreneurship: A South African perspective*. (3rd ed), Van Schaik, Pretoria.

Nikraftar, T., & Hosseini, E. (2016). Factors affecting entrepreneurial opportunities recognition in tourism small and medium sized enterprises. *Tourism Review, 71* (1), 6-17. https://doi.org/10.1108/TR-09-2015-0042

Qi, B., & Tian, G. (2012). The Impact of Audit Committees' Personal Characteristics On Earnings Management: Evidence From China. *The Journal of Applied Business Research*, 28(6), 1331-1344. https://doi.org/10.19030/jabr.v28i6.7347

Qiu, R.T.R., Park, J., Li, S., & Song, H. (2020). Social costs of tourism during the COVID-19 pandemic. *Annals of Tourism Research*, 84, 102994. https://doi.org/10.1016/j.annals.2020.102994

Rahman, M., Sajib, E., Chowdhury, I., Banik, A., Bhattacharya, R., & Ahmed, H. (2021). Present scenario of COVID-19 in Bangladesh and government preparedness for facing challenges. *Journal of Advanced Biotechnology and Experimental Therapeutics,* 4(2), 187. https://doi.org/10.5455/jabet.2021.d119

Rogerson, C.M., & Rogerson, J.M. (2023). VFR travel and covid-19 impacts: the South African experience. *GeoJournal of Tourism and Geosites, 48*(2 supplement), 717–742. https://doi.org/10.30892/gtg.482spl05-1071

Rogerson, J.M. (2021). Tourism Business Responses to South Africa's Covid-19 Pandemic Emergency. *GeoJournal of Tourism and Geosites*, 35(2), 338-347. https://doi.org/10.30892/gtg.35211-657

Rosita, R., Manullang, M., Kusumastuti, R., Pramayanti, D.I., & Sitorus, S.A. (2022). Online Marketing on Pricing Strategies for The Indonesian Tourism Industry Products During The Covid-19 Pandemic. *GeoJournal of Tourism and Geosites*, 43(3), 1022-1029. https://doi.org/10.30892/gtg.43322-916

Sharma, A., & Upneja, A. (2005). Factors influencing financial performance of small hotels in Tanzania. *International Journal of Contemporary Hospitality Management, 17*(6), 504 – 515. http://dx.doi.org/10.1108/09596110510612149

Tinsley, R., & Lynch, P. (2001). Small tourism business networks and destination development. *Hospitality Management,* 20 (4) 367-378. https://doi.org/10.1016/S0278-4319(01)00024-X

UNWTO. (2021). Impact Assessment of the Covid-19 Outbreak on International Tourism. United Nations World Tourism Organization. Available at: https://www.unwto.org/international-tourism-and-covid-19

World Bank Group. (2020). Rebuilding tourism competitiveness Tourism response, recovery and resilience to the COVID-19 crisis, Markets & Technology Global Tourism Team.

UNWTO. (2022). Tourism in Bangladesh (retrieved from the database of worlddata.info). https://www.worlddata.info/asia/bangladesh/tourism.php

WTTC. (2021). Global Economic Impact and Trends 2021.pdf. https://wttc.org/Portals/0/Documents/Reports/2021/Global%20 Economic%20Impact%20and%20Trends%202021.pdf

Zafri, N.M., Khan, A., Jamal, S., & Alam, B.M. (2021). Impacts of the COVID-19 Pandemic on Active Travel Mode Choice in Bangladesh: A Study from the Perspective of Sustainability and New Normal Situation. *Sustainability,* 13(12), 6975. https://doi.org/10.3390/su13126975

Zhang, H., Song, H., Wen, L., & Liu, C. (2021). Forecasting tourism recovery amid COVID-19. *Annals of Tourism Research*, 87, 1–16. https://doi.org/10.1016/j.annals.2021.103149

Article history: Received: 05.07.2023 Revised: 25.08.2023 Accepted: 03.10.2023 Available online: 06.11.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1276-1285
DOI 10.30892/gtg.50408-1126

SUSTAINABLE USE OF GEOMORPHOLOGICAL FORMS IN TOURISM, THE CASE OF HALF MOON BAY, EASTERN REGION, KINGDOM OF SAUDI ARABIA

Mohamed Abdelhaleem Helmy NORELDEEN
King Faisal University, Geography Department, Faculty of Arts, Alahsa, Saudi Arabia; Kafrelsheikh University, Department of Geography and Geographical Information system, Faculty of Arts, Kafrelsheikh, Egypt, e-mail: mnoreldeen@kfu.edu.sa

Wagih Mohamed Elsayed SALAMA
King Faisal University, Geography Department, Faculty of Arts, Alahsa, Saudi Arabia, e-mail:welsayed@kfu.edu.sa

Insaf Sanhouri BABIKER*
King Faisal University, Geography Department, Faculty of Arts, Alahsa, Saudi Arabia;
University of Khartoum, Geology Department, Faculty of Science, Khratoum, Sudan, e-mail: isahmed@kfu.edu.sa

Citation: Noreldeen, M.A.H., Salama, W.M.E., & Babiker, I.S. (2023). SUSTAINABLE USE OF GEOMORPHOLOGICAL FORMS IN TOURISM, THE CASE OF HALF MOON BAY, EASTERN REGION, KINGDOM OF SAUDI ARABIA. *GeoJournal of Tourism and Geosites*, 50(4), 1276–1285. https://doi.org/10.30892/gtg.50408-1126

Abstract: The Coastal geomorphology of the Half Moon Bay in the Eastern Region of Saudi Arabia has created great opportunity for human interventions. Public and private tourism and entertainment facilities were established along the Bay cost leading to modifications of natural phenomena. Therefore, this study aims at assessing tourism uses of geomorphological forms in the Half-moon Bay and identifying practical aspects related to sustainable tourism. It was based on literature review, field survey, analysis of google earth satellite imagery, risk analysis and SWOT analysis. Depending on the characteristics of the different coastal forms, various tourist activities were developed in the study area. However, environmental alterations, such as change of direction, length and meander of coastline have been recognized mainly, due to land excavation and backfilling of shallow sea water. Despite some constrains, several opportunities are available in order to promote and develop sustainable tourism in the region mainly supported by a set of legislations, efforts and actions at the national and local levels.

Key words: Half Moon Bay, geomorphological forms, coastal tourism, environmental impacts, sustainability

* * * * * *

INTRODUCTION

Coastal geomorphology which encompasses a wide range of phenomena such as storm waves, tsunamis and sea-level variations, has gained considerable attention especially with respect to alarming issues such as global climate change and human interventions. Coastlines are important natural phenomena that are highly dynamic in nature (Zeinali et al., 2017). Headlands are trimmed and sand barriers are built due to actions of waves and currents creating simple and straight coastlines (Davidson-Arnott, 2009). The impact of sea-level rise due to global warming on coastal communities and infrastructures cannot be ignored. Coastal geomorphology provides valuable knowledge that helps to predict the response of coastal landforms to sea level rise and other physical processes. This knowledge is crucial for effective coastal management, as it allows to make informed decisions about where to build infrastructure and how to protect coastlines from environmental hazards such as storm surges, erosion, and human interferences (Gomez et al., 2019).

As coastal populations continue to grow, so does the need for sustainable coastal management strategies. It is therefore, important to understand the complex interactions between landforms, oceanic processes, and meteorological conditions related to coastlines. This knowledge can then be used to develop effective risk reduction policies and decision-making processes, which are critical for preserving human systems, ecosystems, and the natural beauty of coastal regions which are relevant for the development of sustainable tourism practices (Aragón-Correa et al., 2023). The natural attraction of coast lines has led to rapid growth of coastal tourism (Mestanza-Ramón et al., 2020). They provide a wide range of entertainment, sport and recreational activities (Hall, 2001; Miller and Hadley, 2005). However, sustainability of coastal tourism is facing challenges related to the complex interactions between mankind, water and land (Satta et al., 2009). The recent study by Aragón-Correa and others (2023) pointed that the agglomeration of hotel facilities has accelerated human and environmental pressure in coastal areas creating difficulties of achieving a balance between ecological, social and economic profits (sustainability) (Neumann et al., 2017). Strong evidences indicate that degradation of coastal environments is attributed to increasing tourism activities where environmental regulations are ineffective in most of the countries specially under the context of Integrated Coastal Zone Management (ICZM) (Mestanza-Ramón et al, 2020).

Saudi Arabia is characterized by over 3000 km coast lines extending along the Red Sea on the west and The Arabian Gulf on the east. The eastern coast of the Kingdom of Saudi Arabia, front facing the Arabian Gulf, is rich in various coastal geomorphological phenomena which are affected by marine erosion in terms of their origin, formation and

* Corresponding author

development. Among these forms are coastal bays. Coastal bays appear in the form of water bodies partially surrounded by neighboring lands, their existence is linked to the presence of a group of geomorphological phenomena which determines their morphology and characteristics, such as: heads, spits, barriers, beaches and coastal lakes.

These forms are subject to morphological alterations from time to time due to changing marine and continental factors. The "Half Moon Bay" is one of the coastal bays that extend along the western coast of the Arabian Gulf that is the eastern coast of the Kingdom of Saudi Arabia. It is situated within the rapidly growing Eastern Region of Saudi Arabia and has become one of the most attraction and tourism sites in the eastern coast.

In order to achieve aims of the study, the geomorphological forms in the Half Moon Bay area and their utilization for tourism purposes shall be addressed. A group of distinctive land forms spread along the sea coast that reflects the action of natural waters, which has contributed greatly to placing the study area within the marine sedimentation zones. Therefore, the dominance of geomorphological phenomena resulting from marine sedimentation is clearly observed in the region. The sculpting factors transport sediments and collect them in different parts along the shore or under nearby shallow water. Then advanced sedimentary forms are then developed in different patterns, extensions, areas, and textures. It is obvious that the geomorphological phenomena in the study area have greatly contributed to giving the characteristics of the beautiful coastal landscape. The presence of all kinds of beaches, especially sandy beaches, sand spits and sand barriers, in addition to beach sand dunes and tidal flats have drawn the attention of stakeholders of the government and private sectors to invest in the Half Moon Bay beach for human activities, especially recreational and touristic activities.

The following will show how the hands of human development have been able to benefit from and to exploit the geomorphological phenomena in the region. In the past, the bay was known for fishing and sailing, then it has become favorable for swimming especially by oil workers and their families when operations of oil exploration have started. Thus, the Half Moon Beach became a recreational area for oil workers and their families over the last 80 years. The Half Moon Beach was even named by early foreigners who worked in the field of oil industry for Saudi Aramco. A recent study by Alkhalaf and Oran (2021) have found that 95% of the Half Moon Bay visitors were from the Eastern Province of the Kingdom of Saudi Arabia seeking coastal tourism and entertainment while enjoying sandy beaches and beauty of nature.

Since then, hands of tourism development, whether governmental or private, have begun to invest in the Half Moon Bay. The process has accelerated after the announcement of Saudi Kingdom's ambitious vision of 2030 aiming at diversifying sources of the national income instead of relying solely on oil as the only resource. This has greatly increased the utilization of the study area and its characteristic geomorphological phenomena. Several tourist and entertainment facilities were found along shores of the Half Moon Bay (Table 1). In the following sections the study shall specify forms of utilizing the geomorphological phenomena in the Half Moon Bay.

Table 1. Tourist and entertainment facilities in the Half Moon Bay, based on google maps and field survey.

Type of facility	Resorts	Chalets	Public beaches	Private beaches	Water parks
Number	13	11	10	4	2

The study aims at monitoring the tourism uses of geomorphological forms within the Half-moon Bay, and to identify practical aspects that may be used to develop the coast at the same time, preserve its geomorphological balance. The study was based on literature review, field survey, analysis of google earth satellite imagery and risk analysis. Finally, SWOT analysis were applied in order to identify risks and highlight prospects of geotourism in the study area.

MATERIALS AND METHODS

The coastal land forms (geomorphological phenomena) in the Half Moon Bay were reviewed from literature and were described with the aid of satellite imagery of google earth and field survey. Costal phenomena utilized for tourism were assessed and characterized in terms of purpose, degree of human intervention and potential impacts. Risk analysis was performed in order to identify the degree of harmful impacts of tourism on the natural environment of geomorphological forms. The strategic SWOT analysis was used to highlight points of strength and weakness regrading tourism activities in the study area as well to recognize constrains and available opportunities. The flow chart of methodology is shown in Figure 1.

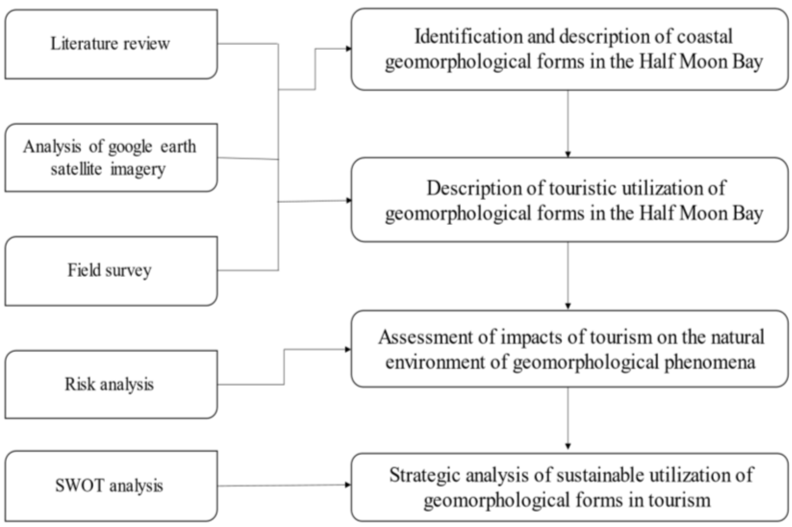


Figure 1. Flow chart of research methodology

The study area

Location of the study area: The study area is located between longitudes 55° 49° and 30° 10° 50° E, and latitudes 1°26° and 30° 12°26° N, representing part of the eastern coast of the Kingdom of Saudi Arabia. The Half Moon Bay is located about 15 km south of Dhahran, 25 km north of Uqair Beach and about 60 km north of Salwa (the border with Qatar). It is located about 30 km west of the Kingdom of Bahrain and 46 km away from the city of Abqaiq (Figure 2). The Half Moon Bay extends from Ras Buraigt to Al Musa'idiyah forming an 81.4 km long semi-circular shape. The water arm extends for about 22.3 km into the land from south to north, the head of the Bay ends to the south of the "Cooperation Council Road" (the road leading to King Fahd Bridge that connects the Kingdom of Saudi Arabia with the Kingdom of Bahrain). The climate at Dammam station (10m a.m.s.l) ranges between arid to hyper-arid with a maximum temperature of 34.5^{o} C and a minimum temperature of 20.3^{o} C and 91.5mm annual rainfall. The maximum temperature during winter (December-February) ranges between 22 and 24 degrees centigrade associated with winter rainfall ranging between 8 to 20mm (National Center for Meteorology, 2023). Obviously, climate conditions are more pleasant during winter time compared to the rest of the year.

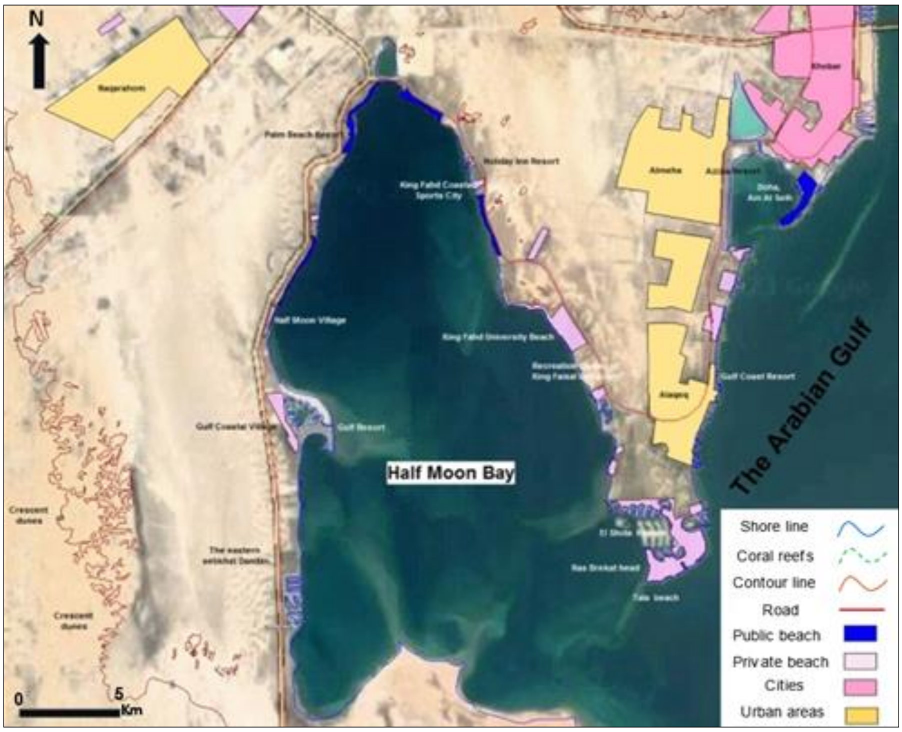


Figure 2. Location of the study area

Geomorphology of the Half Moon Bay

The 700 kilometers long Gulf coast of the Kingdom of Saudi Arabia, forms a wide coastal plain that was formed during Late Quaternary Sea transgression. Average spring tide of the Arabian Gulf is 1.5 meters high while currents are low and wind-driven (Bird, 2010). Morphologically, the Half Moon Bay is formed of the Dammam Peninsula and the Ras Abu Uriqat on the east, the Jafurah sand dunes on the west and Ras Al-Qurayyah on the south (Weijermars, 1999). Distinguished land forms are found along marine shorelines which reflect action of natural and chemical water properties in the Half Moon Bay region. These natural properties have placed the study area among marine sedimentation zones. This explains the wide distribution of geomorphological phenomena resulting from marine sedimentation. Erosion factors transport and accumulate sediments in different sectors along coast line or under near-by shallow water portraying a set of developed depositional forms with varying shape, area and texture. Some sediments accumulate along coast line such as beaches and sand bars others extend seaward such as marine spits (Bird, 2008). Following, are examples of geomorphological forms found in the study area. Beaches: they extend along many terrestrial/marine borders making a few-to-hundreds of meters wide zone extending between tidal range and maximum limits of wave action. Beaches may be straight, gently curved, sharply carved, long or short (Bird, 2008). Beach forms in the Half Moon Bay differ depending on shape and size of sediments resulting in the two main patterns; sandy beaches that are composed of fine sediments less than 1mm size in diameter originating from different sources such as marine erosion and aeolian deposition of terrestrial sand dunes. Pebbly beaches that were formed in certain sectors of the Half Moon Bay coast facilitated by the dominant tidal system in the study area. These beaches are composed of pebbly sediments and rock chips that are 25 to 35 mm and 5 to 7 cm in size with, respectively. They are transported and deposited by tidal waves on beaches depending on the speed of movement.

Heads and Cuspate: are triangular extensions based on land and pointing seaward formed of sorted sediments accumulated by the forward and backward movements of sea waves. They are formed during the collision of stronger waves approaching the shore at an angle and a weaker direct onshore wave (Bird, 2008).

Sand spits: are elongated accumulations of lose sediments extending from coast line into the sea, so that one end is linked to the land while the other one ends in the sea making a right angle to the coast line. Shore currents, sediment input and river processes influence the formation and development of spits (Gül et al., 2020). During early development, they grow up increasing in length until the reach deep water where the action of destructive waves starts. Their shape is controlled by wave patterns striking the shore obliquely (Bird, 2008). Sand spits may be supplied with sands eroded from cliffs or shores or with fluvial sediments derived to a river mouth (Bird, 2008). Two main spits could be recognized in the

Half Moon Bay; one on the western coast and the other in the eastern coast. The end of the former spit has recurved landward making a “hook” shape due to wave refraction or variable wave directions along the sides (Goudie, 2006).

Sand barriers: are elongated sandy or mixed coarse sediments that are deposited parallel/semi parallel to coast line forming islands that extend above average highest tide level and may enclose lakes or water bodies between them and the coast (Bird, 2008). They represent submerged hills formed of fine marine sediments as large bodies in the shallow waters that emerge above sea level separating the coastline from the open sea. Tidal flats: are water flats that are formed parallel to beaches due to alternating high and low tides. They extend for 2 to 15 meters making different shapes according to beach patterns. They were named as “marine erosion shelves” after Bird (1984) because of successive inundation of these water flats during high tide which activates humidity action awhile low tide exposes these flats to air leading to dryness and facilitates chemical weathering especially under high temperature and slight sloping seaward.

Coastal salt flats (sabkhas): are low lands close to groundwater level or sea level their bottoms are covered with salty mud formed by accumulation of coastal water. Sabkhas in the study area are among coastal flats that are covered with salt, located above high tide level and are sloping gently towards the sea by around 0.4 m/km (Weijermars, 1999).

Rios-Reyes et al. (2021) have recognized similar coastal landforms as potential geosites for geotourism activities around Santa Maria (Colombia). Never the less, authors have looked into geoeducational and conservation issues related to proposed geosites in a holistic approach. Geodiversity is considered as an asset that should be recognized, appreciated and protected. Sustainable geotourism activities are achieved through efficient environmental management based on regulations and guidelines set to ensure proper development of tourism infrastructures, spread of environmental awareness and natural conservation. Developing coastal tourism with more benefits to tourists, local community and the natural environment represents the major challenge in achieving sustainability (Satta et al., 2009).

RESULTS AND DISCUSSION

Tourist use of sandy beaches

The Saudi government, represented by the governorates and municipalities, especially the Eastern Province Municipality, the Dhahran Municipality and specifically the Beach Services Department, were able to establish many public beaches whose locations were chosen with great care. Many public beaches agreed in their extension with the phenomenon of sandy beaches distributed in the northern, eastern and western sides of the bay (Figure3A, B, C and D). They were provided with many rest houses, chapels, toilets and children's outdoor games which are maintained clean and in good condition by the Beach Services Department. The municipal rest houses were constructed in different geometric shapes in order to reduce the effect of salt erosion, a characteristic phenomenon of coastal areas. On the other hand, a few beaches were improperly established on pebbly beaches which contain pebbles that pose risk to beach users especially during tides (Figure 4), this has definitely, limited their use for water entertainment purposes.

The private sector has followed a different approach for developing the sandy beaches of the study area. It has established many chalets on those beaches (Figure 3E and F), in order to maximize benefits of tourist resorts through providing accommodation facilities allowing beneficiaries to stay overnight for more than one day. The nature of the charming sandy beaches offers an aesthetic view to their coastal tourist facilities.

A photography by the author, March 2021 (A) Public beach east of the study area (Half Moon beach swimming), looking west - X 50.071 - Y26.141; (B) Public beach west of the study area (Amwaj Beach), looking East - X 50.001 - Y 26.138; (C) Public beach north of the study area (Alluwlu Beach), looking East- X 50.060- Y 26.184; (D) Public beach west of the study area (Almahar Beach), looking South- X 50.051- Y 26.191; (E) A private beach west of the study area (Mina holiday Beach), looking East - X 50.066- Y 26.174; (F) A private beach east of the study area (Qaryat Nisf Alqamar Beach), looking west - X 49.988- Y 26.120.

Figure 3. Public and private recreational beaches in the study area


Figure 4. Public beaches established in the pebbly beach on the northwestern coast of the study area (Source: by the author, March 2021, Alluwlu Beach, looking north, X 50.060- Y 26.184)

A photography by the author, March 2021, (A) Public beach east of the study area (Half Moon beach swimming), looking west - X 50.071 - Y26.141; (B) Public beach west of the study area (Amwaj Beach), looking East - X 50.001 - Y 26.138; (C) Public beach north of the study area (Alluwlu Beach), looking East- X 50.060- Y 26.184; (D) Public beach west of the study area, (Almahar Beach), looking South- X 50.051- Y 26.191; (E) A private beach west of the study area, (Mina holiday Beach), looking East - X 50.066- Y 26.174; (F) A private beach east of the study area (Qaryat Nisf Alqamar Beach), looking west - X 49.988- Y 26.120

Tourism use of sand spits

This pattern of use appears in the tourist resorts that follow the private sector investments in developing the region, where the sandy spits of the study area were transformed into extension areas on which the buildings of the tourist resorts were stablished (Figure 5 and 6). These features represent a weak marine sedimentation on the rocky formations, which requires strong foundations for construction, their main component however are the sandy sediments that are carried by waves and deposited due to change of direction and tendency to precipitate. Figure (5) shows how the “Holiday Inn” resort was able to extend its construction in the form of chalets on one of the sand spits extending out of the eastern coast that falls within the limits of its ownership. The spit is a source of beauty in itself, yet, it is a source feeding the resort beach with sands transforming it into an urban use in the form of Chalets extending into the sea.

As shown in Figure (6), a complete resort was built along the main sand spit on the western beach of the Half Moon Bay. Part of the sand spit was cut off in order to allow the water of the Arabian Gulf to enter the territory of the resort and extends into the beaches inside, the extensions of the sand spit were then utilized to build the chalets in the waters of the Gulf. This presents a nice view of the site as clearly seen in the Gulf Resort and Al Dana Beach Resort established along the western beach of the study area, where the natural shape of the sand spit has been greatly modified.

The tourist use of the marine heads

Human intervention on geomorphological phenomena in the study area has largely deformed their original forms and the secret of their natural beauty, in order to establish tourist facilities and to generate economic profit. This can be again, observed in Ras Braiket, which is the main head of the Half Moon Beach area where backfilling and excavation have greatly modified the natural features of the head (Figure 7).

The pattern of sculpting and sedimentation of the marine head has changed when water channels were dig to allow Gulf water to enter into the heart of the resort (Figure 7), a thing which has ceased the sedimentation processes prevailing in the head area.

Figure 5. The extension of the chalets of the Holiday Inn Resort on the sandy spit on the eastern coast of the Half Moon Bay (Source: author March 2021, Qaryat Nisf alqamar Beach, looking west, location: X 49.988 - Y 26.120)

Figure 6. The Tourist use of sandy spits by the Dana Beach Tourist Resort and the Gulf Resort on the western beach of the study area (Source: Google Earth image, 2021)

Figure 7. The Tourist use of marine heads in Ras Braiket by the Torch Tourist Resort on the eastern shore of the study area (Source: Google Earth image, 2021)

Moreover, the extension of the head area was modified, for example, the natural shape of the head has been transformed into different man-made geometric forms of the Emerald Beach Resort.Another example could be observed in the sanctuary of Ain Al-Seih, where the Sunset Marina and Spa has been developed. The construction of the resort has taken advantage of the elongated extension of the head in the southwest direction benefiting of the double-side beaches; the southeastern side is facing Doha while the opposite one facing the Gulf. Once again, the resort construction may have caused disturbance of the geomorphological process prevailing in the head area.

Tourist use of tidal flats

Tidal flats are marine forms that may be recreated by backfilling and transformed into urban areas allowing their use as tourist resorts extending towards the sea. This will lead to deterioration of marine plants and wildlife, in addition to the devastation of one of the important geomorphological phenomena, which directly contribute to protecting shores from sea inundation**.** Figure (8) shows areas of tidal flats that were filled seaward in order to expand the lands of the tourist resort (Holiday Inn). Obviously, the filling expanded significantly outside the tidal flats reaching the waves breaking area and even further to deeper waters than tidal flats zone.

Generally, backfilling or reclamation of tidal flats leads to changing the coast line and increasing its meanders, which causes imbalance of natural sculpting and sedimentation processes. Moreover, it results in disturbing movement of coastal water currents which ultimately, changes the shape of the coast and associated phenomena.

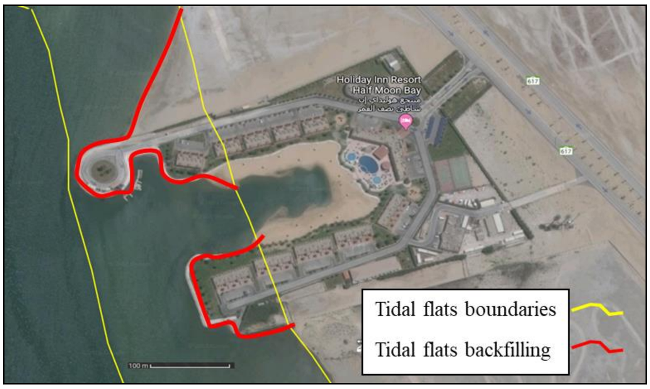


Figure 8. The Tourist use of tidal flats by a resort (Holiday Inn) on the eastern shore of the study area. Source: Google Earth image, 2021

Tourist use of the cutoff lakes

The main cutoff lake is located in the north of the study area; is about 0.77 km^2 in area. It is formed due to construction of King Fahad Road that goes around the Half Moon Beach reaching Al-Khobar city. This cutoff lake was utilized by the La Fontaine Lake Resort to represent a different style of tourist attraction in the study area that is based mainly on water sports entertainment. Various water sports, rest houses on beaches and opposite tourist chalets are common features associated with this cutoff lake as shown in Figure (9) and Figure (10). The La Fontaine Lake Resort is located southwest of the lake, extending over an area of 90,000 m^2 and extending along the coast for 400 meters taking advantage of calm waters of the lake and wave-free sea currents, in water sports, which distinguishes the La Fontaine resort from other resorts in the region.

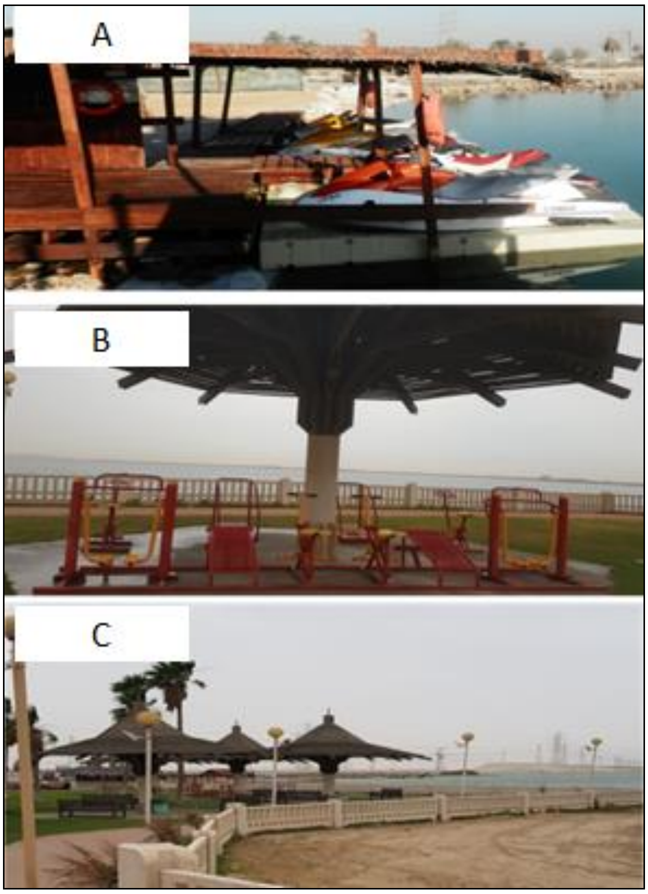


Figure 9. The use of the cutoff lake in various recreational activities at La Fontaine Lake Resort on the northern shore of the study area (Source: by the author, March 2021, (A) Water sports (Dana Bay) looking South - X 50.009 - Y 26.078; (B) Sport kits (Hajar Castle) looking North - X 50.024 - Y 26.193; (C) Resting place (Hajar Castle) looking North - X 50.024 - Y 26.193

Tourist use of beach dunes

To the northeast of the study area, sand dunes directly face the Half Moon Bay, representing one of the geomorphological phenomena in the region which was utilized for quad biking sport using (beach buggies). A center for this sport was established near those sand dunes in the study area. Practicing this sport leads to destruction of some secondary geomorphological phenomena, such as the" neem" (sand ripples) which represent natural indicator for wind direction, strength, and speed. Human intervention in the natural environment represented by the geomorphological forms, has devastating effects on these phenomena, especially in the study area, that is subject to dynamic change factors such as sea waves, sea currents, tides and winds. Such that, any intervention shall disturb the balance between sculpting and sedimentation processes, changing range of sculpture with respect to range of deposition which has been taking place in the study area.

Many sites were subject to human intervention through backfilling of near-shore sea zone in order to accommodate several tourist resorts, making the shore line more subject to sculpting and retreat by sea waves despite the relatively calm nature of sea waves in the Half Moon Bay. The geomorphological effects identified in the study area include; changing shape, direction, length and meandering of the coastline, and associated geomorphological forms such as spits, sandy beaches, tidal flats and lagoons. Instead of the destructed geomorphological forms, other natural and anthropogenic phenomena have emerged. The natural phenomena were due to prevailing marine action while man-made phenomena were in the form of tourist resorts constructed for human benefits. In anyway, geomorphological forms in the study area have been completely or partially modified, the natural ecosystem was disturbed and the marine processes have lost equilibrium. Also, extension of sea backfilling behind waves breaking line has widened areas exposed to carving operations resulted in marine erosion of synthetic constructions, material removal and deposition in other areas.

One of the important modifications to the geomorphological phenomena in the study area is the introduction of new elements constituting rock masses that were not previously existing in the sediments of the area i.e., changing the mineral composition of sediments during the filling operations. Generally, artificial spits that extend in the water perpendicular to the shore line occupied by tourist facilities are the most common variation patterns in the study area. These spits remained limited in length because of the destructive action of sea waves at deeper waters which could sculpt away the filling material. Nevertheless, alteration of coastal geomorphological phenomena has affected aspects of life in terms of fauna including microorganisms and crustaceans that feed on algae, in addition to flora represented by algae.

From the above, we note that the most important impacts on geomorphological phenomena in the study area include; the imbalance between the sculpting, transport and sedimentation processes in the beach area, problems related to the overlap between natural action and land use in the region, as well as the disturbance of marine ecosystems.

Recent years have witnessed a strong focus on the Half Moon Beach as a tourist attraction area in the Eastern Region, therefore, tourism investments and projects have been established and concentrated along sea coast of the Bay. The study area is located close to major urban communities, represented by the city of Al-Khobar with its waterfront, the city of Dammam and the city of Dhahran from the north and located to the east of the city of Hofuf, Mubarraz, Al-Amran, and Abqaiq. Thus, the study area represents the recreational beach for these urban centers, with a population number of about 2.6 million people, according to population census in 2010 (General Authority for Statistics, 2010). Obviously, the study area represents the coastal outlet for the population of urban centers of the eastern Region providing beach entertainment and recreation despite the fact that there are some coastal cities in the region such as Dammam and Al-Khobar.

Figure 10. The Tourist use of the cutoff lake by Lafontaine Lake Resort on the northern shore of the study area (Source: A photography by the author, March 2021, and Google Earth image, 2021)

Impacts of tourism

The use of geomorphological phenomena as tourism attraction sites have gained great attention in recent years leading to emergence of a new style of tourism that is, “geotourism” (Pralong, 2006). On the other hand, several direct and indirect impacts of tourism on natural land forms are anticipated (Bogdan, et al., 2009). It is believed that coastal tourism, in particular, has rapidly grown over the last decades contributing to national economies and community welfare worldwide (Satta et al., 2009). Despite of the clear economic benefits and recreational value of coastal tourism, sustainability and environmental conservation are still unresolved challenges. Miller and colleagues (2002) proposed three mechanisms in order to attain sustainability of coastal tourism systems including: planning, management and education. The report of the United Nations Environmental Programme (Satta et al., 2009) proposed an integrated coastal zone management (ICZM) approach involving sustainable tourism together with other related sectors such as energy, water and transport. On the other hand, in order to assess the effectiveness of coastal landforms for tourism development it is necessary to evaluate their distribution, characteristics, evolution and dynamics (May, 1993; Davis et al., 2021). Costal landscape produced by specific geomorphological processes must be recognized and preserved as it provides opportunity for coastal tourism however, these phenomena are subject to different kinds of threats (May, 1993). The Kingdom of Saudi Arabia has recognized the importance of sustainable development and promotion of coastal and marine tourism. The Ministry of Tourism has signed an agreement with the Greek Ministry of Tourism during the Coastal and Maritime Tourism Conference in Athens in order to share knowledge and experience related to environmental-friendly and sustainable investment of coasts and marine environments in the tourism and entertainment business (Alsharq Al-Awsat, 2021). From the above, three levels of potential impacts on the geomorphological phenomena and natural system of the Half Moon Bay region could be identified. They are expected to occur as a result of changes associated with population activity in general and tourist activity in particular. The extremely dangerous impacts, the medium-risk impacts and low risk impacts. In the following sections the three levels of impacts on the study area are discussed.

Extremely dangerous impacts

These are the effects whose destructive results appear in a short period of time, and they occur as a result of sea backfilling and reclamation works aiming at building various tourist resorts on tidal flats. These actions have led to alterations of coastal geomorphological phenomena, especially the morphology of the coastline in terms of length, meander and direction. A group of heads were established by concrete construction of tourist villages in the face of attacking waves, which led to carving and consequently erosion of marine forms such as spits as in the case of the “Holiday Inn” resort, where the backfilling operations extended beyond the waves breaking line. A recent study by Gül et al. (2020), indicated that uncontrolled sand extraction, inhibition of long-shore currents and walking along the spit of Kizkumu (SW Turkey), have caused intense erosion. The inherent danger of backfilling operations and land expansion at the expense of sea water appears in the destruction of geomorphological phenomena in the area and the creation of a new industrial forms, which harms the components of the natural environment, especially distinction of some biotic species. A recent study by Zhang et al. (2023) have indicated that tidal flat reclamation has significant influences on tidal and suspended sediment dynamics based on numerical modeling.

Medium-risk impacts

Human influences of medium severity in the study area result in dangers that appear in a longer period of time than the previous group of impacts. They include effects related to environmental concerns of marine pollution from unmanaged waste disposal by owners and visitors of tourist resorts. The direct impact of this problem is recognized after a while when the natural and chemical properties of sea water start to change affecting the vital marine ecosystem especially the delicate coral reefs. According to Wang et al. (2023), reduction of values of ecosystem services such as soil retention, habitat quality, carbon storage and water conservation has been observed in two coastal regions of China over 15 years attributed to tourism development and other factors. Potential impacts on marine properties include variations in sea water temperature, transparency, and oxygen content, which directly affects living organisms and lead to distinction coral reefs. The severity of these impacts varies depending on type and amount of pollutant, dumping locations, absorption ability of sea water and sea water regeneration.

Table 2. The SWOT analysis of tourism in the Half Moon Bay

	Strengths	**Weaknesses**
Internal	• The importance of the Eastern Province in respect to • The strong tourism attraction of the eastern coast in general and the Half Moon Bay in particular	• Lack of environmental awareness of local tourists about conservation of nature
	• The reasonable climate especially during winter season	• Urban growth and changing land sue of the region • Close by activities of oil industry which may present sources of pollution
	• Proximity of the region to neighboring Gulf countries	• Lack of accurate commitment of tourism industry to environmental practices
	• Availability of variety of tourism and accommodation facilities in the region	• Seasonality of tourism in the region
	• Good accessibility via local road network.	• Shortage in monitoring of public tourism facilities
	• Preference of local population of the Eastern Province	
External	**Opportunities**	**Threats**
	• Saudi government directions towards tourism as a potential source of national income	• Potential negative environmental impacts of tourism
	• Recent legislations in the Kingdom of Saudi Arabia facilitating conditions for tourist visa	• Attraction of local tourist to other tourism or entertainment locations inside or outside the Kingdom of Saudi Arabia
	• Very high level of income of Saudi residents	• Saudi tourism competitiveness compared to Gulf countries especially cost wise
	• Flow of visitors from gulf countries passing through on their way to Riyadh, Mekkah or Al-Madinah which provides an opportunity to recognize and appreciate the natural attraction of the region	• Alteration or loss of coastal land forms due to urbanization and land use development
	• Increasing job opportunities related to tourism in the region especially for Saudi citizens	• Adverse impacts of environmental variations such as climate change on natural ecosystems
	• National efforts to enhance conservation of natural areas	
	• Declaration of digital tourism strategy in in the Kingdom of Saudi Arabia	
	• Plans of Saudi government to attract foreign investments especially in the tourism industry	

Low risk effects

These are effects which result in dangers that take a much longer period of time to emerge, they are linked to the increase of population density of the region and associated harmful impacts. They include impacts of fishing behaviors, especially overfishing of some rare aquatic organisms and the use of wrong fishing tools such as spears, poisonous gases, and types of violating nets. As mentioned by Pradhan et al. (2022), socioeconomic developments and human interventions have resulted in coastal erosion which affected the natural habitat for nesting of sea turtles in the eastern coast of India. In addition to establishment of many ports and anchorages for yachts and boats which results in the distribution of pollution in a wider area. Practices such as driving boats close to rare living environments and dumping anchors without giving attention to locations of fragile coral reefs shall ultimately lead to destruction of those environments on the long run.

From all of the above, the previously discussed environmental concerns reflect the adverse impacts of human activities in the study area that will drive the region to lose its most important tourist resource, represented by the natural view of coastal geomorphological features and the existence of coral reefs. This will finally reduce the level of tourist attraction of the region, cause loss of tourist facilities and may cease the tourist activities at all.

SWOT analysis of tourism activities in the Half Moon Bay

Given the above-described level of utilization of the geomorphological phenomena in the Half Moon Bay, the economical merits and potential impacts, SWOT analysis have revealed the Strengths versus Weaknesses and Opportunities versus Threats of tourism in the study area (Table 2). Indeed, several points of strength have been pointed out as internal assets for the Half Moon Bay including its distinct location in the vicinity of neighboring Gulf countries, the strong tourism attraction among other sites in the Eastern Region and the well-developed road network and tourism infrastructure. On the other hands, the growing urban land use and industrial activities, threatens the sustainable development of tourism in the region. The analysis outlined some major constrains facing tourism in the Half Moon Bay, such as the expected adverse environmental impacts, loss of natural environments and land forms and competition with other attraction sites. However, the new trends of Saudi government towards tourism as an alternative source of income, facilitation of tourism visa, continuous flow of passing by visitors from Gulf countries and efforts of natural conservation represent the main available opportunities to promote and develop sustainable tourism in the region.

CONCLUSIONS AND RECOMMENDATIONS

The Half Moon Bay is characterized by a set of natural properties including location, surface topography, geological formation, climate, marine processes (waves, tides and currents) in addition to a number of geomorphological phenomena which have made it suitable for human interventions. This has encouraged public and private sectors to benefit economically from the natural potentials of this region in tourism investment leading to interventions and modifications of natural phenomena. Alterations constitute change of direction, length and meander of coastline in the region due to land excavation and reclamation of shallow sea water.

Changes in different sectors of the Half Moon Bay were recognized. Clearly, the eastern cost was found to be the most variable, followed by the western cost, while the northern coast was the least variable. Variations were in terms of coastline properties and outlines of geomorphological phenomena. Natural geomorphology (action of nature) has been transformed into synthetic morphology (action of man) in addition to destruction of coral reefs environment and loss of biodiversity.

Presumed impacts on the natural environment of the Bay region were classified into three levels based on the degree of risk; the highly dangerous impacts, whose effect appears in a short period of time and result from backfilling of sea water, the medium risk effects, whose impact appears in a bit longer period of time and results from sea water pollution, and the low-risk impacts, whose effect appears in the long run and result mainly from human misconduct during tourism activities.

Despite some constrains, several opportunities are available in order to promote and develop sustainable tourism in the region mainly supported by a set of legislations, efforts and actions at the national and local levels.

The study was concluded with a set of recommendations, including:

1. It is necessary to identify harmful environmental impacts of human intervention on the geomorphological phenomena **and associated natural processes in order to ensure sustainability of tourism business as well as to preserves the environment.**

2. Increase of environmental awareness among tourists in order to avoid inappropriate behavior harmful to the environment, and monitor and control sanitation practices of tourist facilities in terms of waste disposal.

3. Preservation of unaffected geomorphological phenomena in the Half Moon Bay especially in the middle sector of the northern beach through avoiding future interference in this zone. This shall protect the existing geomorphological phenomena, avert environmental deterioration as well preserve the natural assets of the region, the main point of tourist attraction.

Author Contributions: Conceptualization, M.N. and W.S.; methodology, M.N. and I.B.; software, I.B. and W.S.; validation, M.N. and W.S.; formal analysis, I.B. and M.N.; investigation, M.N. and I.B.; data curation, W.S. and M.N..; writing - original draft preparation, M.N. and I.B.; writing - review and editing, I.B.; visualization, W.S. and M.N.; supervision, I.B.; project administration, M.N. All authors have read and agreed to the published version of the manuscript.

Funding: This work was supported by the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia [Grant No 4,522].

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Alkhalaf, F., & Orams, M.B. (2021). Coastal Tourism in Saudi Arabia. An Exploratory Study of Half Moon Beach. *Tourism in Marine Environments*, 16(3), 183-194 https://doi.org/10.3727/154427321X16270454534433

Aragón-Correa, J.A., Torre-Ruiz, J.M., & Vidal-Salazar, M.D. (2023). Agglomerations around natural resources in the hospitality industry: Balancing growth with the Sustainable Development Goals. *Business Research Quarterly*, 26(1) 11-26 https://doi.org/10.1177/23409444221103283

Alsharq Al-Awsat (2021). Saudi Arabia, Greece Collaborate to Boost Sustainable Coastal, Marine Tourism, 7th June, 2021, (accessed 25/4/2023) https://english.aawsat.com/home/article/3013946/saudi-arabia-greece-collaborate-boost-sustainable-coastal-marine-tourism

Bird, E.C.F. (1984). *Coasts: an introduction to coastal geomorphology*, third edition, Basil Blackwell, Oxford, United Kingdom.

Bird, E. (2008). *Coastal Geomorphology: An Introduction, Second edition*. John Wiley & Sons Ltd, West Sussex, England.

Bird, E. (2010). Saudi Arabia, Persian Gulf Coast. In *Encyclopedia of the World's Coastal Landforms (1045–1046).* Springer, Dordrecht, The Netherlands https://doi.org/10.1007/978-1-4020-8639-7_194

Davidson-Arnott, R. (2009). Coastal geomorphology. In *Introduction to Coastal Processes and Geomorphology (10-16)*. Cambridge University Press, Cambridge, United Kingdom https://doi:10.1017/CBO9780511841507.003

Davis, P., de P., Jailson, C.L., Eduardo, L.B., & Jader de O.S. (2021). Coastal erosion and tourism: the case of the distribution of tourist accommodations and their daily rates. *Geography, Environment, Sustainability,* 14(3), 110-120 https://doi:10.24057/2071-9388-2021-018

Gomez, C.A., Hart, D.E., Wassmer, P., Kenta, I., Matsui, H., & Shimizu, M. (2019). Coastal Evolution, Geomorphic Processes and Sedimentary Records in the Anthropocene. *Forum Geografi*, 33 (1), 1-24 https://doi:10.23917/forgeo.v33i1.7551

Goudie, A.S. (2006). *Encyclopedia of Geomorphology,* I (A-I), (ed.), Taylor & Francis e-Library.

Gül, M., Küçükuysal, C., Çetin, E., Ataytür, Ö., & Masud, A. (2020). Coastal Erosion Threat on the Kızkumu Spit Geotourism Site (SW Turkey): Natural and Anthropogenic Factors. *Geoheritage* 12, 54 (2020) https://doi.org/10.1007/s12371-020-00477-0

Hall, C.M. (2001). Trends in ocean and coastal tourism: the end of the last frontier? *Ocean & Coastal Management*, 44(9-10), 601-618 https://doi.org/10.1016/S0964-5691(01)00071-0

May, V. (1993). Coastal Tourism, Geomorphology and Geological Conservation: The Example of South Central England. In: Wong, P.P. (eds) Tourism vs Environment: The Case for Coastal Areas, 3-10, 26, The GeoJournal Library, *Springer,* Dordrecht. The Netherlands https://doi.org/10.1007/978-94-011-2068-5_1

Mestanza-Ramón, C., Chica-Ruiz, C.J., Anfuso, G., Mooser, A., Botero, C.M., & Pranzini, E. (2020). Tourism in Continental Ecuador and the Galapagos Islands: An Integrated Coastal Zone Management (ICZM) Perspective. *Water*, 12(6), 1647(2020) https://doi.org/10.3390/w12061647

Bogdan, M., Reynard, E., Werren, G., Savulescu, I., Sandric, I., & Chitu, Z. (2009). Impacts of tourism on geomorphological processes in the Bucegi Mountains in Romania. *Geographica Helvetic*a, 64(3), 134-147 https://doi.org/10.5194/gh-64-134-2009

Miller, M.L., & Hadley, N.P. (2005). Tourism and Coastal Development. In: *Schwartz, M.L. (eds) Encyclopedia of Coastal Science*. *Encyclopedia of Earth Science Series.* Springer, Dordrecht, The Netherlands https://doi.org/10.1007/1-4020-3880-1_328

Miller, M.L., Auyong, J., & Hadley, N.P. (2002). *Sustainable Coastal Tourism: Challenges for Management, Planning, and Education.* In Proceedings of the 1999 International Symposium on Coastal and Marine Tourism: Balancing Tourism and Conservation, (eds.) University of Washington, Oregon State University and Oceans Blue Foundation, Seattle, WA, USA, 3-20.

National Center for Meteorology, (2023). Reports of seasonal climate conditions found at. (Accessed 6/5/2023) https://ncm.gov.sa/Ar/MediaCenter/Reports/Pages/medialibrary.aspx?folderID=a8807580-fef8-425c-8981-c757ec9f33ea

Neumann, B., Ott, K., & Kenchington, R. (2017). Strong sustainability in coastal areas: A conceptual interpretation of SDG 14. *Sustainability Science*, 12(6), 1019–1035 https://doi.org/10.1007/s11625-017-0472-y

Pradhan, U.K., Mohantym, P.K., & Mishram, P. (2022). Coastal erosion: a threat to sea turtle nesting hapitat, east coast of India. *Rendiconti Lincei. Scienze Fisiche e Naturali*, 33, 153–167 https://doi.org/10.1007/s12210-022-01046-z

Pralong, J.P. (2006). Geotourism: A New Form of Tourism Utilizing Natural Landscapes and Based on Imagination and Emotion. *Tourism Review*, 61(3): 20-25 https://doi.org/10.1108/eb058476

Rios-Reyes, C.A., Manco Jaraba, D.C., & Castellanos Alarcon, O.M. (2021). Geotourism Potential and Challenges of the Coastal Region Around Santa Marta (Colombia): a Novel Strategy for Socioeconomic Development. *Cuadernos de Geografía: Revista Colombiana de Geografía*, 30(1), 106-124 https://doi.org/10.15446/rcdg.v30n1.81239

Satta, A., Trumbic, I., Skaricic, Z., & Markovic, M., (2009). *Sustainable Coastal Tourism: an integrated planning and management approach*. United Nations Environment Programme, Priority Actions Programme, ISBN: 978-92-807-2966-5.

Wang, P., Zhang, J., Ma, J., Guo, L., Yang, L., Ma, X., Sun, F., & Cao, S. (2023). What impacts ecosystem services in tropical coastal tourism cities? A comparative case study of Haikou and Sanya, China. *Journal of Environmental Management*, 342, 118227 https://doi.org/10.1016/j.jenvman.2023.118227

Weijermars, R. (1999). Quaternary evolution of Dawat Zulum (Half Moon Bay) Region, Eastern Province, Saudi Arabia. *GeoArabia*, 4(1), 71-90.

Zeinali, S., Dehghani, M., Rastegar, M.A., & Mojarrad, M. (2017). Detecting shoreline changes in Chabahar Bay by processing satellite images. *Scientia Iranica, Transactions on Civil Engineering (A)*, 24(4), 1802-1809 https://doi.org/10.24200/SCI.2017.4271

Zhang, R., Chen, Y., Chen, P., Zhou, X., Wu, B., Chen, K., Sun, Z., & Yao, P. (2023). Impacts of tidal flat reclamation on suspended sediment dynamics in the tidal-dominated Wenzhou Coast, China. *Frontiers in Marine Science*, 10:1097177 http://doi: 10.3389/fmars.2023.1097177

Article history: Received: 17.06.2023 Revised: 02.09.2023 Accepted: 04.10.2023 Available online: 06.11.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1286-1292
DOI 10.30892/gtg.50409-1127

PERCEPTION OF POLAND'S TOURISM BRAND IN THE OPINION OF STUDENTS IN SELECTED COUNTRIES

Agnieszka BÓGDAŁ-BRZEZIŃSKA
University of Warsaw, Faculty of Political Science and International Studies, Warsaw, Poland, e-mail: bogdal@uw.edu.pl

Jan A. WENDT[*]
University of Gdańsk, Faculty of Social Sciences, Institute of Socio-Economic Geography and Spatial Management, Gdańsk, Poland, e-mail: jan.wendt@ug.edu.pl

Ashfak Ahmad KHAN
Karabük University, Faculty of Letters, Department of Geography, Demir Celik Campus, Karabük, Türkiye, e-mail: aahmadkhan@karabuk.edu.tr

Rina AGYBETOVA
L.N. Gumilyov Eurasian National University, Economic Faculty, Astana, Republic of Kazakhstan, e-mail: r.agybetova@gmail.com

Erim CANTÜRK
Dokuz Eylül University, Institute of Educational Sciences, Department of Turkish and Social Sciences, Geography Teaching Ph.D. Program, İzmir, Türkiye, e-mail: emircanturk@gmail.com

Kurmanbek NARYNBEK UULU
Kyrgyz National University of J. Balasagyn, Faculty of Geography, Ecology and Tourism, Department of Tourism and Recreational Geography, Bishkek, Kyrgyzstan, email: nkurmanbek@mail.ru

Ryskul Almanbaevna TOKTOROVA
Kyrgyz National University of J. Balasagyn, Faculty of Geography, Ecology and Tourism, Department of Physical Geography, Bishkek, Kyrgyzstan, e-mail: fget.knu@mail.ru

Citation: Bógdał-Brzezińska, A., Wendt, J.A., Khan, A.A., Agybetova, R., Cantürk, E., Narynbek, K., & Toktorova, R.A. (2023). PERCEPTION OF POLAND'S TOURISM BRAND IN THE OPINION OF STUDENTS IN SELECTED COUNTRIES. *GeoJournal of Tourism and Geosites*, 50(4), 1286–1292. https://doi.org/10.30892/gtg.50409-1127

Abstract: The aim of the undertaken research is to determine the knowledge of future specialists in tourism geography, tourist values and the tourist brand of Poland. A research hypothesis was also established according to which, the influence of Europeanization in the Russian-Soviet version, may influence greater knowledge about Poland. The work uses the classic method of survey research in the social sciences with the use of a standardized questionnaire. The study involved students of tourism and geography from universities in Astana (35), Bishkek (32) and Karabük (43). The results of the research allow us to define the awareness of Poland as a tourist brand as moderately good in Astana, weaker in Bishkek, and poor in Karabük. The largest number of correct answers concerned the capital of Poland and well-known Poles (Copernicus, John Paul II, Chopin), and among athletes, footballers (Lewandowski) and ski jumpers (Stoch, Małysz). The fewest correct answers concerned Poland's tourist attractions. In the perception of the students participating in the study, Poland is one of the countries of Central Europe that are attractive in terms of tourism. It can also be concluded that the influence of the heritage of Russian Europeanization on students' knowledge of Europe is still visible.

Key words: nation branding, tourist brand, tourist values, Kazakhstan, Kyrgyzstan, Poland, Türkiye

* * * * * *

INTRODUCTION

Tourism, which experienced a decline during the COVID-19 pandemic (Karabulut et al., 2020; Korinth and Wendt, 2021; Korinth, 2020; 2023), is gradually witnessing a marked increase in the post-pandemic era. This situation has resulted in increased competition among individual tourist regions in attracting more tourists. One of the fundamental factors influencing the increase in the number of incoming tourists is undoubtedly the recognition of the tourism brand of a region or country (Pike and Mason, 2011; Marczak, 2018) or actor operating in the tourism business (Chivandi et al., 2020; Kuseni et al., 2021; Abouseada et al., 2023). More broadly, it is the marketing orientation of entities within tourism (Panasiuk, 2021). Territorial marketing of countries is of fundamental importance, the research of which already has a rich history, encompassing theoretical contributions (Fan, 2006; Klein et al., 2019; Gertner and Freire, 2018; Cavalcante et al., 2021; Freire at al., 2022; Pahrudin et al., 2022), selected values (Im et al., 2012; Ilieş et al., 2015; Wendt et al., 2019) and specific case studies of countries (Anholt, 2000; 2002; Florek, 2005; Loo and Davies, 2006; Dinnie, 2009; Tran et al., 2020).

[*] Corresponding author

Territorial marketing is considered a component of nation branding, particularly concerning places that attract foreign investors or serve as highly recognizable tourist destinations within a country (Obrębalski, 1998; Szromnik, 2008). It implies that the principle of EU subsidiarity applies in shaping the national brand In this context, subsidiarity signifies the involvement of local communities in enhancing the overall attractiveness of the country to its foreign partners.

The building of Polish nation branding dates back to the political roots of Poland's efforts to join the European Union. At that time, multiple ministries simultaneously worked on unifying and making the country's image abroad more distinct. Among them, the Ministry of Foreign Affairs took the lead, while the Ministry of Labor and Social Policy played auxiliary role in relation to migration policy, and the Ministry of Culture and National Heritage focused on cultural diplomacy. Among domestic entities in the late 1990s and early 2000s, the Polish Chamber of Tourism and the Polish Brand Institute stood out as the most active in creating national branding (Szmytke, 2021).

Key reasons for the necessity of building Polish nation branding included the aspirations to lead in Central Europe, the imperative to redefine the image from a socialist state, the new identity as a member of NATO and the EU, and the reinforcement of a modern state image, drawing selectively from valuable historical traditions (Szondi, 2007). It is worth noting that the Baltic republics of Latvia and Estonia were pioneers of nation branding among post-Soviet states in the early 20th century (Endziņa and Luneva, 2008; Same and Solarte-Vasquez, 2014).

One of the failures of the mature Polish brand image campaign was the promotional campaign accompanying the 2012 Poland-Ukraine European Football Championship. In the 2022 report, Poland maintained its 26th place out of 60 ranked countries held over a decade earlier. The selectiveness and inconsistency of the Polish authorities in the field of migration policy (the construction of a wall on the border with Belarus with the simultaneous aid campaign for Ukrainian refugees) does not increase the recognition of Poland and can be treated as one of the key factors blocking progress in creating a positive international image. In recognized scientific journals dedicated to nation branding, like 'Place Branding and Public Diplomacy,' there has been a lack of analysis regarding Poland's image policy in the context of recent key challenges such as COVID-19 and the Russian-Ukrainian war. This may prove that Poland is not recognizable as a settlement area and may bode poorly for the growth of the country's tourist attractiveness.

Therefore, bearing in mind the importance of territorial marketing, research was undertaken to study the recognition of Poland as a tourist brand among a selected group of respondents including students in the last years of studies majoring in tourism and geography. Because there is already a substantial body of literature on tourism brand recognition in EU countries (Endziņa and Luneva, 2008; Konecnik and Go, 2008; Same and Solarte-Vasquez, 2014), this analysis focuses on statements made by students from Kazakhstan, Kyrgyzstan and Türkiye. These countries have a considerable communication distance from Poland, which helps minimize the influence of students' personal experiences and allows for an assessment of their level of interest and knowledge about Poland based on their formal education.

The aim of the research undertaken is to determine the competences of future specialists in the field of tourist geography, tourist values and the tourist brand of Poland. A research hypothesis was also established according to which, despite the passage of more than thirty years since the collapse of the Soviet Union, the influence of Europeanization in the Russian-Soviet version, along with all the typical superpower rhetoric, may influence greater knowledge about Poland. More knowledge is expected, given that Poland (part of the Soviet world until 1989) is of historical interest. This knowledge should be more visible, especially at the universities of Astana and Bishkek, where experienced professors, educated in the former Soviet Union, likely imparted a deeper understanding of this historical context. The Polish minority, descendants of Polish exiles to Kazakhstan, may have a similar impact on knowledge in Poland.

On the other hand, awareness of the Polish brand, assessed in Karabük, a city in the north of the country and home to one of the 17 universities established in 2007, will primarily depend on how Turkish students perceive it and their level of interest in European countries. Poland began to build its brand, including the tourist brand, relatively late, similarly to other post-socialist countries in Europe (Kleinová and Űrgeová, 2011; Kaneva and Popescu, 2014). Since the 1990s, along with the deepening globalization of the economic exchange of goods and services, the general knowledge of the cooperating countries about partner countries has been growing. It was favored by the increase in the mobility of the population, expressed in the general availability of private and business trips in connection with the growing readiness to practice tourism, as well as the increase in the level of wealth of the inhabitants of a growing group of countries in connection with the rise in the readiness for individual and organized tourist trips. The influence of liberal trade on the policy of countries undergoing political transformation and the development of modern digital technologies (ICT) contributed to the dissemination of a new concept of building a narrative about countries attractive for investment, settlement or tourism: the idea of the state brand (Dinnie, 2009). Its creator is usually considered to be Simon Anholt, a marketing expert who in 1996, popularized the assumption that the reputation and image of a country abroad is a commercial product subject to the rules of marketing and promotion (Anholt, 2005; 2011). The key components of the brand include the guiding idea, i.e., the parameters of brand recognition or identifiability and the image that is created in the sphere of perception of the recipient (Anholt, 2007). The latter component is subjective, individualized, and dependent on experiences, memories, expectations, stereotypes of recipients, media messages, and general knowledge derived from the educational system (Fan, 2006).

The Anholt IPSOS Nation Brands Index (NBI) was created in 2005, considering the parameters of measurability of success in the field of nation branding. The components included in the ranking are the level of positive opinions about products and services exported from the surveyed country, the level of interest in the country as a place of natural and anthropogenic tourist attractions, the impact of the domestic culture, art and sport sectors on the global development trends of these industries and the lifestyle standards of the recipients interested in them, opinion about the quality of administration and public services, the attractiveness of settlement for immigrants, and finally – positive stereotypes regarding social attitudes.

MATERIALS AND METHODS

There is relatively little research literature on the Polish brand (Kubacki and Skinner, 2006; Kozak and Mazurek, 2011). Previous studies have highlighted, above all, the weakness of the Polish marketing policy conducted by government institutions (Hereźniak, 2011; Maćkowska, 2012). Therefore, the study used the results of surveys conducted among students of tourism and geography at three universities in Kazakhstan at the L. N. Gumilyov Eurasian National University (35 questionnaires), in Kyrgyzstan at the Kyrgyz National University of J. Balasagyn (32 questionnaires), and in Türkiye at Karabük University (43 surveys), 110 people in total.

The tests were carried out on January 15, 2023-January 15, 2023. The research was divided into three stages (Figure 1). The survey included students studying in the last year of bachelor's studies or the first year of master's studies. These universities from the respective countries were chosen because it was believed that the significant communication distance, the general lack of direct contact or personal experience in Poland, combined with their interest in tourism, would enable a relatively objective perception of the Polska brand based on its image rather than personal experience (Ilieş and Wendt, 2015; Wendt and Bógdał-Brzezińska, 2018b).

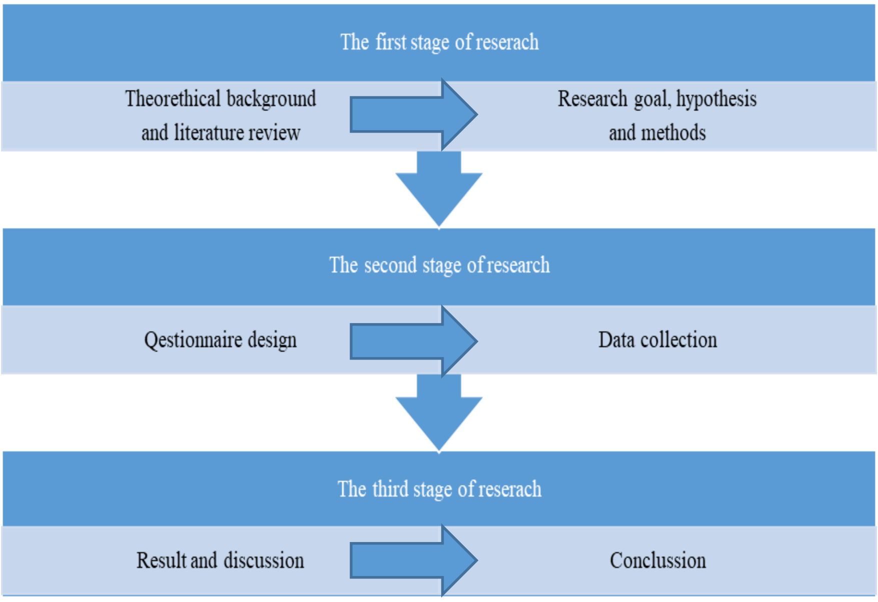


Figure 1. Flowchart of the research methods (Source: own elaboration)

The choice of universities from these countries also results from the fact that their inhabitants belong to the Turkish language group, and Islam is the dominant religion. Notably, the inhabitants of each of them, in historical terms, had the opportunity to visit Poland and meet Poles. In Kazakhstan, we have a Polish minority, descendants of Polish exiles; in Kyrgyzstan, we have a secondary migration of Polish exiles from Kazakhstan. Türkiye and Poland had a rich history of rivalry in the Balkans in the past. In the research and description of the Polish brand, qualitative research methods and statistical analysis typical for social sciences were used (Wendt et al., 2016; Wendt and Bógdał-Brzezińska, 2018a).

Respondents were asked to answer several groups of questions. In the beginning, they were asked to answer the question about staying in Poland (Q1). The next questions (Q2-Q7) concerned general geographical knowledge about Poland. The next group covered the tourist values of the country (Q8-Q10), and in the last one, examining the brand of Poland, the respondents were asked about Poles known to the respondents from the world of culture, science or sport (Q11-Q12). Some of the surveys end with a question about students' associations with Poland (Q13) and about the ranking of five Central European countries in terms of tourist attractiveness (Q14).

The obtained research results are only an image of the Polska brand during the research in a selected group of students. The obtained results present only the perception of Poland as a tourist brand by selected groups of students during the survey. Complete research, allowing for the generalization of results, requires a significantly larger sample and, above all, its representativeness. Therefore, the obtained results should be treated as the results of pilot studies, which can be used to discuss the need for further, in-depth research.

This does not reduce the cognitive value but does not allow generalization of the results. The more so that they were conducted on a selected social and age group, which includes students and potential specialists in the field of tourism.

RESULTS AND DISCUSSION

The first question about staying in Poland (Q1) showed that unlike the respondents from Kyrgyzstan and Türkiye, who had never been there, only five students from Kazakhstan visited Poland. It allows us to conclude that the answers to the remaining ones will be almost entirely based on the brand of the country existing in the minds of students. As the research results by A. Borek (2018) show, staying in Poland allows you to shape a completely different image of the country, which is known from everyday life. The next questions (Q2-Q7) concerned basic information about the country. They are presented as follows: (Q2) Mark in which region of Europe Poland is located; (Q3) Tick 5 of the given countries that have a land border with Poland; (Q4) Indicate what range in terms of area (thousand sq km) is Poland; (Q5) Indicate what range in terms of the number of inhabitants (million) is Poland; (Q6) Does Poland have access to the sea?; (Q6.1) If you answered YES for Q6, enter its name; (Q7) Give the name of the capital of Poland (Table 1). The obtained results are broadly consistent with the results of previous studies (Fedyk et al., 2014; Piątek and Kobylińska, 2019).

Table 1. Share (%) of correct answers to questions Q2-Q7 (Source: own calculation)

Questions	Kazakhstan	Kyrgyzstan	Türkiye
Q2	100.0	43.8	55.8
Q3	14.3	43.8	67.4
Q4	77.1	6.3	39.5
Q5	100.0	9.4	39.5
Q6	25.7	81.3	62.8
Q6.1	25.7	50.0	9.3
Q7	100.0	96.9	25.6
Number of students	35	32	43

As the survey results show (Table 1), students coped best with the answers to the question about the capital of Poland (Q7) and its location in Central Europe. About half of the respondents (the average of all answers from the three universities) correctly answered the questions about access to the sea (Q6) and population (Q5). A slightly smaller number (approx. 41%) of correct answers concerned Poland's neighbors (Q3) and its area (Q4). The most difficult question turned out to be the question about the name of the sea on which Poland is located (Q6.1). The Baltic Sea was mentioned by only a quarter of students from Kazakhstan, half from Kyrgyzstan, and 9% from Türkiye.

The analysis of the answers to the questions asked by universities (Figure 2) allows us to conclude that the students surveyed have a relatively poor knowledge of basic information about Poland. The average of correct answers (for Q2-Q7) at the university in Astana is the highest and amounts to 63%, at the university in Bishkek 47%, and in Karabük 43%.

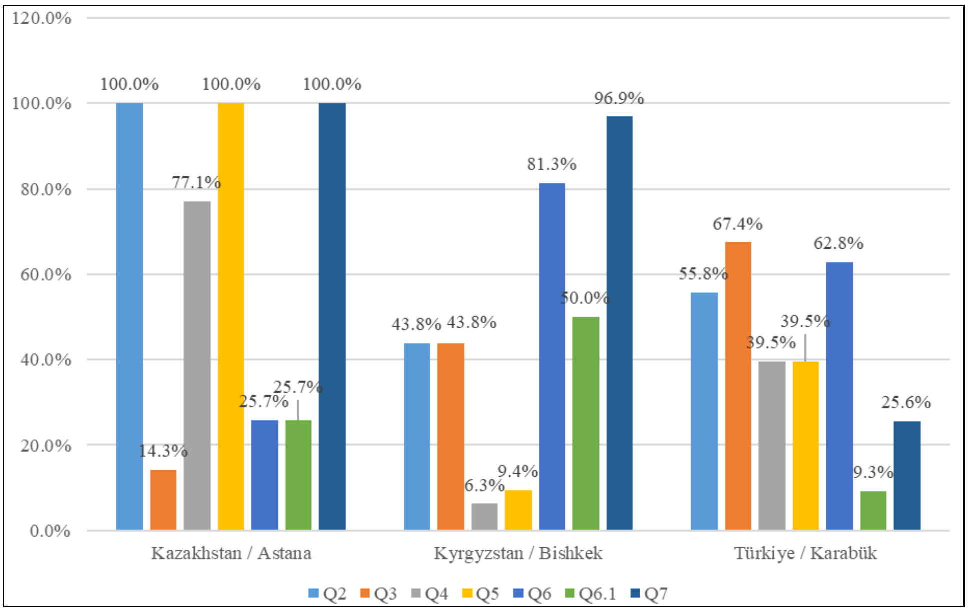


Figure 2. Answers to Q2-Q7 questions by university / country (own elaboration)

Students from Astana were the best at answering questions about the location of Poland, the number of inhabitants, and the name of the capital. Most students from Bishkek gave correct answers to the question about the capital city and Poland's access to the sea, and from Karabük to questions about Poland's neighbors and access to the sea. The least correct answers in Astana concerned Poland's neighbors, in Bishkek the size of the country and in Karabük the name of the sea over which Poland is located. The next group of questions included questions related to tourist values. Among the most famous and exciting cities in Poland (Q8), respondents from Kazakhstan indicated the most, and respondents from Türkiye the least. The most notable were Warsaw and Krakow in Kazakhstan and Kyrgyzstan, which were mentioned by 25 students from Astana and 24 (Warsaw) and 11 (Krakow) students from Bishkek, respectively.

In Karbük, four students indicated Warsaw and only two students in Krakow. In addition, in the case of Kazakhstan, several indications or single indications also concerned Lublin and Gdańsk, in Kyrgyzstan, Lublin, Wrocław, Białystok and Olsztyn were indicated, and Poznań in Türkiye. Based on the students' answers, it can be concluded that the students from Bishkek knew the most cities and those from Karabük the least. The responses received are consistent not only with the stereotypical perception of Poland through the prism of its current and former capital but also with the already-known results of research on the perception of the Polish brand (Lemanowicz, 2017; Piątek and Kobylińska, 2019).

Questions about natural and anthropogenic tourist attractions of Poland (Q9, Q10) caused most problems with correct answers for all students. Only single indications were given to the Białowieża Forest, the beach in Sopot and the Vistula and Odra rivers. Unfortunately, the surveyed students were unable to indicate anthropogenic values, although in the previous questions, the answers included castles in Krakow and Malbork, as well as several cities, well-known tourist centers. It is an interesting issue because similar research conducted almost ten years ago also highlights the weakness of the perception of Poland as a tourist destination and the weakness of its brand and promotion of the country's image (Johann, 2014; Kiryluk and Glińska, 2015). Therefore, it should be concluded that recent years have not brought any positive changes in promoting Poland as a tourist destination. The efforts undertaken and the implemented ministerial programs (Lusińska and Żeleźnik, 2017) did not affect the recognition of Poland as a tourist destination.

Compared to tourist attractions, significantly better answers were given to questions about famous Poles (in general; Q11) and famous Polish athletes (Q12). Among the well-known Poles, the most frequently repeated figures in the polls in Kazakhstan and Kyrgyzstan were Nicolaus Copernicus, John Paul II, and Fryderyk Chopin. In Bishkek, students also mentioned Lech Wałęsa; Józef Piłsudski, and interestingly, also Polish writers: Adam Mickiewicz, Henryk Sienkiewicz and Ryszard Kapuściński. On the other hand, in Karabük, as it seems, well-known Poles, such as Mickiewicz, Chopin or John Paul II, received only single indications. Significantly more answers were received to the question about famous athletes (Table 2). The surveyed students in Kyrgyzstan also mentioned (1-3 indications) Agnieszka Radwańska, Kamil Stoch, Kamil Glik and Marcin Gortat, and in Karabük - Łukasz Jarosz. Compared to previous studies (Florek, 2005; Lemanowicz, 2017), changes in the list of recognizable Poles are visible. Although Nicolaus Copernicus, Fryderyk Chopin and John Paul II are famous beyond time, among the athletes, next to Adam Małysz, Robert Lewandowski, Robert Kubica, Kamil Stoch and Justyna Kowalczyk appeared very well in the media. The last two survey questions concerned the association with the name "Poland" (Q13) and the ranking of Central European countries in terms of their tourist attractiveness. At the Kazakh and Kyrgyz universities, the first associations concerned architecture, which received five and eighteen indications, respectively. In second place in Astana were footballers, a high level of education and a "well-paid" job, and in Bishkek the "White Eagle" award, national costume, castles, "polka" (dance) and beer. At the university in Karabük, students are unable to identify associations with Poland, and single votes concerned the economy and football. The ranking of tourist attractiveness indicates the lack of a clear favorite or the lack of weakness in the functioning of the brand of the assessed countries in the minds of students of individual universities (Figure 3). With some approximation, with the previously presented reservations and limitations of the research, based on the respondents' indications, it can be said that Hungary and Poland were considered the most attractive (the sum of the scores for each of these countries was 12). Austria and Slovakia ranked lower with eight points, and the Czech Rep. received the lowest marks.

Table 2. The most famous athletes from Poland (Q12)
(Source: own calculation)

Kazakhstan	Kyrgyzstan	Türkiye
Lewandowski Robert (90%)	Lewandowski Robert (25%)	Lewandowski Robert (12%)
Kubica Robert (30%)	Kowalczyk Justyna (16%)	
Stoch Kamil (30%)	Kubica Robert (13%)	
	Małysz Adam (13%)	

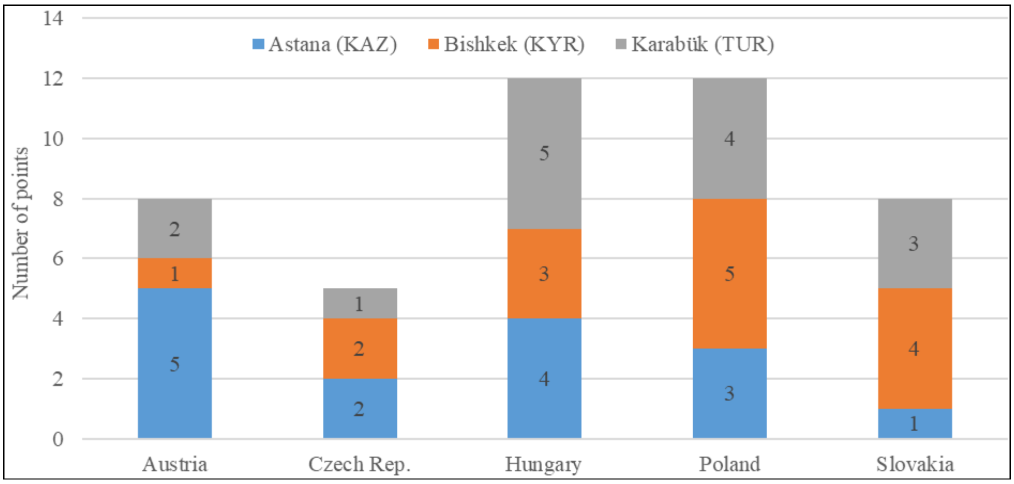


Figure 3. Ranking of tourist attractiveness of Central European countries (Q14);
from 1 point – the least attractive; to 5 points – the most attractive (own elaboration)

CONCLUSION

The answers to (Q1) made it possible to exclude the influence of the experience of students from Kyrgyzstan and Türkiye on the perception of Poland's tourism brand. And in the case of Kazakhstan, only five students were to visit Poland. Subsequent questions (Q2-Q7) showed average (Astana) to poor (Kyrgyzstan and Türkiye) knowledge of Poland's location in Europe, its access to the sea, the name of the sea or countries that border Poland (Table 1, Figure 2). Just like questions about the size of the territory or the number of inhabitants. The only question that most of the respondents from Kazakhstan and Kyrgyzstan answered correctly was the question about the capital of Poland. Again, the responses of Turkish students were relatively poor.

Questions about the natural and anthropogenic tourist attractions of Poland (Q8, Q9, Q10) caused the most problems with correct answers for all students. Many of the respondents did not give any explanation, which may indicate a lack of knowledge or interest in Poland among the respondents. In the group of questions about famous Poles (Q11, Q12), as might be expected, Nicolaus Copernicus, John Paul II and Fryderyk Chopin received the most responses. Like predicted answers about athletes. The most frequently mentioned are Robert Lewandowski, Robert Kubica, Kamil Stoch, Adam Małysz and Justyna Kowalczyk (Table 2). The most commonly indicated associations included architecture, football and economy (Q13). The ranking of tourist attractiveness (Q14) brought interesting cognitive results. As shown by the data (Figure 3) of the Pole and Hungary, they were defined as more attractive in tourism than other countries (Austria, Czech Republic, Slovakia).

From the point of view of achieving the research goal, which was an attempt to determine the knowledge of future specialists in the field of tourism and tourist geography in the field of tourism values and the tourist brand of Poland, it can be concluded that Poland as a tourist brand is poorly recognized at all the surveyed universities.

On the other hand, taking into account all the results of the study, in which students from Kazakhstan and Kyrgyzstan gave relatively the most significant number of correct answers to questions about the geography of Poland, it can be concluded that the thesis about the impact of Europeanization in the Russian version on more excellent knowledge of Poland presented in the work has been positively verified. However, the issue of the influence of the Polish minority in Kazakhstan requires in-depth research with the participation of students of Polish origin.

Author Contributions: Conceptualization, A.B.B., J.A.W., A.A.K., E.C. and K.N.; methodology, A.B.B., J.A.W., A.A.K., E.C. and K.N.; formal analysis, A.B.B., J.A.W., R.A., A.A.K., E.C.; R.A.T., and K.N.; investigation, A.B.B., J.A.W., R.A., A.A.K., E.C.; R.A.T., and K.N.; data curation, A.B.B., J.A.W., R.A., A.A.K., E.C.; R.A.T., and K.N.; writing - original draft preparation, A.B.B., J.A.W., A.A.K. and K.N.; writing - review and editing A.B.B., J.A.W., and A.A.K.; visualization, A.B.B. and J.A.W., E.C.; R.A.T.; supervision, A.B.B., J.A.W. and A.A.K. All authors have read and agreed to the published version of the manuscript.

Funding: Implementation of a research project thanks to a grant from the University of Gdańsk, Territorial Research Workshop, no. D/715/2022.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Abouseada, Al.A.A.H., Hassan, T.H., Saleh, M.I., & Radwan, S.H. (2023). The Power of Airport Branding in Shaping Tourist Destination Image: Passenger Commitment Perspective. *GeoJournal of Tourism and Geosites*, 47(2), 440–449. https://doi.org/10.30892/gtg.47210-1042

Anholt, S. (2000). The nation as brand. *Across the Board*, 37(10), 22-27.

Anholt, S. (2002). Foreword. *Journal of Brand Management*, 9(4–5), 229-239.

Anholt, S. (2005). Anholt Nation Brands Index: How does the world see America? *Journal of Advertising Research*, 45(3), 296-304.

Anholt, S. (2007). *Tożsamość konkurencyjna. Nowe spojrzenie na markę [Competitive identity. A new look at the brand]*, IMP, Warszawa, Poland.

Anholt, S. (2011). Beyond the Nation Brand: The Role of Image and Identity in International Relations. *Exchange: The Journal of Public Diplomacy*, 2(1), Art. 1.

Borek, A. (2018). *Wizerunek Polski i polskich marek w oczach obcokrajowców mieszkających w Polsce [Image of Poland and Polish brands in the eyes of foreigners living in Poland]*. Dziennikarstwo i Media, 9, 71-82.

Cavalcante, W.Q.d.F., Coelho, A., & Bairrada, C.M. (2021). Sustainability and Tourism Marketing: A Bibliometric Analysis of Publications between 1997 and 2020 Using VOSviewer Software. *Sustainability*, 13, 4987. https://doi.org/10.3390/su13094987

Chivandi, A., Samuel, O., & Muchie, M. (2020). The Effect of Online Travel Agencies (OTA) on Brand Relationships in Low and High-End Hotels in South Africa. *GeoJournal of Tourism and Geosites*, 31(3), 951–957. https://doi.org/10.30892/gtg.31303-526

Dinnie, K. (2009). *Nation branding. Concepts, issues, practice*. Butterworth – Heinemann, Oxford, UK.

Endziņa, I., & Luņeva, L. (2004). Development of a national branding strategy: The case of Latvia. *Place Brand Public Dipl,* 1, 94–105. https://doi.org/10.1057/palgrave.pb.5990009

Fan, Y. (2006). Branding the nation: What is being branded? *Journal of Vacation Marketing,* 12(1), 5-14. https://doi.org/10. 1177/1356766706056633

Fedyk, W., Gruszka, I., & Krajewska-Smardz, A. (2014). *Ocena wizerunku marki turystycznej polski według opinii obcokrajowców [Evaluation of the image of the Polish tourist brand according to the opinion of foreigners]*. Rozprawy Naukowe Akademii Wychowania Fizycznego we Wrocławiu, 14, 196-203.

Florek, M. (2005). The country brand as a new challenge for Poland. *Place Branding,* 1(2), 205–214.

Freire, J., Gertner, R., & Gertner, D. (2022). Cultural appropriation and destination brands. *GeoJournal of Tourism and Geosites,* 40(1), 79–88. https://doi.org/10.30892/gtg.40109-805

Gertner, R.K., & Freire, J. (2018). Impact of place brand names on destination image. *International Journal of Leisure and Tourism Marketing*, 6(1), 39-50. https://doi.org/10.1504/IJLTM.2018.089223

Hereźniak, M. (2011). *Marka narodowa. Jak skutecznie budować wizerunek i reputację kraju [National brand. How to effectively build the image and reputation of the country]*. PWN, Warszawa, Poland.

Ilieş, A., & Wendt, J.A. (2015). *Geografia turystyczna. Podstawy teorii i zagadnienia aplikacyjne [Tourist geography. Fundamentals of theory and application issues]*. Wydawnictwo AWFiS, Gdańsk, Poland.

Ilieş, D.C., Buhaş, R., Ilieş, A., Morar, C., & Herman, G. (2015). Nymphaea Lotus Var. Thermalis (Pârâul Peţea Nature Reserve), Brand Near Extinction of the Băile Felix - Băile 1 Mai (Romania) spa tourism system. *GeoJournal of Tourism and Geosites*, 8(1), 107-117.

Im, H.H., Kim, S.S., Elliot, S., & Han, H. (2012). Conceptualizing destination brand equity dimensions from a consumer-based brand equity perspective. *Journal of Travel & Tourism Marketing*, 29(4), 385-403. https://doi.org/10.1080/10548408.2012.674884

Johann, M. (2014). The image of Poland as a tourist destination. *European Journal of Tourism, Hospitality and Recreation,* Special Issue, 143-161.

Kaneva, N., & Popescu, D. (2014). We are Romanian, Not Roma: Nation Branding and Postsocialist Discourses of Alterity. *Communication, Culture and Critique*, 7(4), 506-523. https://doi.org/10.1111/cccr.12064

Karabulut, G., Bilgin, M.H., Demir, E., & Doker, A.C. (2020). How pandemics affect tourism: International evidence. *Annals of Tourism Research*, 84, 102991. https://dx.doi.org/10.1016%2Fj.annals.2020.102991

Kiryluk, H., & Glińska, E. (2015). Creation and Evaluation of the Tourist Image of a Country - the Example of Poland. *Procedia - Social and Behavioral Sciences,* 213, 671-676. https://doi.org/10.1016/j.sbspro.2015.11.473

Klein, K., Völckner, F., Hernán A. Bruno, H.A., Sattler, H., & Bruno, P. (2019). Brand positioning based on brand image–country image fit. *Marketing Science,* 38 (3), 516-538. https://doi.org/10.1287/mksc.2019.1151

Kleinová, K., & Úrgeová, J. (2011). Country image and branding of Slovakia. Polityki Europejskie, Finanse i Marketing, 5(53), 50-58.

Konecnik, M., & Go, F. (2008). Tourism destination brand identity: The case of Slovenia. *Journal of Brand Management,* 15, 177-189. https://doi.org/10.1057/palgrave.bm.2550114

Korinth, B. (2020). The impact of COVID-19 on foreign travel plans of Polish tourists. *Studia Periegetica,* 32(4), 59-69. http://dx.doi.org/10.5604/01.3001.0014.6585

Korinth, B. (2023). From resilience to collapse: a cross-country study of tourist spending in Europe during the COVID-19 pandemic. Environ. Socio.-econ. Stud., 11(3), 54-64. https://doi.org/10.2478/environ-2023-0017

Korinth, B., & Wendt, J.A. (2021). The impact of COVID-19 pandemic on foreign tourism in European countries. *Prace Komisji Geografii Przemysłu Polskiego Towarzystwa Geograficznego*, 35(3), 186–204. https://doi.org/10.24917/20801653.353.11

Kozak, K., & Mazurek, M. (2011). Marka obszaru recepcji turystycznej: wartości marki, tożsamość marki, rozszerzanie marki ico-branding [Brand of the tourist destination: brand values, brand identity, brand expansion and co-branding]. *Folia Turistica*, 5(2), 99–119.

Kubacki, K., & Skinner, H. (2006). Poland: Exploring the relationship between national brand and national culture. *J Brand Manag*, 13, 284–299. https://doi.org/10.1057/palgrave.bm.2540272

Kuseni, M., Aardt, I., & Boshoff, L. (2021). Auxiliary Issues of Branding Tourism Destinations: A Case of Gauteng, South Africa. *GeoJournal of Tourism and Geosites*, 37(3), 823–831. https://doi.org/10.30892/gtg.37312-714

Lemanowicz, M. (2017). An evaluation of the image of Poland as a national brand perceived by young foreigners. *Review of Innovation and Competitiveness, 3*(4), 58-69. https://doi.org/10.32728/ric.2018.34/3

Loo, T., & Davies, G. (2006). Branding China. The Ultimate Challenge in Reputation Management. *Corporate Reputation Review*, 9(3), 198-210. https://doi.org/10.1057/palgrave.crr.1550025

Lusińska, A., & Kalinowska-Żeleźnik, A. (2017). *Promocja Polski i kultury polskiej w programie Ministerstwa Kultury i Dziedzictwa Narodowego [Promotion of Poland and Polish culture in the program of the Ministry of Culture and National Heritage]*. Media, Biznes, Kultura, 1(2), 77-99. https://doi.org/10.4467/25442554.MBK.17.005.7652

Maćkowska, R. (2012). Kształtowanie wizerunku polski w krajach Unii Europejskiej [Shaping the image of Poland in the countries of the European Union]. *Colloquium Wydziału Nauk Humanistycznych i Społecznych*, 2, 179-190.

Marczak, M. (2018). Branding as an Essential Element of the of Destination Management Process Using the Example of Selected States. *Management Sciences. Nauki o Zarządzaniu, Sciendo,* 23(2), 29-40. https://doi.org/10.15611/ms.2018.2.04

Obrębalski, M. (1998). *Marketingowa strategia rozwoju przestrzeni [Marketing strategy of space development]* Wydawnictwo Akademii Ekonomicznej we Wrocławiu, Wrocław, Poland.

Określenie wizerunku, który Polska powinna promować za granicą [Determining the image that Poland should promote abroad] (2013). Report, Laboratorium Badań Społecznych, MSZ, Warszawa, Poland.

Pahrudin, P., Liu, L.W., & Li, S.Y. (2022). What Is the Role of Tourism Management and Marketing toward Sustainable Tourism? A Bibliometric Analysis Approach. *Sustainability*, 14, 4226. https://doi.org/10.3390/su14074226

Panasiuk, A. (2021). Marketing Orientation of Entities on the Tourism Market. *Sustainability*, 13, 12040. https://doi.org/10.3390/su132112040

Piątek, W., & Kobylińska, U. (2019). Perception of the national brand in the opinion of the inhabitants of Poland and Spain – a comparative analysis. *Academy of Management*, 3(3), 116-132.

Pike, S., & Mason, R. (2011). Destination competitiveness through the lens of brand positioning: the case of Australia's Sunshine Coast. *Current Issues in Tourism*, 14(2), 169-182. https://doi.org/10.1080/13683501003797523

Same, S., & Solarte-Vasquez, M.C. (2014). Country Branding and Country Image: Insights, Challenges and Prospects. The Case of Estonia. *TalTech Journal of European Studies*, 4(1), 137-165. https://doi.org/10.2478/bjes-2014-0008

Szmytke, R. (2021). Tourism promotion system in Poland in the context of selected National Strategic Documents. *Balt J Health Phys Act.,* 13(Spec. iss.1), 145-155. https://doi.org/10.29359/BJHPA.13.Spec.Iss1.14

Szondi, G. (2007). The role and challenges of country branding in transition countries: The Central and Eastern European experience. Place Branding and Public Diplomacy, 3(1), 8-20. https://doi.org/10.1057/palgrave.pb.6000044

Szromnik, A. (2008). *Marketing terytorialny [Territorial marketing]*. Wolters Kluwer, Kraków, Poland.

Tran, P.K.T., Nguyen, V.K., & Tran, V.T. (2020). Brand equity and customer satisfaction: a comparative analysis of international and domestic tourists in Vietnam. *Journal of Product & Brand Management*, 30(1), 180-194. https://doi.org/10.1108/JPBM-08-2019-2540

Wendt, J.A., & Bógdał-Brzezińska, A. (2018a). *Problematyka, metody i problemy badań w geografii turystycznej [Problems, methods and problems of research in tourist geography]. Turystyka. Nowe Trendy, Zeszyty Naukowe*, 7, 7-42.

Wendt, J.A., & Bógdał-Brzezińska, A. (2018b). Złote runo współczesnych Argonautów - bursztyn jako marka turystyczna w internecie w latach 2009-2018 *[The golden fleece of modern Argonauts - amber as a tourist brand on the Internet in 2009-2018]*, In *Olszewski-Strzyżowski, D.J. (ed.), Bursztyn. Wczoraj, dziś, jutro [Amber. Yesterday Today Tomorrow]*. 109-121, Wydawnictwo AWFiS, Gdańsk, Poland.

Wendt, J.A., Buhas, R., & Herman G.V. (2019). Experience of the Baile-Felix tourist system (Romania) for the promotion of the grey seal as a brand on the Hel Peninsula (Poland). *Baltic Region*, 11 (1), 109-136. https://doi.org/10.5922/2079-8555-2019-1-8

Wendt, J.A., Chroń, M., Jaźwiecka, M., & Wiskulski, T. (2016). Differences in the perception and evaluation of tourist attractions of Menorca by its residents and tourists. *GeoJournal of Tourism and Geosites*, 9(1), 21-31.

Article history: Received: 28.06.2023 Revised: 12.09.2023 Accepted: 05.10.2023 Available online: 06.11.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1293-1302
DOI 10.30892/gtg.50410-1128

EXPLORATORY STUDY OF GEOGOVERNANCE: MECHANISMS OF SOCIAL PARTICIPATION AND TERRITORIAL MANAGEMENT IN KABYLIA: BEJAIA AND TIZI OUZOU (NORTH OF ALGERIA)

Foudil KHALED[*]
Constantine 3 University Salah Boubnider, The Institute of Urban Technical Management,
Urban Engineering and environment Department, Constantine, Algeria, e-mail: foudil.khaled@univ-constantine3.dz

Hamza AMIRECHE
Constantine 3 University Salah Boubnider, The Institute of Urban Technical Management,
Urban Engineering and Environment Department, Constantine, Algeria, e-mail: hamza.amireche@univ-constantine3.dz

Citation: Khaled, F., & Amireche, H. (2023). EXPLORATORY STUDY OF GEOGOVERNANCE: MECHANISMS OF SOCIAL PARTICIPATION AND TERRITORIAL MANAGEMENT IN KABYLIA: BEJAIA AND TIZI OUZOU (NORTH OF ALGERIA). *GeoJournal of Tourism and Geosites*, 50(4), 1293–1302. https://doi.org/10.30892/gtg.50410-1128

Abstract: The concept of "Geogovernance" emerged during the 2010s, contributing to the enrichment of the scientific debate in geography and territorial management. Geogovernance represents a new paradigm that brings a fresh analytical approach, necessitating practical and empirical studies. The study focuses on an experience carried out in Algeria, specifically the "Best Cleanest Village" competition project initiated by the popular assemblies of Bejaia and Tizi Ouzou wilayas. The impact of this project on the neighborhoods of Aguemoune N'ath Amar in Bejaia and Sahel in Bouzguène, Tizi Ouzou, is also analyzed. The study underscores the significance of social participation for all spatial managers, emphasizing a "participatory imperative" or the "duty of consultation" as crucial pedagogy for effective management and development initiatives. For geogovernance, a reference protocol specific to its process is essential, along with comprehensive training and information dissemination among actors to equip them with the necessary competencies, methods, and catalyst tools for territorial information.

Key words: geogovernance, social participation, actors, planning, territorial management, tourism

* * * * * *

INTRODUCTION

Governance fundamentally raises the question of steering mechanisms or responsibility in the ambiguous areas of juridical and instrumental norms, in the absence of scientific certainty, when values, preferences, or contents of collective utility are diverse (Briand, 2001). In this context, governance constitutes a development strategy (Brodhag, 2000). However, the implementation process proves challenging in the fields of territorial planning and the environment. There is still very little consensus, both theoretically and practically, on the best ways to involve the public. Actors are identified based on the characteristics of the mission. This is where the first network of stakeholders is constructed, guiding the process and ensuring the steering system of governance (Carlo, 2009). Indeed, postmodern societies seek to combine environmental conservation, interdependencies between different land uses, benefits of full utilization of natural resources, and sustainability (Alexander, 2006). Moreover, they must take into consideration the values, preferences, and needs of the public in decision-making processes, rather than basing societal goodness or badness solely on professional and partisan considerations (Geneviève and Sacco, 2012). Thus, planning and intervention instruments recognizing the legitimacy of social participation in territorial project decision-making processes are required (Schiffino et al., 2019). OECD guidelines push many member countries to integrate more reflexive approaches for increasingly effective mobilization with public collaboration, civil society, the private sector, and research communities (European Commission, 2001). Public participation is a fundamental challenge in environmental management and habitat design. Since the Rio Conference (UNCED, 1992).

In Algeria, the state's monopolistic approach to space management has not yielded satisfactory results (Bendjelid, 2010). The state's monopoly is currently being challenged by local, public, and private actors, as well as numerous specialists and academic researchers. For years, these actors have been advocating for a gradual disengagement of the state and the application of a new approach to space management. To make these gaps less visible, it is necessary to garner greater interest from authorities and the population to increase the attractiveness of the territory and ensure balanced development within it (Caloian et al., 2021). From an economic perspective, territorial governance is defined as a "process of coordinating actors among themselves in the perspective of organizing economic activity" (Leloup et al., 2005). A new attitude emerges, involving citizens in matters that directly concern them, thus fostering a sense of responsibility and, above all, an initiative to close the chapter of the period of dependency (Benmohammed, 2010).

The involvement of local populations is essential for achieving sustainable development and promoting balanced and dynamic settlements. By proposing a vision for the development of their territory, local authorities must ensure that the

[*] Corresponding author

population will be able to contribute (Hauptmann and Wates, 2010). Sharing information to propose solutions and involving residents in the management of their living space implies a sharing of decision-making and responsibility that goes hand in hand. One may wonder whether policies are ready for this sharing of decision-making and whether residents are ready for the resulting sharing of responsibilities (Leloup et al., 2005).

We have witnessed since the 2010s the emergence of the concept of "Geogovernance," which has enriched the scientific debate in geography and urban planning. It is a new paradigm around new approaches to territorial management through the use of new communication technology tools and citizen participation. Geogovernance (territorial governance) enables active citizen participation in the management of their territory, capable of absorbing crises and addressing the surrounding spatial context, allowing for timely intervention in conflict resolution (Belhedi, 2013). However, their conception of governance is limited to the mechanistic aspects of certain processes, does not dwell on the qualities and modes of association of certain actors, and provides little explanation of spatial facts. The term "geogovernance" itself has been used before as "The New-Geo-Governance" (Paquet, 1996). Therefore, we start with the observation of this dual deficit of participation and effectiveness of action, considering the inherent tension in both the deficit of citizen integration in the so-called "participatory" making of public policies (Blondiaux, 2008).

This concept of geogovernance can encompass a reasoned and sensible approach that combines participation and social innovation with territorial management. In this article, we will explore the following questions:

1. What is the real weight and type of antagonistic and/or complementary positions of the various territorial players in a geogovernance approach?

2. What local territorial management strategy was adopted by the authorities to implement the new measures taken as part of the "best cleanest village" competition project in Bejaia and Tizi Ouzou?

3. What is the social, ecological and cultural impact of this geo-governance approach, which combines social participation and innovation with territorial management?

With regard to the question of how the forms of social participation introduced in the communes of Taourirth Ighil (Bejaia) and Sahel (Tizi Ouzou) can contribute to territorial development, it was necessary to analyze and specify how these social innovations relate to the dimensions of governance mentioned. Starting with the social dimensions, the article highlighted the governance mechanisms created in the communes which, serving as guidelines for the actions that followed, constitute institutional innovations in themselves. The main contribution of our research is to analyze the mechanisms for implementing certain initiatives at village level through projects framed by popular assemblies (the "best cleanest village" competition in Bejaia and Tizi Ouzou), according to the most striking theoretical model based on our analysis of a geogovernance approach. This article thus contributes to thinking about a new way of assessing social participation, showing that it can only be understood in terms of the decision-making context in which it takes place. On the one hand, the ancestral contribution of "Touiza" traditions as a form of community solidarity, and on the other, the use of new information technologies and geographic information systems in the age of globalization.

As we see it, the geogovernance approach is intended to be a means of co-understanding and co-resolving the difficulties of a project based on the territory, which analyzes facts using geographic information as a vector for participation and decision-making. And we have deliberately positioned ourselves within a heuristic and learning approach.

MATERIALS AND METHODS

Our exploratory research will address two different study areas in two wilayas (provinces) of Algeria. However, they share almost identical natural, social, and cultural characteristics. The first study area is the neighborhood of Aguemounen'Ath Amar, located in the wilaya of Bejaia. The second study area is the Sahel neighborhood, located in the wilaya of Tizi Ouzou.

Study Area 01: Aguemounen'Ath Amar neighborhood, situated in Taourirt Ighil, a municipality in the wilaya of Béjaïa, in Kabylie. It is a village located 3km from Fort-Taourirt, nestled at an altitude of 800m between the Akfadou National Park towards Djurdjura and the Gouraya National Park towards the Mediterranean. The population is 2600 inhabitants (RGPH “General population and habitat survey”2008).

Study Area 02: The Sahel neighborhood in Bouzguène is located approximately 70 km from the city of Tizi Ouzou. It is one of the largest villages in the Bouzeguène daïra in terms of area and population. It is situated southwest of Bouzeguène, 05 km towards Illoul Oumalou (Figure 1). The population is 5500 inhabitants (projections 2022, DPSB, Statistical planning and budget directorate).

Our position in this exploratory research aligns with a development approach for tools to aid decision-making, particularly in environmental planning and management, based on solidarity, information sharing, co-elaboration of territorial projects, and the search for decision-making compromises. The case studies of the "Best Cleanest Village" competition in Bejaia and Tizi Ouzou help implement institutional tools through integrated decision-making processes adapted to the context of territorial geogovernance. This article could serve as a foundation for a territorial management approach in Algeria and beyond.

It is essential to clarify that the contribution of residents in urban and territorial design is far from being a well-defined field of study or without controversy. To study the involvement or contribution of residents to a project, the approach used here analyzes this involvement within the participatory devices and processes implemented by various actors. We aim to approach expertise differently to address the challenges and issues of resident involvement in the project or even in planning actions in favor of a development approach based on a geogovernance process. Thus, we will focus on the analysis of a contribution made through the production and promotion of competitive and attractive spaces. A descriptive and analytical approach will be applied to participatory devices, specifically the "Best Cleanest Village" competition project initiated by the two popular assemblies of the wilayas of Tizi Ouzou and Bejaia. It is crucial, first and foremost, to define some elements of governance, such as social participation, as well as what is meant by geogovernance, its purpose, and its tools. The objective of geogovernance appears, according to our understanding, twofold: on one hand, to contribute to defining the issues of a given territory from a sustainability perspective, and on the other hand, to inform and train the manager to ensure an understanding of the territory's challenges and involve citizens in decision-making.

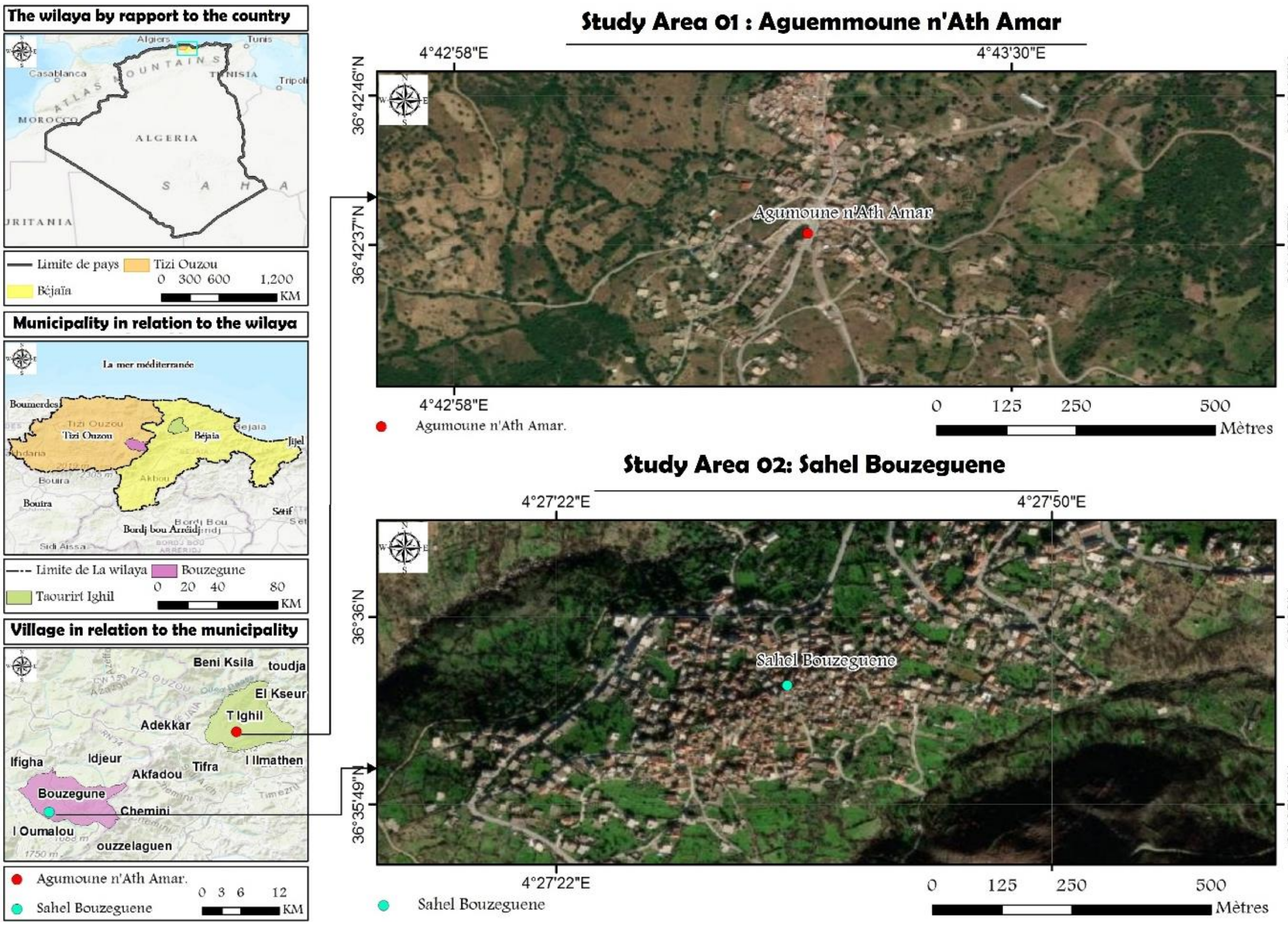


Figure 1. Study Area Location (Source: Authors, February 2023; Satellite image: world imagery basemap, Imagery date: 02/26/2023)

Decoding: Social participation, ICT, GIS and territorial governance

Before beginning our analysis, we felt it necessary to decrypt the notions of social participation, ICT and GIS and territorial governance. Over the last decade, national and sub-national governments have had to face several environmental and societal challenges that have necessitated the development of new public policies (Steinebach and Knill, 2017; Casula, 2022). It is quite clear that, the rise of the recent economic, environmental and social crisis as well as the increase in urbanization are leading cities to face complex and interrelated societal problems (Govigli et al., 2020).

Such problems make it increasingly difficult for a single societal actor to find adequate solutions (Baccarne et al., 2016), as resolving them often involves negotiations and articulation between different stakeholders. From this perspective, the urban performance of a town or village depends not only on its physical material infrastructures, but also on knowledge and social infrastructures (Caragliu et al., 2011).

Innovation and social participation and governance often involve collaborative practices between civil society organizations and public actors to develop alternative solutions to meet social needs, and are often faced with comparable socio-political challenges (Galego et al., 2022). We therefore examine five academic fields (political science and public administration, urban and territorial studies, sociology, sustainability and ecology, and cultural and creativity studies) to identify the most relevant dimensions linking social participation and governance. With the growing power of ICT, people have demanded more direct participation in public decision-making (Cossetta and Palumbo, 2014). Moreover, ICT and technological innovations enable real-time citizen participation that can both integrate and replace traditional forms of democratic processes (Cossetta and Palumbo, 2014). ICTs have the potential to boost social participation by facilitating access to websites and collaborative platforms, administrations' communications cells, as well as helping to communicate the initiative, for example via social media, thus helping to reach a wider population (González and Díaz-Díaz, 2015). Territorial governance processes that strengthen the role of economic and social players in driving social change help to instill more open and democratic practices in social leadership (Baker and Mehmood, 2015).

From this perspective, participatory governance is presented as a means of achieving democratic values such as efficiency, legitimacy and social justice (Fung, 2015). In so doing, community collaboration, the Co-construction of territory, would lead to social participation mechanisms as solutions - whether products, services or new models, public space planning, - capable of creating social value beyond the capacities of current systems in place (Adams and Hess, 2010). Socially innovative governance is in fact particularly useful for tackling "growing social challenges that neither government nor citizens have the resources to solve alone". Citizens do not have the resources to solve them alone" (Pestoff 2012, 1106). Governance thus serves as the general foundation for geogovernance, at the center of which is the decision associated with power, with the transition from representative democracy, which favors a top-down decision-making approach, to participatory democracy, which relies on a bottom-up approach and a shared decision-making principle between citizens and elected representatives. This is exactly what we are going to analyze in detail in our case study.

Social Participation (Touiza): Immersive Vector of the Territory

"Touiza" refers to a participatory project, in which members of a territory or a given community organize themselves to carry out a collective operation for the collective or individual interest. In history, the Kabyles organized Touiza operations for cultivating the land, collecting olives, constructing houses, opening paths and tracks, and also in the implementation of hydraulic structures and drinking water supply. Additionally, it aimed to create a model that promotes access to property for disadvantaged social categories. It intended to offer these future residents the possibility to build their own living spaces, thus facilitating their social reintegration (Adad, 2008). Since the 1990s (...), new needs have emerged, highlighting the inadequacy of traditional responses and the obligation to modify the forms of social action to propose solutions that are closer to local realities (Gaulène, 2017). The theorists of local and regional development have emphasized since the early 1990s the importance of governance as a winning mechanism to ensure the redevelopment of territories lacking economic vitality or experiencing a decline (Xavier, 1992). The paradigm of local or regional development emphasizes the central role of governance in facilitating the networking of actors and making the mobilization of resources more effective (Le Galès, 1995). Taken in its generic sense, the term "participation" thus applies to the full range of methods through which the public can take part in decisions that concern them, regardless of the influence it exerts on the process and its degree of engagement (Gagnon and Gauthier, 2018).

From Governance to Geogovernance

Developed by the geographers of the intersite group "Spatial Analysis and Geogovernance" of the UMR Espace, this concept was enriched through a seminar in 2010, where it was confronted with actors from the expertise, political, and media spheres. The works carried out between 2007 and 2011 - field experiments, innovative methods, and scientific reflections - have contributed to its development (Cécile and Masson-Vincent, 2010). The modeling of territorial phenomena is now an area where significant progress has been made, leading to a better understanding of the territory, its actors, and their space. However, significant difficulties arise in the planning of territories (Loubier, 2004). The archeology of the "geogovernance" concept and examples that have contributed to its construction have been presented in various publications (Masson-Vincent, 2008; Dubus et al., 2010; Masson-Vincent et al., 2011, 2012). Likewise, various applications have been the subject of several articles by group members (Jacob, 2006; Douart, 2008; Lampin-Maillet, 2009). Therefore, we will provide a brief presentation before focusing on the subject of this article: an overview of field experiments and scientific reflections to support what we call geogovernance.

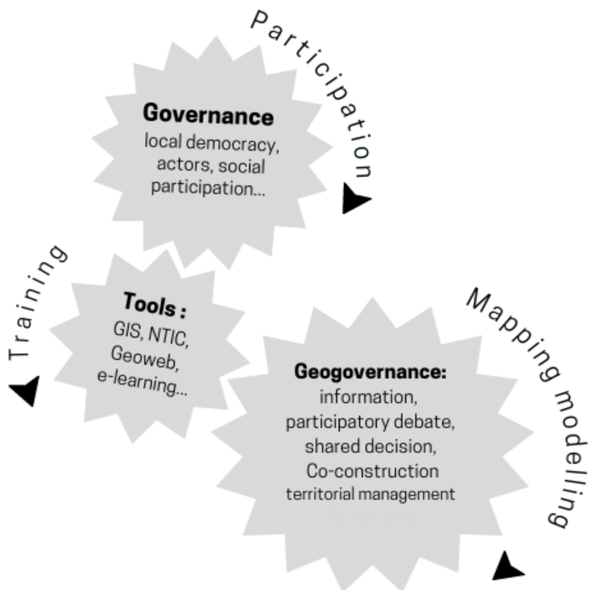


Figure 2. Articulation between governance and geogovernance (Source: Authors, February 2023)

Through the observation and analysis of different types of citizen initiatives, we have identified several relevant criteria to distinguish them (actors, temporality, scale, location, materialization, relationship with public authorities, legal status, and controversy) (Mercenier, 2015). This institutionalization of public debate and citizen participation in collective decision-making echoes the development of the political concept of participatory democracy (Bacqué et al., 2005). Participatory democracy denotes a new form of power sharing and exercise, based on strengthening citizens' participation in political decision-making. The integration of citizens into the processes of constructing public action involves a combination of various factors (Hamel, 1991): economic crisis, political crisis, questioning of practices and techniques of local government management, etc. Therefore, local governments and authorities must adapt to new regulatory frameworks regarding access to geographical information and public participation in local life, as well as citizens' expectations in terms of information and means to communicate and express themselves about territorial matters. This dual requirement - information/training in territorial knowledge and the emergence of the needs and expectations of populations for inclusion in projects - seems to be one of the crucial components for ensuring active citizen participation in the management of their living space. Indeed, various studies conducted in recent years have shown that participatory democracy is not an easy task (Blondiaux, 2008; Rosanvallon, 2008).

Today, the discourse has changed. Territorial governance has become a method. In the name of sustainable development, each individual, as a territorial actor, could get involved and participate in decision-making (Piot, 2007).

With the emergence of participatory tools and practices from the social web, geomatics has adapted to new online techniques and practices, providing both professionals and the general public with enriched access to geographical information (Mericskay, 2013). The research conducted by the "Spatial Analysis and Geogovernance" group began with a theoretical exploration of the concepts of governance and then geogovernance, which we define as a process to achieve a shared understanding of the territory based on the multiple visions of its actors (civil society, elected officials, experts) to co-construct the territory of the future, relying on spatial analysis tools (Masson-Vincent, 2008; Dubus et al., 2010).

The experiments allow for the validation or refutation of certain theoretical aspects. Furthermore, they open new questions and theoretical fields that can take shape in the realm of tools, particularly in the area of complex representations of actors in contrast to computer representations. Ultimately, these experiments pave the way for anoperational approach (Emsellem et al., 2018). The top diagram (Figure 2) analyzes the transition from governance to geogovernance and the practical articulation through the integration of participatory approaches with information and communication tools (GIS, ICT, and Geoweb), and in our case, the Touiza approach, which is an ancestral form of gathering territorial actors for participative debate, shared decision-making, and co-elaboration of territorial projects.

RESULTS AND DISCUSSION

To understand the practical aspect of our research, it is essential to highlight two projects that have boosted the social participation process in our study area. These are the "Cleanest Village" competitions organized by the two Popular Assemblies of Tizi Ouzou and Bejaia wilayas. In the participatory framework, a sequence of activities and evaluations was created to implement this project, which can be presented in a cycle of development and improvement. The community's strategy determined the levels of participation, and the nature of different tasks in the project created different types of participation.

Project Description

Since 2006, the Popular Assembly of Tizi Ouzou wilaya initiated a competition called the "Best Cleanest Village." This project has contributed to strengthening social bonds and citizen attachment to the territory. The village of Sahel (Tizi Ouzou) won the first prize in the 7th edition of the competition. Among 57 participating villages, Sahel was selected among the ten nominated villages to receive this award. As a result of this distinction, Sahel received financial support of approximately 900 million centimes (around 45,000 €), with 20% of this amount dedicated to environmental projects according to the new regulations. These financial aids are granted as subsidies to the winning villages for the acquisition of public works equipment, waste collection, and other related activities.

Additionally, in January 2019, the wilaya of Bejaia duplicated the "Best Cleanest Village" project. Launched by the Popular Assembly of Bejaia, this new initiative takes the form of a competition aimed at civil society to motivate and involve actors in reviving the ancestral voluntary traditions known as "Touiza" in Kabylie. A set of internal rules determines the conditions of participation. Before participation, villages and neighborhoods must express their willingness to take part by familiarizing themselves with the criteria on which they will be evaluated by the assessment commission, composed of elected officials and representatives from the environment, tourism, and culture departments. The internal rules of the competition are based on the following points:

Table 1. Evaluation Elements of the "Cleanest Village Competition" Project (Source: Bejaia Provincial Popular Assembly, 2020)

N°	Element of Evaluation	Details	Scoring
1.	Public Roads	Maintenance, Lighting...	35
2.	Waste Management	Waste Collection, Recycling...	25
3.	Public Squares	Cleanliness, Design	20
4.	Fountains, Water Management	Maintenance, Design	10
5.	Places of Worship and Monuments	Maintenance, Cleanliness, and Design	20
6.	Cemeteries	Cleanliness, Design	20
7.	Social Organization: Village Committee	Solidarity, Participation, Volunteering	10
8.	Green and Recreational Spaces	Beautification and Cleanliness	20
		Total Points	160

As a reward, the village of Aguemounen'Ath Amar received a check of five hundred million centimes (5,000,000 DZD) in the first edition of the project in the Bejaia province in 2020. This project has become a new tourist destination for many visitors in Algeria. It has generated great interest in improving the living environment, public hygiene, and the cultural aspect of the region. In addition to revitalizing social ties and boosting local development, this competition has enhanced the attractiveness of the territory.

Impacts of the project on the social level

Through our fieldwork (2020, 2021, 2022) in the two villages, we observed that the "Best Cleanest Village" competition had a major impact on social, environmental, cultural, and economic aspects. The observed elements can be summarized as follows:

- Strengthening the capacities of local actors, elected officials, and associative actors (Figure 3a)
- Creating a citizen-driven dynamic for the preservation of tangible and intangible heritage.
- Strengthening the spirit of solidarity and organization that characterizes village communities.

- The project has also contributed to reinforcing social bonds and citizen engagement in the management of their living spaces.
- Rehabilitation of ancestral values of touiza, volunteerism, solidarity, and social voluntarism.

Impact of the project on the environmental level

One of the major contributions of the "Best Cleanest Village" project is its ecological impact. It has provided a new motivating framework that contributes to improving the hygienic situation in neighborhoods and villages. Through our field investigation, we observed the following achievements:

- Installation of selective waste sorting facilities so that residents can easily recycle paper, plastic, metal, and glass.
- Implementation of composting (one composter per 10 households) where organic waste is transformed into compost used to fertilize gardens and nurseries in the villages.
- Creation of educational gardens for children to promote ecological education (Figure 4b).
- Design and creation of green spaces and recreational areas for children, youth, and families, as well as the rehabilitation of village fountains and water sources (Figure 3b).
- Participation in the preservation of the ecosystem in the surrounding areas of the village.

Figure 3a. Study Area - Impact of the project on the social level (Organization of a governance forum with all village actors)

Figure 3b. Study Area - Impact of the project on the social level (Results of the residents' participation in the village beautification project)

(Source: Authors fieldwork, 2020, 2021, and 2023)

Impact of the project on the tourist, cultural, and economic levels

The competition has boosted local development and revitalized the territorial attraction and cultural animation by:

- Supporting the creation of economic activities for vulnerable populations in the villages (youth and women).
- Involving members of the Algerian community abroad in the project.
- Creating jobs for villagers in waste recycling and compost production, providing an additional source of income for families (Figure 4a).
- In 2021, the village of Sahel welcomed over 30,000 visitors from all corners of Algeria during the Berber New Year celebrations (Village Association).
- In January 2023, the village committee decided to charge an entry fee for visitors, namely 100 DZD per visitor (around 2 €). This has become a significant source of revenue for the village, used for maintenance and improvements.

Figure 4a. Study Area - Impact of the project on the environmental and ecological level (Installation of domestic waste sorting points)
(Source: Authors, fieldwork, 2020, 2021, and 2023)

Figure 4b. Study Area - Impact of the project on the environmental and ecological level (Massive operation to plant flowers and decorative plants in the village)
(Source: Authors, fieldwork, 2020, 2021, and 2023)

- In July 2019, Sahel hosted and organized the Racont'ARTS Festival, which lasted for 7 days with the participation of several countries (Figure 5a).
- Annual celebration of the Fig Festival, including product exhibitions, local product sales, debates, and cultural visits (Figure 5b).
- Promotion of rural agriculture through the encouragement of farmers and the strengthening of local product production chains.

This article focuses on the relationships between actors and the contested space as the center of this discussion. The main limitation of this analysis lies in the fact that the proposed framework for fieldwork analysis was developed during the real-time monitoring of processes. Therefore, drawing definitive conclusions would be premature, especially since episodes of friction and participation are still ongoing in the two cases under study. Instead, the aim is to paint a picture of the scene in which the actors operate and finely characterize the socio-spatial relationships that connect them. Local knowledge of citizens is a source of proposals, but it requires both territory managers and citizen collectives to have appropriate tools, which should be integrated into processes that effectively involve citizens (Mericskay, 2011). The territorial project finds its coherence in the alignment between the organizational model and the model of development and spatial planning.

Figure 5a. Study Area - Impact of the project on the cultural and tourist level (Sahel hosted and organized the Racont'ARTS Festival, which lasted for 7 days with the participation of several countries) Source: Authors, fieldwork (2020, 2021, and 2023)

Figure 5b. Study Area - Impact of the project on the cultural and tourist level (Annual celebration of the Fig Festival, including product exhibitions, local product sales, debates, and cultural visits) Source: Authors, fieldwork (2020, 2021, and 2023)

The economic factor is crucial in maintaining the spatial balance of the city, as it represents the product of the main sectors of activity existing in the region (Lixăndrescu et al., 2022). In the context of supporting territorial projects, it is essential to provide actors with the tools for their spatial reasoning and expression of their territoriality. Participatory democracy requires tools and methods aligned with the expectations of civil society. On one hand, conventional participatory GIS interfaces were too complex for non-experts (McHugh et al., 2009). The project design stage is crucial in the territorial development process as it broadens the scope of possible actions and the leeway of actors, through a process of social and participatory governance. Sustainability and the measurement of environmental performance have become standard within most major tourism companies. It is believed that there are strong connections between creativity and entrepreneurship (Al Fahmawee and Jawabreh, 2023).

Social participation in a geogovernance approach refers to any activity undertaken by citizens to improve their living conditions, either individually or in collaboration with popular assemblies or associations. Social relations do not develop spontaneously; they are the result of a long process of constructing relationships, where traditional institutions play a significant role, particularly through the establishment of spaces for meeting, exchange, and consultation. Organizing participatory processes is complex as it questions the ways and conditions of the population's appropriation of space, issues related to daily life, living territory, user relations with their living environment, and forms of belonging and socialization. Governance can thus be associated with four initial concepts: multiple actors, shared decision-making, decentralized management, and the common good managed by the private sphere (Cécile and Masson-Vincent, 2010).It is essential to conceptualize the approach adopted by the popular assemblies of the wilayas of Bejaia and Tizi Ouzou to popularize this experience and capitalize on its achievements. Indeed, territorial management in a geogovernance approach is based on two dimensions of articulation. On the one hand, administration, support, and funding are provided by the communal popular assemblies and the popular assemblies of wilaya in collaboration with state departments and institutions (Figure 6)

As already known, solidarity or community volunteering is one of the foundations of Kabyle and even indigenous society's culture. The beneficiaries and users of a project, by working collectively, get to know each other and become familiar. In this way, people are prepared to live together in the future, creating a true extended family within a city, village, or shared territory. Indeed, there is no universally best formula for participatory work. In a "Touiza" operation, three essential elements can be found: the organizer, the participants, and the professional facilitator, each with their respective roles. The organizer is the project manager who calls and invites others to participate (Figure 7).

The participants are those who volunteer and willingly join the project, including family, friends, or other members of society. The professional facilitator brings technical expertise to the implementation. In principle, given their position, the facilitator guides the participatory work.

Figure 6. Conceptualization of the geogovernance approach in the study area (Source: Authors, 2023)

Figure 7. The three elements of a "Touiza" operation (social participation) (Source: Authors, February 2023)

The members of a "Touiza" are equal and complementary. Each person is responsible, in the eyes of others, for the work they accomplish. The organization is circular (Harian, 1973) around the task that constitutes the center of the activity. There is no "leader," but rather a guide, an advisor who works as much as the other group members. This practice is regulated by customary law, supplemented by certain principles of Sharia. Any offender is subject to penalties ranging from fines to exclusion from the group or quarantine. Thus, community cohesion is maintained based on this principle and accepted by all because it aligns with customs and religion. An approach of citizen consultation in urban planning offers the privilege of entering the life of neighborhoods and their inhabitants. For us, professionals, it is a fantastic opportunity to make connections and establish genuine communication (Hauptmann and Wates, 2010).

CONCLUSION

Social and citizen participation is now considered essential and mandatory for all space managers, including local and territorial authorities, as well as public administrations. Several factors can explain what we can call the "participatory imperative" or the "duty of consultation," such as higher levels of education among inhabitants, easier access to information through new communication and information technologies (ICT), and the power of the internet and social networks (Facebook, Twitter, WhatsApp, and YouTube), as well as an increased awareness of their rights and responsibilities.

The participation of actors in local development projects involves both their roles as implementers and beneficiaries of public programs. This bottom-up approach takes into account the different actors (residents, elected officials, users, entrepreneurs, professionals, neighborhood associations, etc.) on the territory and their interrelationships, forming a system of collective action, and strengthening the process of geogovernance. Indeed, means must be defined and implemented to inform, consult, and mobilize residents and socio-economic actors, representing all components of the territory. However, it is up to each community to design its governance approach based on its history, traditions, and local resources, as demonstrated by the "Best Village Cleanliness Contest" project. The territorial management framework should build a shared culture of territorial issues and fully involve all its actors. This objective, necessarily based on time, is the guarantee of strengthening community cohesion and the economic, social, and environmental effectiveness of the community.

Lastly, the conception of geogovernance as presented here will always require its reference protocol for its process. It must also be accompanied by a principle of training and information for actors, directly or indirectly, to enable them to acquire the necessary skills for understanding knowledge and grasping the methods and tools that catalyze territorial information, including ownership, identification, and reappropriation of space.

Author Contributions: Conceptualization, F.K. and H.A; methodology, F.K. and H.A; software, F.K; validation, F.K. and H.A; formal analysis, F.K. and H.A; investigation, F.K; data curation, H.A. and F.K; writing - original draft preparation, F.K; writing - review and editing, F.K. and H.A; visualization, H.A. and F.K; supervision, F.K.; project administration, F.K. All authors have read and agreed to the published version of the manuscript

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: A big thank you to the associations and residents of the Sahel Bouzeguen neighborhood in the wilaya of Tizi Ouzou for their collaboration and valuable assistance during the realization of this research.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Adad, M. (2008). La participation de la population à son habitat -Cas d'un nouveau ksar au M'Zab- [Participation of the population in its habitat - Case of a new ksar in M'Zab]. *Sciences & Technologie D*, 28, 67-76.

Adams, D., & Hess, M. (2010). L'IS et pourquoi elle a une importance politique [The SI and why it matters politically], *The Economic and Labour Relations Review* 21(2), 139-156. https://doi.org/10.1177/103530461002100209

Al Fahmawee, E.A.D., & Jawabreh, O. (2023). Sustainability of green tourism by international tourists and its impact on green environmental achievement: Petra heritage, Jordan. *GeoJournal of Tourism and Geosites*, 46(1), 27–36. https://doi.org/10.30892/gtg.46103-997

Alexander, E.R. (2006). *Evaluation in Planning. Evolution and Prospects*. Urban and Regional Planning and Development Series. ASHGATE, (ed. by), Burlington, USA.

Baccarne, B., Logghe, S., Schuurman, D., & De Marez, L. (2016). *Gouverner l'innovation à quintuple hélice : laboratoires vivants urbains et entrepreneuriat socio-écologique, [Governing quintuple-helix innovation : Urban living labs and socio-ecological entrepreneurship]*. Technology Innovation Management Review, 6 (3), 22-30. https://doi.org/10.22215/timreview/972

Baker, S., & Abid Mehmood (2015). Innovation sociale et gouvernance des lieux durables [Social innovation and governance of sustainable places*], Local Environment,* 20(3), 321-334. http://dx.doi.org/10.1080/13549839.2013.842964

Belhedi, A. (2013). *La dimention géo strategique de la region [The geo-strategic dimension of the region]*. International Colloquium "The geo-strategic dimension of the region, Tunis, FSHS, University of Tunis.

Bendjelid, A. (2010). *Réalités contemporaines de l'aménagement des villes algériennes [Contemporary realities of urban planning in Algeria],* in, Ville d'Algérie, formation, vie urbaine et aménagement, Algérie, édition CRASC. https://doi.org/10.4000/insaniyat.5175

Benmohamed, T. (2006). *La production de l'espace urbain à Bechar entre crise et mutations [The production of urban space in Bechar between crisis and change]*. Thèse de Magistère en architecture et urbanisme, Option habitat saharien, Centre universitaire de Bechar, Décembre 2006.

Blondiaux, L. (2008). *Le nouvel esprit de la démocratie [The new spirit of democracy]*, Paris, éd Le Seuil.

Briand, M. (2001). *Questions autour de territories, gouvernance et participation. Quelques réfléxions d'un élu local, un champ d'expérimentation pour les outils de l'internet [Questions around territories, governance and participation. Some reflections from a local elected official, a field of experimentation for Internet tools]*. 29 octobre 2001.

Brodhag, C. (2000). *Gouvernance et évaluation dans le cadre du développement durable. Atelier gouvernance*, Colloque : Europe, Villes et Territoire, Lile 3–4. https://hal-emse.ccsd.cnrs.fr/emse-00727801

Caloian, A., Albu, A., & Bărbărie, M. (2021). Directions and strategies for the development of rural settlements in Romania. Case study : Domnești commune, Ilfov county, *Cinq Continents, Revue roumaine de Géographie*, 11 (21), 86-102.

Caragliu, A., Bo, C.D., & Nijkamp, P. (2011). Les villes intelligentes dans l'Europe. [Smart cities in Europe]. *Journal of Urban Technology*, 18(2), 65-82. https://doi.org/10.1080/10630732.2011.601117

Carlo, P. (2009). *Participation du public dans la gouvernance de l'environnement et du territoire : pour améliorer l'instrumentation. [Public participation in environmental and territorial governance: improving instrumentation].* VertigO - la revue électronique en sciences de l'environnement, 9(1). https://doi.org/10.4000/vertigo.8580

Casula, M.C., Leonardi, & Zancanaro, M. (2022). How Does Digital Technology Impact on the Co-Production of Local Services? Evidence from a Childcare Experience. *Public Money & Management* 42(2), 87–97. https://doi.org/10.1080/09540962.2020.1728066

Cécile, N., & Masson, M.V. (2010). *De la gouvernance à la géogouvernance : de nouveaux outils pour une démocratie LOCALE renouvelée [From Governance to Geo-Governance: New Tools for a Renewed Local Democracy]* L'Espace Politique 10(10), https://doi.org/10.4000/espacepolitique.1574

Cossetta, A., & Palumbo, M. (2014). La coproduction de l'innovation sociale: le cas du laboratoire vivant, dans Dameri, RP et Rosenthal-Sabroux, C. (Eds), Smart City : Comment créer Valeur publique et économique de la haute technologie dans l'espace urbain, Progress in IS, *Springer International Publishing*, Cham. 221-235. http://dx.doi.org/10.1007/978-3-319-06160-3_11

Hauptmann, E., & Wates, N. (2010). *Concertation citoyenne en urbanisme, la méthode du community planing [Citizen consultation in urban planning, the community planning method]* France, Edition Yves Michel.

Emsellem, K., Dubus, N., Voiron-Canicio, C., Loubier, J.C., & Cicille, P. (2018). *Spatialité et géogouvernance : conceptualisation, expérimentations, évaluations [Spatiality and geogovernance: conceptualization, experimentation, evaluation]*. Bulletin de la Société Géographique de Liège, 71(2018), 81-96. https://doi.org/10.25518/0770-7576.5681

Fung, A. (2015). Putting the Public Back into Governance: The Challenges of Citizen Participation and Its Future. *Public Administration Review*, *75*(4), 513–522. http://www.jstor.org/stable/24757808

Gagnon, L., & Gauthier, M. (2018). *De la planification collaborative à la mise en oeuvre du schéma d'aménagement et de développement de Gatineau : avancées et reculs d'un processus prometteur. [From collaborative planning to implementation of Gatineau's land use and development plan: advances and setbacks in a promising process].* Cahiers de géographie du Québec , 62 (175), 105-125. https://doi.org/10.7202/1057082ar

Galego, D., Moulaert, F., Brans, M., & Santinha, G. (2021). *Innovation sociale et gouvernance : une revue de la portée, Innovation. [Social innovation and governance: a review of the scope, Innovation]*. The European Journal of Social Science Research, 35(2), 265-290. https://doi.org/10.1080/13511610.2021.1879630

Gaulène, S. (2017). *La participation des habitants dans le développement social local ? [The participation of residents in local social development?].* Forum, 150, 79-83. https://doi.org/10.3917/forum.150.0079

Geneviève, G., & Sacco, M. (2012). *Les mouvements sociaux urbains dans les politiques socio-urbaines : le cas du quartier Sainte-Marie à Montréal. [Urban social movements in socio-urban policies: the case of the Sainte-Marie district in Montreal].* L'Information géographique, 76, 58-73. https://doi.org/10.3917/lig.761.0058

González, P.D., & Díaz-Díaz, R. (2015). *Services publics fournis avec les TIC dans l'environnement des villes intelligentes : le cas des villes espagnoles. [ICT-enabled public services in the smart city environment: the case of Spanish cities.]*. Journal de l'informatique universelle, 2015, 21(2), 248-267. https://www.researchgate.net/journal/JOURNAL-OF-UNIVERSAL-COMPUTER-SCIENCE-0948-6968

Govigli, V.M., Alkhaled, S., Arnesen, T., Barlagne, C., Bjerck, M., Burlando, C., Melnykovych, M., Rodríguez Fernandez-Blanco, C., Sfeir, P., & Górriz-Mifsud, E. (2020). Tester un cadre pour co-construire des actions d'innovation sociale: enseignements de sept zones rurales marginalisées [Testing a framework for co-constructing social innovation actions: lessons from seven marginalized rural areas], Durabilité, 12 (4), 14-41. https://doi.org/10.3390/su12041441

Hamel, P. (1991). *Action collective et démocratie locale [Collective action and local democracy],* Montréal, Presses de l'Université de Montréal.

Harian, B. (1973). *La symbolique du cercle.[The symbolism of the circle]*. Dictionnaire des Symboles, Editions Seghers, p.303.

Jacob, F. (2005). Geographic poubelle situation (Gps). Jeu d'aménagement et jeu de rôle en classe de 6e ». In *Jeu, géographie et citoyenneté. De l'école à l'université*. 15-128 .Paris: Éditions Seli Arslan, coll. « L'Université pratique.

Lampin-Maillet, C. (2009). *Caractérisation de la relation entre organisation spatiale d'un territoire et risque d'incendie : le cas des interfaces habitat-forêt du sud de la France. Aix-en-Provence [Characterization of the relationship between spatial organization of a territory and fire risk: the case of habitat-forest interfaces in southern France. Aix-en-Provence]*. Université de Provence, thèse de doctorat en géographie, 325 p.

Le Galès, P. (1996). *Du gouvernement des villes à la gouvernance urbaine ? [From city government to urban governance?]*. Revue française de science politique Année 1995 45(1), 57-95.

Leloup, F., Moyart, L., & Pecqueur, B. (2005). *La gouvernance territoriale comme nouveau mode de coordination territoriale ? [Territorial governance as a new form of territorial coordination ?]* Géographie Économie Société, 4(7), 321-332. https://doi.org/10.3166/ges.7.321-331

Lixăndrescu, G., Ovreiu, A.B., & Caloian, A.S. (2022). *Analyse de la structure territoriale fonctionnelle de la municipalité de Constanța (Roumanie), à l'aide de techniques SIG. [Analysis of the functional territorial structure of the municipality of Constanța (Romania), using GIS techniques.]* Cinq Continents, 12 (25).

Loubier, J. (2004). *Changement climatique en montagne : perception et simulation des effets du changement climatique sur l'économie du ski et la biodiversité [Climate change in the mountains: perception and simulation of the effects of climate change on the ski economy and biodiversity]*, thèse de doctorat, UJF Grenoble 1. https://theses.hal.science/tel-00006990

Masson-Vincent, M. (2008). Governance and geography. Explaining the importance of regional planning to citizens, stakeholders in their living space. *Boletín de la A.G.E. [Bulletin de l'Association des géographes espagnols]*, no 46 (2008), 77-95.

Masson-Vincent, M., Dubus-Viossat, N., Helle, C., Jacob, F., Lampin-Maillet, C., & Voiron-Canicio, C. (2011). Information géographique, analyse spatiale et géogouvernance. *L'Espace géographique*, 40, 127-132. https://doi.org/10.3917/eg.402.0127

McHugh, R., Roche, S., & Bedard, Y. (2009). Towards SOLAP-Based Public Participation GIS. *Journal of Environmental Management*, 6(2009), 90, 2041-2054. https://doi.org/10.1016/j.jenvman.2008.01.020

Mercenier, C. (2015). *Comment Des Actions d'initiative Citoyenne Peuvent-Elles Transformer La Ville ? [How Can Citizen-Initiated Actions Transform the City?]* Mémoire de maîtrise, Faculté d'Architecture, Université de Liège.

Mericskay, B. (2011). *Les SIG et la cartographie à l'ère du géoweb. Vers une nouvelle génération de SIG participatifs," [GIS and cartography in the geoweb era. Towards a new generation of participatory GIS],* GéoProdig, portail d'information géographique. http://dx.doi.org/10.3917/eg.402.0142

Mericskay, B. (2013). *Cartographie en ligne et planification participative : Analyse des usages du géoweb et d'Internet dans le débat public à travers le cas de la Ville de Québec [Online mapping and participatory planning: Analysis of geoweb and Internet uses in public debate through the case of Quebec City]*, Canada, Université de Laval, Québec. Lien : LAC copy

Mericskay, B. (2011). *Les Sig et la cartographie à l'ère du géoweb: Vers une nouvelle génération de Sig participatifs [GIS and mapping in the geoweb era: Towards a new generation of participatory GIS]*. L'Espace géographique, 40, 142-153. http://dx.doi.org/10.3917/eg.402.0142

Paquet, G. (1996). *La nouvelle géo-gouvernance : une approche baroque [The new geo-governance: a baroque approach]*. Ottawa, Canada : Presses de l'Université d'Ottawa.

Pestoff, V.T., Brandsen, & Verschuere, B. (2012). New Public Governance, the Third Sector and Co-Production. Abingdon: Routledge. United Kingdom. https://www.researchgate.net/publication/220023036_V_Pestoff_T_Brandsen_B_Verschuere_red_New_Public_Governance_the_Third_Sector_and_Co-Production_Routledge_2012

Piot, J. (2007). *Géographie, aménagement des territoires et géogouvernance Propositions pour une formation des acteurs à la compréhension des enjeux spatiaux [Geography, regional planning and geogovernance Proposals for training actors to understand spatial issues]*. Thèse de doctorat en Géographie. Aix-Marseille I, Université de Provence. France.

Rosanvallon, P. (2008). *La Légitimité Démocratique – Impartialité, Réflexivité, Proximité [Democratic legitimacy - Impartiality, Reflexivity, Proximity]* Paris, collection Les livres du Nouveau Monde, Le Seuil. https://journals.openedition.org/lettre-cdf/1131

Schiffino, N., Jacquet, V., Cogels, M., & Reuchamps, M. (2019). *Les gouvernants face aux transformations de la démocratie : Le point de vue des ministres et des présidents de parti [Governments and the changing face of democracy: the views of ministers and party presidents]* Gouvernement et action publique, OL8, 57-80. https://doi.org/10.3917/gap.192.0057

Steinebach, Y., & Knill, C. (2017). Social Policy in Hard Times: Crisis-Coping Strategies in Europe from 1976 to 2013. *International Journal of Public Administration* 40 (14), 1164–1174. https://doi.org/10.1080/01900692.2017.1317802

Xavier, G. (1992). *Sociétés postindustrielles et redéveloppement [Post-industrial societies and redevelopment]*, Paris, Hachette.

Article history: Received: 28.06.2023 Revised: 01.09.2023 Accepted: 06.10.2023 Available online: 10.11.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1303-1317
DOI 10.30892/gtg.50411-1129

THE RECREATION EXPERIENCE PREFERENCE AND LOCAL-CENTERED SATISFACTION STATUS OF LOCAL PEOPLE AND SECOND HOME OWNERS

İhsan KURAR
Independent Researcher, Malatya, Turkey, e-mail: ihsankurar@hotmail.com

Mustafa KAVACIK*
Necmettin Erbakan University, Department of International Trade
and Finance, Faculty of Applied Sciences, Konya, Turkey, e-mail: mustafa.kavacik@erbakan.edu.tr

Citation: Kurar, I., & Kavacik, M. (2023). THE RECREATION EXPERIENCE PREFERENCE AND LOCAL-CENTERED SATISFACTION STATUS OF LOCAL PEOPLE AND SECOND HOME OWNERS. *GeoJournal of Tourism and Geosites*, 50(4), 1303–1317. https://doi.org/10.30892/gtg.50411-1129

Abstract: This study seeks to assess the recreational experience preferences and satisfaction levels of both local residents and second home owners in Alanya. Research findings were obtained from 396 participants through a questionnaire using convenience sampling method. Descriptive statistics and ANOVA tests were applied to analyse the data. As a result of the research, it was determined that the participants mostly visited friends, could not participate in activities due to time constraints and expected recreational areas to be cleaner. While the majority of the participants in the research define the concept of recreation correctly, it can be said that they prefer to participate in outdoor recreation activities and participate in the activities with their friends. Resident foreigners attach more importance to social recognition, skill development and achievement experiences than local people. Furthermore, the satisfaction level of resident foreigners with recreational areas is higher than the local people. The independent variables account for 15% of the variation in the dependent variable.

Key words: Recreation, Second home owners, Local people, Different nationalities, REP, Satisfaction

* * * * * *

INTRODUCTION

In the present day, a significant number of individuals are confronted with severe health and social issues, including depression, obesity, diabetes, and suicide, all of which are often attributed to the impacts of stress. At any given moment, human society and urban centers remain susceptible to an array of crises that can strike unexpectedly. These crises encompass a wide spectrum of natural and man-made disasters, including floods, earthquakes, tsunamis, volcanic eruptions, fires, and environmental pollution. As transportation networks have expanded and human migration has increased, pandemics have emerged as a new type of global crisis. Over the last fifty years, humanity has faced several significant epidemics, including the H5N1 virus, Cholera, Ebola virus disease, SARS, and various other large-scale outbreaks. Throughout history, every pandemic has left an indelible mark of adverse consequences on human society. In this context, Covid-19 pandemic has led to a noticeable rise in discontentment, stress, challenges, reduced mobility, stifled creativity, and social isolation within numerous societies across the globe. In addition to breaking global supply chains, decreases in final demand for imported goods and services, and declines in international tourism and business travel in many regions (Mercan, 2022: 134), as in almost every pandemic, Covid-19 negatively affects dissatisfaction, stress, job loss, creative thinking, talent and productivity in both social and business life. In addition, quarantine practices during pandemic periods cause psychological disorders such as depression, anxiety and stress (Fofana et al., 2020: 291; Mazza et al., 2020: 31-69). For this reason, it is believed that allowing people to spend time in parks and gardens once a week and for a short time during epidemic periods will positively affect their health (Xie et al., 2020: 10). Research suggests that individuals undergoing quarantine are at a higher risk of experiencing psychological symptoms like stress, depression, emotional exhaustion, and sleep disturbances (Fofana et al., 2020: 291). Besides, in Italy, a study revealed that over 50% of participants experienced varying levels of depression, anxiety, and stress while enduring the urban quarantine period (Mazza et al., 2020: 31-69). Residents have opted to decrease the frequency of their visits during the pandemic, with some finding that even visiting just once a week can still be beneficial (Xie et al., 2020: 10).

In this context, leisure time activities have the potential to provide relief from these issues. The recreation is essential component of mental and physical health of human for life satisfaction. Numerous studies on this topic have indicated that participating in recreational activities, both active and passive, offers health benefits. Additionally, reminiscing about past experiences, such as exercise, physical activity, and outdoor recreation, has a positive impact on depression, stress, and self-confidence (Kaplan, 2007: 17). While previous leisure studies have offered valuable data, they have often overlooked a comprehensive examination of the concept of "leisure quality." This aspect is crucial for informing social policies and conducting scientific research. The share of participation in recreational activities is quite high in the socialization of the members of the society, getting away from stress and spending time with more people. Because, recreation gives

* Corresponding author

oppurtunity to communicate in appropriate atmospheres by both providing social benefits such as strengthening communities, supporting social ties and youth, and establishing positive relations between different ethnic groups. Thus, recreation becomes a social communication tool that removes the barriers of alienation, fear and isolation (Kibler and Smith, 2000: 121). As a result, the primary objective of engaging in physical recreation is to meet health requirements. Additionally, it plays a crucial role in sustaining a balanced daily energy level. Physical recreation also strives to enhance and sustain overall effectiveness, productivity, mental and physical well-being, all while providing enjoyment and gratification through physical exertion (Zawadzki, 2014: 217). On the other hand, according to global examples, a highly effective and hopeful method for conserving the untouched distinctiveness of natural landscapes and geosystems involves the thoughtful management of tourism and recreational activities in nature (Chashina et al., 2020: 1355).

Gaffar et al. (2019) conducted a study to explore the primary factors driving individuals' motivation for engaging in outdoor recreation and how these motivations impact their preferences for specific outdoor activities. Outdoor activity motivation was found to encompass various aspects, including achievement, learning, social interactions, personal growth, and relaxation. Among these factors, learning and social interactions emerged as the most influential motivators, while relaxation was the least prominent. The study also established a substantial link between motivation and activity preferences, revealing that a majority of hikers were eager to embark on hikes with a strong desire to explore and acquire new knowledge.

Jun (2022) investigated how the connection between motivation and engagement in outdoor recreational activities differs among individuals from high and low socioeconomic backgrounds. She used REP scale for motivations of visiting the Cleveland Metroparks. As a result, it has been observed that there are differences between social classes according to the impacts of motivations on recreational activities. Khamung and Hsu (2022) tried to determine recreational experience preferences of tourists at Bangsaen beach with 23 qualifications. They found that creating new open areas on the beach and rearranging umbrella seating areas positively affected the recreational experiences of tourists. The visitors also desired to preserve the beach and keep clean. Osiako et al. (2022) investigated dimensions that affect domestic tourists for visiting recreational parks and relationship of satisfaction. Push-pull motivation factors were the independent variables in the research. The relationship between motivation and satisfaction was found positively significant and moderate. The pull factor appeared to exert a relatively greater influence compared to the push factor.

Ab Dulhamid et al. (2023) conducted a study with the aim of uncovering the driving factors that impact people's engagement in outdoor recreational activities within both rural and urban communities. Through their analysis, they identified four overarching categories of motivation: social interaction, physical health and fitness, relaxation, and connection with the environment. These motivations were assessed using the Recreational Experience Scales (REP) 'scales'. Participants ranked activities such as spending time with family, achieving mental relaxation, savoring a serene natural environment, and enhancing personal health and well-being as the primary factors motivating their participation in outdoor recreation. This research was designed to examine the demographic characteristics, recreational experience preference and satisfaction levels from recreational activities within the context of local people and resident foreigners living in Alanya. In the study, first of all, the theoretical framework of the recreational experience preferences and satisfaction levels of the people was tried to be established. Then, the data collected from the local people and resident foreigners living in the region were analyzed. The findings obtained at the end of the research will be shared with the local authorities of Alanya, and recommendations will be made for the public to participate more in recreational activities, if any, to eliminate the deficiencies or to open new recreation areas if needed.

CONCEPTUAL FRAMEWORK

Recreation and Recreational Experience Preference

The factors that affect tourists' preference for a tourism region are the attractions of the tourism region such as natural resources, historical cultural values, accommodation and transportation facilities, infrastructure and recreational activities. However, the phenomenon of globalization has led to changes and transformations in tourism and tourist behavior. This situation has also transformed people's lifestyles into a transnational structure (Cohen et al., 2015: 155). Some researchers have tried to draw attention to the relationship between tourism and migration through studies on tourism and temporary movement/circulation, labor migration, second home ownership/residential tourism, consumption migration, visiting friends and relatives tourism (VFR tourism), seasonal migration, retirement migration and lifestyle migration (Williams and Hall, 2002: 3). Therefore, tourist-based temporary and permanent population mobility in tourism regions requires some conceptual links and important differences such as migration, tourist, expatriate, visitor and resident foreigner.

Migration involves the relocation of individuals or communities from one country to another, or from one settlement to another, motivated by economic, social, or political factors. A migrant is a person who leaves his/her own country and moves to another settlement (Ekici and Tuncel, 2015: 13). Tourism is related to activities such as visiting a specific place for vacation, having fun, visiting family and friends, doing various sports, resting or traveling, and spending leisure time (Chang, 2009: 29). A tourist is a person who voluntarily visits a place temporarily away from home in order to experience a change and has free time (Smith, 2011: 63). In other words, tourists are those who define the host tourism region as a vacation destination. Expatriates are those who stay permanently in the host country. Expatriates maintain their attachment to their country of origin while at the same time identifying with the host country. Seasonal Visitors are those who focus on the country of origin and spend between 2 and 6 months of each year in the tourism region. In addition, secondary residents who usually make irregular visits are called Returners (O'Reilly, 1995: 25). Residents are those who, in terms of their orientation and legal status, stay in the host country for six months or more, but seasonally spend 2 to 5 months of the year in the country of origin (O'Reilly, 1995: 25). According to another idea, those who come to the country voluntarily, settle down, acquire immovable property and consider the country as a place where they establish close relations and make it the center of their lives in economic and social terms are called resident foreigners (Toprak, 2008: 431). In other words, resident aliens are people who spend a certain period of their lives in a country even though they are not citizens of that country. These people also contribute to that country economically, socially and culturally (Aydın, 2009: 11-12).

Tourism experiences may result in the purchase of second homes or long-term home rentals within the scope of residential tourism, and in the next stage, permanent settlement in the tourism region (Williams and McIntyre, 2012: 216-217). Therefore, when resident foreigners reside in tourism regions for 6 months or more, they create social, cultural, economic, political and environmental impacts. Resident foreigners also spend their free time in tourism regions by engaging in fun and enjoyable activities, and their attitudes and behaviors are based on tourist motivations (Balkır and Kırkulak Uludağ, 2014: 4). Although the resident foreigners are from the same culture as the tourist, they have the chance to observe their behavior if they stay in the tourism region for a long time, buy or rent a house (Özgürel, 2020: 92). This situation can also be examined in terms of economic growth (Yılmaz, 2023). Local people are defined as those who live in the same region, who are connected to the culture (beliefs, ideas and norms) of the community they live in and who adopt belonging to this community (Şentürk, 2009: 31). In this respect, people who try to maintain their lives around the values agreed upon by those living in the region where the individual is located constitute the local people of a region (Talipoğlu, 2020: 12). In this context, positive social interaction between local people and resident foreigners contributes to the reduction of many social problems, strengthening the sense of community and place, increasing the sense of security, perceiving the social environment as quality, being open to social interaction and reducing social distance. Negative interaction, on the other hand, leads to exclusion, feelings of alienation, introversion and a decrease in life quality (Smith, 2011: 65). In this context, people participate in various tourism and recreation activities in order to have a good time, relax mentally and physically, socialize and use their creative capacities freely. In this context, recreation contributes to social cohesion by providing a basis for people to socialize and communicate with each other (Kurar, 2019: 713).

Recreation is an experience that develops as any activity that a person voluntarily participates in, individually or in a group, in order to gain some physical, social and emotional behavior in his/her free time (Driver, 1983). It's clear that recreation is a timeless and widespread human activity, with roots tracing back to ancient times. Recreation varies depending on cultural backgrounds, personal preferences, and the chosen location. It can be pursued either independently or as a communal activity within a community (Acha-Anyi, 2020: 1153). Leisure time is seen as a series of activities that people participate in their free time. These are cheerful and funny activities and are often referred to as recreation (Haywood and 1989: 2). In this respect, recreation can be seen as an activity that meets important personal needs and motivations. (Kraus and Curtis, 2000: 3). According to Butler (1968: 3), recreation is a different activity experience, an activity for anti-work or renewal, according to Broadhurst (2001: 2) it is an activity that people choose to participate in their leisure time, according to Lu and Hu (2005: 325), it is the activity that individuals freely choose and do voluntarily in their leisure time, on the other hand, according to Stebbins (2005: 349), it is leisure time with active or passive participation. Ratkowski and Ratkowska (2018: 88) also indicate that sport tourism involves recreation and leisure, and is significant for the economy. According to Driver and Tocher (1970), recreational activities are considered behavioral actions employed to attain specific psychological and physical objectives. With this respect, Recreational Experience Preference (REP) scales were developed in the context of motivation theories. According to this opinion, people take part in recreational activities when a problem arises, that is, when the present circumstances do not align with the intended or preferred outcome (Knopf et al., 1973). For example, a person who is stressed by the overburdening of daily responsibilities may wish to go fishing (recreational behavioral action) to temporarily distract from the responsibilities of daily life. Thus, it will satisfy a motivating impulse (Wellman, 1979).

There are many motivational theories and approaches that explain the behavior of recreationists in the recreation literature. According to the experimental approach, recreation should not be seen as activities such as watching television, listening to music, doing sports, hiking, camping, going on a picnic and fishing. Instead, recreation is a self-helpful, done in non-essential leisure time and psychological experience that is the result of free choice (Manfredo et al., 1996: 189). A form of leisure time motivation research called the experimental approach was developed by Driver and Tocher (1970: 1-10) in the late 1960s. This approach was studied in many researches by Driver and Brown (1975), Driver and Knopf (1977), Brown and Haas (1980), Knopf et al. (1973) and Manfredo et al. (1983) and Driver (1983) in the following years.

Goals aimed to be achieved by participating in leisure activities are focused for another approach related to leisure time motivation research. The Recreational Experience Preference (REP) scale is designed to measure these goals (Manfredo et al., 1996: 188). Similarly, the focus of leisure time research is the development of a psychometrics scale that can be used to measure recreational experience dimensions of people. These are known as Recreational Experience Preference (REP) (Driver, 1976). In this context, the REP scale is based on motivation theory, which assumes that individuals participate in recreational activities to achieve some physical and psychological goals (Manfredo et al., 1996: 188).

Satisfaction

Many societies around the world are facing a rising prevalence of discontentment, stress, challenges, sedentary lifestyles, diminished creativity, and feelings of isolation. Today, it is possible to relieve these situations with leisure time behaviors (Sivan and Ruskin, 2000: 1-2). Spending leisure time is doing an activity that gives a sense of pleasure and satisfaction to the person and focuses on the person himself. For this reason, there is an important link between people and the place to spend their leisure time (Giuliani and Feldman, 1993: 269). However, the degree of dependency on the resource may differ from activity to activity. Because recreational experience preferences differ depending on both the physical characteristics of the resources (equipment or facility) and the characteristics of the participants (personality, age, gender and gaining appreciation) (Driver, 1976: 164). One of these approaches is the use of subjective criteria that try to measure leisure time based on the experiences of the individual. Another approach is to use objective criteria (such as the frequency of use of city parks, sports facilities and services) that aim to measure leisure time outside of the individual's experiences.

Traditionally, objective criterion has been identified with location-centered and subjective criterion with person-centered perspective (Lloyd and Auld, 2002: 43). Participants' expectations from recreational areas fulfill functions that include both the creation and delivery of programs and services (Torkildsen, 1999: 554). In this respect, in order to benefit from resources at higher levels, local authorities should increase the services related to recreational areas and make all necessary arrangements to ensure the participation of people at the highest level (Sivan and Ruskin, 2000: 1-2). The tourist experience is deemed incomplete without considering satisfaction as a crucial element (Zhang et al., 2018: 329). Customer satisfaction is, in general, an assessment of how well a product fulfills a need (Nguyen Viet et al., 2020: 3). Baker and Crompton (2000: 785) define satisfaction as the emotional state of the tourist after seeing the tourism region. Because tourist satisfaction can only be measured by the difference between pre-travel expectations and post-travel experiences (Chen and Chen, 2010: 35). In other words, when tourists compare their previous expectations and post-travel experiences, they are satisfied when they result in pleasant feelings and dissatisfied when they have feelings of dissatisfaction (Cong, 2016: 62).

When tourists are satisfied with a tourism region, the feeling of revisiting will arise (Assaker and Hallak, 2013: 610). In this context, revisit intention can be seen as a post-consumption behavior. It is also the visitor's opinion about his/her plans to visit the same destination again or his/her willingness to recommend the destination to others (Khasawneh and Alfandi, 2019: 361). Repeat visitors stay longer, engage more intensively in consumption activities, are more satisfied, and require much lower marketing costs than first-time visitors (Zhang et al., 2018: 329). Similarly, if the relationship between local people and foreign residents is positive, it is expected that foreign residents will tell their relatives and friends about it. Therefore, it is highly effective for resident foreigners to tell their relatives and friends about their life experiences in the tourism region and encourage them to visit the tourism region as tourists.

MATERIALS AND METHODS

Research Material and Hypotheses

This study seeks to uncover the recreational preferences and satisfaction levels of both local residents and foreigners residing in the area. The main focus is on understanding what types of recreational experiences they prefer and how content they are with the available recreational facilities and areas. Therefore, the population of the research consists of local people and resident foreigners living within the boundaries of Alanya. According to Eskildsen and Kristensen (2006: 40-60), in order to improve the quality of products and services, it is necessary to evaluate the questionnaire. The first part of the survey consists of eight demographic and six multiple response questions. Multiple responses were interpreted based on the percentage of responses. The second part of the questionnaire consists of a recreation experience preference scale consisting of five motivations and 21 statements and a local-centered satisfaction scale consisting of four statements, the validity and reliability of which was adapted by Kurar (2019) in four different languages as Turkish, English, German and Russian. The aim of the research can be achieved by answering the following question; “What are the recreational experience preferences of local people and resident foreigners living in Alanya?” This research aims to investigate the following hypotheses and seek answers in alignment with its objectives.

$H1_1$: Participants' recreation experience preferences and satisfaction levels with recreational areas differ according to gender.

$H2_1$: Participants' recreation experience preferences and satisfaction levels with recreational areas differ according to their marital status.

$H3_1$: Participants' recreation experience preference and satisfaction levels with recreational areas differ according to lifestyle.

$H4_1$: Participants' recreation experience preferences and satisfaction levels with recreational areas differ according to age.

$H5_1$: Participants' recreation experience preference and satisfaction levels with recreational areas differ according to their professions.

$H6_1$: Participants' recreation experience preference and satisfaction levels with recreational areas differ according to income.

$H7_1$: Participants' recreation experience preference and satisfaction levels with recreational areas differ according to education level.

$H8_1$: Participants' recreation experience preference and satisfaction levels with recreational areas differ according to their nationality.

$H9_1$: Participants' recreation experience preferences and satisfaction levels with recreational areas differ according to their length of stay in the tourism region.

$H10_1$: Location-centered satisfaction has a correlation with The REP.

$H11_1$: Location-centered satisfaction is influenced by The REP.

Sampling Size, Method & Procedure

The study involved the participation of both local residents and second home owners of Alanya from 10 June to 20 July 2019. Since there was no existing data on the usage of recreational areas by the local people and second home owners in Alanya, a face-to-face questionnaire was employed. The convenience sampling method was chosen as a nonrandom sampling approach for conducting the survey. The formula $n=t^2.p.q/d^2$ was used to determine the required number of questionnaires to be achieved (Baş, 2006: 42). *n* is for number of individuals in the sample, *t* for the theoretical value found according to the t-table at a certain level of significance, *p* for probability of occurrence of the investigated event, *q* for probability of not occurring of the investigated event and *d* for sampling error accepted according to the probability of occurrence of the investigated event (Kavacık and Kurar, 2022: 66). The required sample size was determined to be 384 questionnaires, considering a 5% sampling error, with values of p=0.5 and q=0.5, a reliability interval of 95% (α=0.05), and using t=1.96. However, 425 questionnaires were administered during the study, achieving a sufficient sample size. Nevertheless, due to data loss in twenty-nine questionnaires exceeding approximately 20%, they were excluded from the analysis, leaving 396 questionnaires for further analysis. Although the research obtained an adequate number of samples, there were significant constraints in terms of time and cost. Several participants experienced interruptions during the interviews, such as receiving phone calls, and some others expressed feelings of boredom, leading to discontinuation of the survey.

Date Collection Method of the Research

Primary and secondary data was utilized in the research. A questionnaire was prepared as the primary data collection tool in line with the existing literatüre. No data could be found on the use of recreational areas in the population of research. In cases where there is not a complete list of the population, the convenience sampling method was preferred because who would be selected for the sample was left to the researcher because he/she knew the subject best (Malhotra, 2007: 341). The data collection tools used in the research were adapted in accordance with the likert type scale adaptation approach. For the purpose of the research, domestic and foreign literature was searched. In the process of adapting both scales, a comprehensive literature review was conducted by using studies on subjects similar to the research and a conceptual framework was developed on this subject. To establish the attributes of each scale utilized in the study, the first step involved conducting validity inquiries. Exploratory Factor Analysis (EFA) was applied to the research group data in order to obtain proof of construct validity. Similar to Schmitt's (2011: 306) study, EFA was first applied to the same data and then CFA was applied to confirm the construct obtained. 396 participants were included in this study for the EFA. After EFA, Confirmatory Factor Analysis (CFA), which is the second step of construct validity, was applied. Recreation experience preference with 21 propositions and satisfaction scales with four propositions obtained after EFA were applied to the data obtained from the same participant group. SPSS package program and Lisrel structural equation program were used in the analysis of the data. Statistical methods such as correlation, factor analysis, etc. were used in the measurement tool, and regression analysis was used to test the effect model. Frequency, percentage, t and Anova tests were applied to solve the sub-problems of this research.

For the questions of the recreational experience preferences questionnaire, the 5-point Likert scale (1=Not at all important, 2=Not much important, 3=Neutral, 4=Somewhat important, 5=Very important) was used except for demographic questions. And the location-centered satisfaction scale is: “1=Not at all Satisfied,” “2=Partly Satisfied,” “3=Satisfied,” “4=More than Satisfied,” “5=Very Satisfied,” numbering 1 to 5 as an interval scale.

The results were interpreted using a significance level of $p<0.05$. The findings are presented along with the demographic profile of the participants, as well as under subheadings such as multiple answers, t-test, ANOVA, correlation, and regression analysis. Certain abbreviations were employed throughout the research. (i.e. $\bar{X}$= Mean; S.D. = Std. Deviation; f =Frequency; AVE=Average Variance Extracted; CR=Composite Reliability).

Table 1. Demographics of participants

Gender	**f**	**%**	**Marital Status**	**f**	**%**
Female	204	51.5	Single	181	45.7
Male	192	48.5	Married	215	54.3
Total	**396**	**100**	**Total**	**396**	**100**
Age group	**f**	**%**	**Nationality**	**f**	**%**
18-25	81	20.5	Turkish	135	34.1
26-33	110	27.8	German	69	17.4
34-41	95	24.0	Russian	77	19.4
42-49	42	10.6	English	75	18.9
More than 50 years	68	17.2	Scandinavian	40	10.1
Total	**396**	**100**	**Total**	**396**	**100**
Occupation	**f**	**%**	**Household income**	**f**	**%**
Officials	54	13.6	Less than 1500 $	96	24.2
Self-employed people	80	20.2	1500-2500 $	163	41.2
Employees	136	34.3	2001-3500 $	44	11.1
Retirement	72	18.2	3501-4500 $	47	11.9
Others	54	13.6	More than 3001 $	46	11.6
Total	**396**	**100**	**Total**	**396**	**100**
Education	**f**	**%**	**Residence**	**f**	**%**
Primary school	42	10.6	Less than 1 year	66	16.7
High school	111	28.0	1-3 years	94	23.7
Faculty degrees	198	50.0	4-6 years	66	16.7
Masters degrees	45	11.4	More than 6 years	170	42.9
Total	**396**	**100**	**Total**	**396**	**100**
Free time in a week	**f**	**%**	**Lifestyle**	**f**	**%**
5-10 hour	144	36.4	Local people	135	34.1
Less than 5 hour	140	35.4	Second home owners	261	65.9
More than 15 hour	61	15.4	**Total**	**396**	**100**
11-15 hour	51	12.9			
Total	**396**	**100**			

RESULTS

Differences in leisure time activities are indicated by variables such as gender, occupation, income, education level and marital status (Kelly and Freysinger, 2000: 68). For tourists, demographic characteristics of tourists (age, gender, cultural level, income level, etc.) are the most important factors in choosing the region to be preferred (Kim et al., 2003: 170).

This is called the "Social Determination Model" (Wichasin, 2007: 29). The leisure style of individuals is inherently intertwined with certain aspects of their personal characteristics. Therefore, the demographic variables of the participants in the sample group should be examined.Table 1 presents the demographic profile of the research participants. Also as seen in Figure 1, majority of the participants are female (51.5%), married (54.3%), 26-33 years old (27.8%), Turkish (34.1%), employees (34.3%), have an income of American dollar ($) 1500-2500 (41.2%), faculty degrees (50%), and have resided in the region for more than 6 years (42.9%). The majority of the respondents spend 5-10 hours a week on free time activities. Finally, the majority of the respondents are resident foreigners (65.9%).

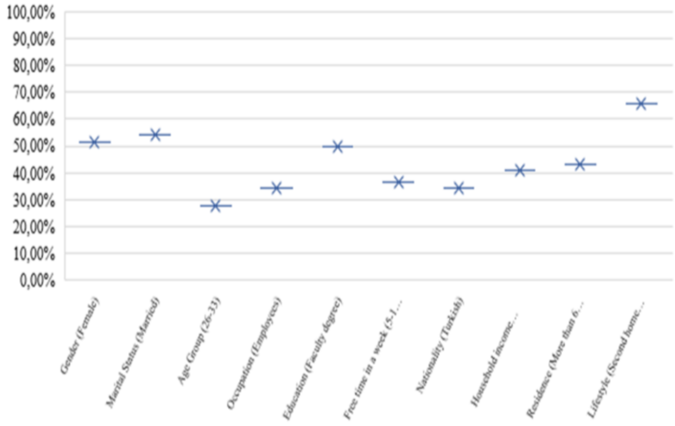


Figure 1. Demographics of the majority

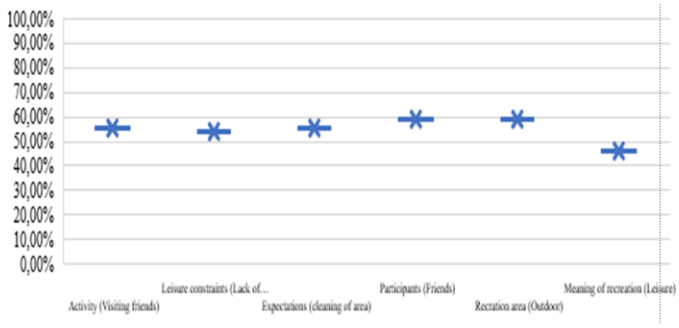


Figure 2. Multiple Responses of Majority

Upon review of Table 2 and Figure 2, it is apparent that the majority of respondents have a preference for visiting friends (55.2%) and reading books (51.4%). Nevertheless, it has been ascertained that a considerable majority of the participants refrain from engaging in recreational activities because of limited leisure time (54.1%) and insufficient financial resources (41.9%). A significant majority of the participants (55.3%) express their expectation for the local authority to focus on the construction and cleaning of recreational areas. Although the majority of the participants know the concept of recreation (46.2%), it can be said that there are those who confuse it with concepts such as reaction (23.5%) and regression (9.1%). Furthermore, a substantial majority of the participants (58.6%) are involved in recreational activities, particularly outdoor recreation activities. The respondents participate in the activities with their friends (58.6%).

Table 2. Multiple Responses

Activity	**Responded**		Percent =396	**Leisure constraints**	**Responded**		Percent =396	**Expectations**	**Responded**		Percent =396
	f	**%**			**f**	**%**			**f**	**%**	
Visiting friends	201	22.0	55.2	Lack of leisure time	190	34.6	54.1	Cleaning of area	210	25.1	55.3
Book	187	20.5	51.4	Not enough money	147	26.8	41.9	New recreational area	180	21.6	47.4
Music	178	19.5	48.9	Inadequate transportation	82	14.9	23.4	Everyone benefits activity	160	19.2	42.1
TV	177	19.4	48.6	Inadequate information	67	12.2	19.1	Cultural events	157	18.8	41.3
Swimming	169	18.5	46.4	No companion	63	11.5	17.9	Inspections	128	15.3	33.7
Meaning of recreation	**Responded**		Percent= 396	**Recreation Area**	**Responded**		Percent= 396	**Participants**	**Responded**		Percent =396
	f	**%**			**f**	**%**			**f**	**%**	
Leisure	183	36.0	46.2	Outdoor	232	38.5	58.6	Friends	232	40.8	58.6
Good time	159	31.3	40.2	Home	212	35.2	53.5	Family	219	38.5	55.3
Reaction	93	18.5	23.5	Sports	91	15.1	23.0	Alone	110	19.3	27.8
Regression	36	7.1	9.1	Indoor	54	9.0	13.6	Others	8	1.4	2.0
Others	33	6.5	8.3	Others	14	2.3	3.5				

Five motivational areas of REP scale are used in this study. This is an extremely important point. Because these motivational areas both help to determine why people show their leisure behaviors and contribute to understanding the results of participation in leisure time activities. Additionally, information on leisure time motivation helps to develop programs that both minimize problems between practitioners and users and bring more human benefits (Manfredo et al., 1996: 188). To assess the suitability of the dataset for conducting exploratory factor analysis on recreation experience preference and location-centered satisfaction, several measures were employed, including the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, Bartlett's test of Sphericity, and determinant score calculations. These analytical tools were used to determine the appropriateness of the data set for further analysis. Throughout the research, the scale reliability (α) for the recreational experience preferences of both local residents and second home owners, encompassing five motivations, was found to be 0.897. Additionally, the location-centered satisfaction scale exhibited a reliability value (α) of 0.848.

Table 3. Exploratory factor analysis of Recreation Experience Preference Scale

Code	Component	$\bar{X}$	Std. Sapma	Factor loadings	Eigen values	% of Variance	Alpha
	Skill development	3.73	.79		7.527	18.822	.876
Skill3	Free time activities make me see what I can do.	3.78	.99	.782			
Skill2	When completed, free time activities give the sense of feeling that I achieved something.	3.83	1.03	.777			
Skill1	Free time activities make me improve my talents.	3.83	1.00	.707			
Skill5	Free time activities make me feel excited.	3.70	1.05	.703			
Skill4	I can learn what my talents are with free time activities.	3.72	1.05	.673			
Skill6	Free time activities make me get accustomed to the natural environment more quickly.	3.63	1.05	.547			
Skill7	Free time activities increase my sense of feeling about success.	3.60	1.09	.509			
	Achievement	3.71	.81		1.921	16.241	.857
Achieve4	Free time activities make me test my physical strength.	3.60	1.04	.774			
Achieve3	Free time activities make me measure how much I can be successful in what I do.	3.61	1.04	.727			
Achieve1	Free time activities make the value that I give to myself increase.	3.78	.99	.722			
Achieve2	Free time activities give the feeling that I can achieve something.	3.74	.99	.719			
Achieve5	Free time activities increase my confidence on my talents.	3.80	1.01	.578			
	Family togetherness	3.47	.99		1.708	12.722	.868
Family2	I have an experience that all my family in it with free time activities.	3.46	1.13	.859			
Family3	Free time activities make me act with my family for a while.	3.47	1.07	.831			
Family1	Free time activities make me do something with my family.	3.48	1.13	.815			
	Social recognition	2.83	.91		1.428	9.638	.718
Social2	I ensure people to admire by joining free time activities.	2.59	1.16	.866			
Social1	Free time activities make me praised by other people.	2.53	1.13	.830			
Social3	Free time activities make me be known by the other people doing the same activities.	3.37	1.13	.587			
	Escaping family	3.42	.81		1.101	7.748	.581
Escape2	I am far away from the crowded places with free time activities for a while.	3.48	1.11	.833			
Escape1	I am far away from my family permanently with free time activities.	2.93	1.17	.722			
Escape3	I enjoy the silence and the beauty around me with free time activities.	3.86	1.01	.519			
Cronbach Alpha = .897, Total % of Variance = 65.172, KMO = .901, Bartlett's Test of Sphericity = 3828.972, p=0,000							

As seen in Table 3, in order to ensure the validity of the questionnaire, 21 statements in the scale were subjected to exploratory factor analysis using the Varimax rotation method, and then reliability analyzes were performed. The variance explanation rate of the five factors obtained is 65.172%, which is above the acceptable threshold (Nakip, 2003: 412). The Cronbach Alpha values calculated for the internal consistency of the factors varying between 0.581 and 0.876 shows that the scale is highly reliable (Hair et al., 1998: 118). The factors were named as “Skill development”, “Achievment”, “Family togetherness”, “Social recognition” and “Escaping family” considering the expressions they contained.

Figure 3 shows the standardized CFA results for the Recreation experience preferences scale. According to this, it was determined that the factor loads of the propositions were below 1.00. If the standardized parameter values are above 1.00, it indicates that there is a serious problem in the model (Şimşek, 2007: 85). From this result, it is concluded that the factor loads obtained as a result of CFA are quite appropriate.

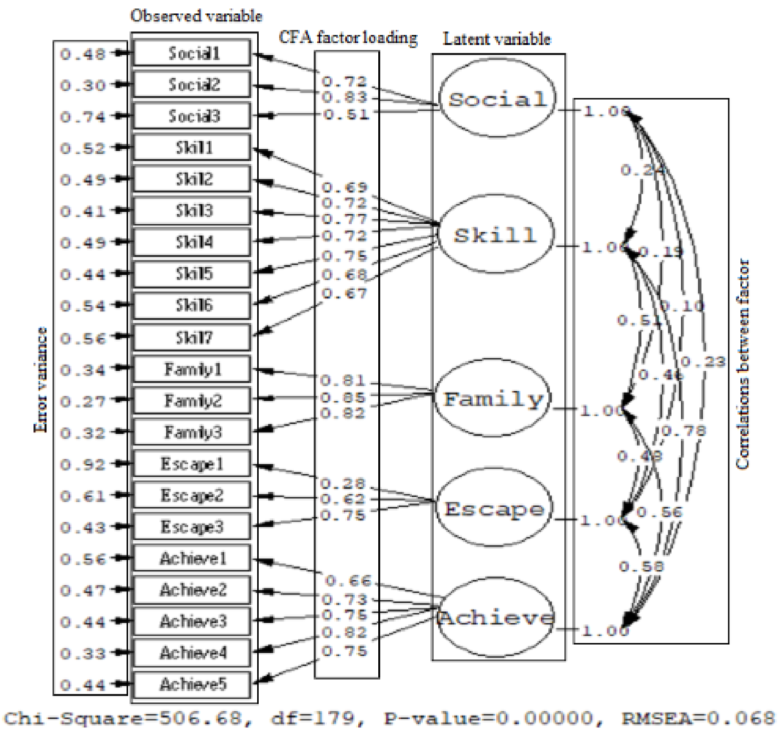


Figure 3. REP Scale Confirmatory Factor Analysis Model

Table 4 displays additional values pertaining to the validity of the results obtained from the first level confirmatory factor analysis. As a result of the analysis, fit indices were examined and the Chi-square value obtained ($\chi 2$=506.68, degrees of freedom (sd) = 179, $\chi 2$/sd = 2.83, p=0.00<0.05) was found to be significant. Since it is aimed to develop a suitable model in this study, it is desired that the Chi-square value obtained is not significant. However, in large sample models, Chi-square is significant just from sample size due to insignificant differences. For this reason, many fit values that minimize or eliminate the sample size have been developed to look at the model (Yıldız, 2016: 253).

Table 4. Recreational Experience Preferences Scale t-Values, Factor Loads and Fit Indices

Factor	**Component**	**Factor loading**	**t-Value**	**Variance (%)**	**AVE**		**Cr**	**R^2**
Social recognition	Social1	0.72	13.05	0.48	0.50		0.73	0.52
	Social2	0.83	14.66	0.30				0.70
	Social3	0.51	9.47	0.74				0.26
Skill development	Skill1	0.59	15.03	0.52	0.50		0.87	0.48
	Skill2	0.72	15.81	0.49				0.51
	Skill3	0.77	17.50	0.41				0.59
	Skill4	0.72	15.81	0.49				0.51
	Skill5	0.75	16.71	0.44				0.56
	Skill6	0.68	14.65	0.54				0.46
	Skill7	0.67	14.33	0.56				0.44
Family togetherness	Family1	0.81	18.54	0.34	0.68		0.86	0.66
	Family2	0.85	19.88	0.27				0.73
	Family3	0.82	18.89	0.32				0.68
Escaping family	Escape1	0.28	4.81	0.92	0.34		0.57	0.07
	Escape2	0.62	10.84	0.61				0.39
	Escape3	0.75	12.64	0.43				0.57
Achievement	Achieve1	0.66	14.19	0.56	0.55		0.86	0.44
	Achieve2	0.73	16.00	0.47				0.53
	Achieve3	0.75	16.67	0.44				0.56
	Achieve4	0.82	18.94	0.33				0.67
	Achieve5	0.75	16.66	0.44				0.56
Index	***Chi-square ($\chi2$)***	***$x2$/df***	**RMSEA**	**GFI**	**AGFI**	**CFI**	**RMR**	**SRMR**
Threshold	506.68;p=0.00	2.83	0.068	0.89	0.86	0.97	0.076	0.064
Status	Significant	Acceptable model fit	Acceptable model fit	Acceptable model fit	Acceptable model fit	Good fit	Acceptable model fit	Acceptable model fit

Upon scrutinizing the fit values derived from the analysis, Root Mean Square Error of Approximation - (RMSEA) = (0.068), Goodness of Fit Index - (GFI) = (0.89), Root Mean Square Error - (RMR) = 0.076, Adjusted Goodness of Fit Index (AGFI) = (0.86), Comparative Fit Index – (CFI) = (0.89), and Standardized Root Mean Square Residual (SRMR) = (0.064) values and $\chi2$/df (2.83) meets the general fit criterias. When the t values obtained are examined, it is seen that they are significant with a margin of error of 0.05 ($t \geq 1.96$). The values for CR=composit reliability should be greater than 0.70 and the AVE (Average Variance Extracted) coefficient should be greater than 0.50 (Fornell and Larcker, 1981: 46). The CR and AVE values of all dimensions except the Escaping family are greater than 0.70 and 0.50.

Table 5. Location-centered satisfaction scale exploratory factor analysis **(KMO Value:** 0,793, **Bartlett's Value:** 670,947, p=0,000)

Component	**$\bar{X}$**	**Std. deviation**	**Factor loadings**	**Eigen values**	**% Variance**	**Alpha (α)**
Factor: Location-centered satisfaction	**3.22**	**.93**		**2.757**	**68.92**	**.848**
Q1 - Your contentment related to the areas of free time activities that belong to the private sector.	3.10	1.15	.815			
Q2 - Your contentment related to the areas of free time activities that belong to the public.	3.11	1.09	.822			
Q3 - Your general contentment about the areas of free time activities.	3.37	1.05	.850			
Q4 - Your contentment related to the diversity of the areas of free time activities.	3.31	1.19	.833			

According to Table 5, the KMO statistic value is 0.79, which exceeds the threshold of 0.6, indicating the data's suitability for factor analysis. The Bartlett's test shows a strong level of significance ($p<0.001$), implying significant relationships between the variables. Moreover, the analysis reveals that one factor can account for 68.92% of the common variance shared by the four variables. Upon examining the mean of this dimension ($\bar{X}$= 3.22; S.S.=.93) it becomes evident that it falls within the range of a moderate mean (Özdamar, 2003: 32). Table 6 displays additional metrics indicating the validity and accuracy of the results obtained from the first-level confirmatory factor analysis. The factor loadings of the propositions were found to be below 1.00. Based on these fit values, it is evident that the proposed model shows a satisfactory level of harmony with the observed data. The combined reliability of the satisfaction dimension surpasses 0.83, indicating a high level of consistency. Furthermore, the satisfaction dimension exhibits AVE value of 0.55, as computed in the analysis and the value signifies a moderate average for this particular dimension.

Tablo 6. Location-Centered Satisfaction Scale t-Value, Factor Loadings and Indices

Component	**Code**		**Factor Loadings**	**t-Value**	**% of Variance**	**AVE**	**Cr**	**R^2**
Location-Centered Satisfaction	Q1 ($\bar{x}$=3.10)		0.66	13.17	11.55	0.55	0.83	0.43
	Q2 ($\bar{x}$=3.11)		0.67	13.60	11.36			0.45
	Q3 ($\bar{x}$=3.37)		0.84	18.03	6.87			0.71
	Q4 ($\bar{x}$=3.31)		0.80	16.94	8.57			0.64
Measures	**Ki-Kare ($\chi2$)**	***$\chi2$/df***	**RMSEA**	**GFI**	**AGFI**	**CFI**	**RMR**	**SRMR**
Threshold	0.35 (P=0.55)	0.35	0.00	1.00	1.00	1.00	0.004	0.0035
Status	Not Significant	Traditional	Great	Great	Great	Great	Great	Great

RESULTS ON HYPOTHESES

In this section, the research aims to investigate whether the recreational experience preferences of the local people differ based on various demographic variables. To achieve this, the study employs several statistical analyses, including t-test and ANOVA to compare means between groups, as well as correlation and multiple regression analysis to explore relationships between variables. The researchers also conducted a test for homogeneity of variances (Levene test), which indicated that the variances are not significantly different across groups ($p>0.05$). Based on this result, they used the LSD test to identify specific groups with mean differences in their recreational preferences (Kalaycı, 2010). To determine the significance of the results, a 95% confidence interval is used. If the calculated p-value (Sig. value) is greater than or equal to this confidence level, the alternative hypothesis H_1 is rejected, suggesting that there are no significant differences in recreational experience preferences among the demographic groups being studied.

H1$_1$: Participants' recreation experience preferences and satisfaction levels with recreational areas differ according to gender.

Table 7. Independed sample t-Test results based on gender sample

Independent variable	**Factor**		**Social recognition**		**Skill development**		**Family togetherness**		**Escaping Family**		**Achievment**		**Satisfaction**	
Gender	**f**	**%**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**
Female	204	51.5	2.75	.90	3.76	.73	3.42	.84	3.47	.74	3.73	.74	3.26	.88
Male	192	48.5	2.90	.92	3.68	.84	3.53	.98	3.37	.88	3.68	.87	3.18	.97
t-value			-1.652		.987		.384		5.025		5.331		2.354	
p value			.099		.324		.278		.192		.479		.412	
H1$_1$			Rejected		Rejected		Rejected		Rejected		Rejected		Rejected	

In Table 7, the recreational experience preference and satisfaction levels of the participants do not differ according to gender ($p>0.05$). H1$_1$ hypothesis is rejected for all variables.

H2$_1$: Participants' recreation experience preferences and satisfaction levels with recreational areas differ according to their marital status.

Table 8. Independed sample t-Test results based on marital status sample

Independent variable	**Factor**		**Social recognition**		**Skill development**		**Family togetherness**		**Escaping Family**		**Achievement**		**Satisfaction**	
Marital status	**f**	**%**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**
Single	181	45.7	2.90	.93	3.76	.71	3.36	1.00	3.43	.82	3.72	.76	3.28	.83
Married	215	54.3	2.77	.89	3.69	.84	3.57	.96	3.42	.80	3.69	.84	3.17	1.00
t-value			1.378		.873		-2.184		.134		.408		1.147	
p value			.169		.383		**.030**		.893		.684		.252	
H2$_2$			Rejected		Rejected		**Accepted**		Rejected		Rejected		Rejected	

As seen in Table 8, hypothesis H2$_1$ is rejected for the dimensions of social recognition, skill development, escaping family, achievement and satisfaction ($p>0.05$). However, hypothesis H2$_1$ is accepted for the family togetherness dimension. Married people attach more importance to the experience of strengthening family ties than single people.

H3$_1$: Participants' recreation experience preference and satisfaction levels with recreational areas differ according to lifestyle.

Table 9. Independed sample t-Test results based on people sample

Independent variable	**Factor**		**Social recognition**		**Skill development**		**Family togetherness**		**Escaping Family**		**Achievement**		**Satisfaction**	
Lifestyle	**f**	**%**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**
Local people	135	34.1	2.47	.81	3.54	.85	3.41	1.03	3.34	,88	3.58	.93	2.67	.93
Second home	261	65.9	3.01	.90	3.82	.73	3.51	.96	3.47	,77	3.77	.73	3.51	.79
t-value			-5.827		-3.316		-.926		-1.466		-2.309		-9.442	
p value			**.000**		**.001**		.355		.143		**.021**		**.000**	
H3$_1$			**Accepted**		**Accepted**		Rejected		Rejected		**Accepted**		**Accepted**	

Table 10. Anova Analysis Findings Related to Age Variable

Independent variable	**Factor**		**Social recognition**		**Skill development**		**Family togetherness**		**Escaping Family**		**Achievement**		**Satisfaction**	
Age	**f**	**%**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**
18-24	81	20.5	2.99	.98	4.03	.73	3.70	1.01	3.50	.85	3.87	.75	3.48	.76
25-34	110	27.8	2.77	.88	3.60	.75	3.44	.95	3.47	.89	3.63	.86	3.03	.90
35-44	95	24.0	2.61	.82	3.56	.84	3.36	.92	3.24	.77	3.54	.91	2.93	1.00
45-54	42	10.6	2.92	.95	3.81	.62	3.69	.86	3.56	.70	3.82	.61	3.47	.89
55 and above	68	17.2	2.97	.92	3.75	.82	3.28	1.11	3.42	.72	3.80	.69	3.47	.92
F			2.592		5.104		2.550		1.760		2.487		7.292	
p value			**.036**		**.001**		**.039**		.136		**.043**		**.000**	
LSD post-hoc tests			18-24>35-44		18-24>25-34		18-24>35-44		-		18-24>25-34		18-24>25-34	
H4$_1$			**Accepted**		**Accepted**		**Accepted**		Rejected		**Accepted**		**Accepted**	

In Table 9, hypothesis $H3_1$ is rejected for the dimensions of family togetherness and escaping family (p>0.00). However, hypothesis $H3_1$ is accepted for the dimensions of social recognition, skill development, achievement and satisfaction. Resident foreigners attach more importance to social recognition, skill development, achievement experiences than locals. In addition, the satisfaction level of resident foreigners with recreational areas is higher than that of locals.

$H4_1$: Participants' recreation experience preferences and satisfaction levels with recreational areas differ according to age.

As seen in Table 10, hypothesis $H4_1$ is rejected for the escaping family dimension (p>0.00). However, hypothesis $H4_1$ is accepted for social recognition, skill development, family togetherness, achievement and satisfaction dimensions. The age group 55 and above gives more importance to the dimensions of social recognition, skill development for 18-24, and family togetherness and achievement. In addition, the satisfaction level of the 18-24 age group is higher than the other age groups. Finally, the difference between the groups is between the 18-24 age group and other age groups.

$H5_1$: Participants' recreation experience preference and satisfaction levels with recreational areas differ according to their professions.

Table 11. Anova Analysis Findings Related to Professions Variable

Independent variable	**Factor**		**Social recognition**		**Skill development**		**Family togetherness**		**Escaping Family**		**Achievement**		**Satisfaction**	
Professions	**f**	**%**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**
Officials	54	13.6	2.70	1.06	3.78	.81	3.74	.77	3.56	.67	3.89	.65	3.03	.92
Self-employed	80	20.2	2.83	.97	3.63	.87	3.46	1.14	3.50	.72	3.66	.88	3.20	.91
Employees	136	34.3	2.76	.85	3.65	.81	3.31	1.00	3.25	.94	3.60	.90	3.14	.93
Retirement	72	18.2	3.11	.89	3.82	.73	3.50	1.03	3.51	.77	3.77	.75	3.53	.88
Other	54	13.6	2.75	.79	3.87	.60	3.59	.77	3.48	.74	3.71	.63	3.26	.96
F			2.257		1.406		2.119		2.389		1.502		2.851	
p value			**.042**		.231		.078		**.041**		.201		**.024**	
LSD post-hoc tests			Official>retirement		-		-		Official>Employees		-		Official>retirement	
$H5_1$			**Accepted**		Rejected		Rejected		**Accepted**		Rejected		**Accepted**	

As seen in Table 11, hypothesis $H5_1$ is rejected for skill development, family togetherness, achievement and satisfaction dimensions (p>0.00). However, $H5_1$ hypothesis is accepted for social recognition and escaping family and satisfaction dimensions. However, retired people attach more importance to social recognition and officials attach more importance to escaping family dimension than the others. In addition, the satisfaction level of retired people with recreational areas is higher than the other groups. Finally, the difference between the groups is between officials and retires.

$H6_1$: Participants' recreation experience preference and satisfaction levels with recreational areas differ according to income.

Table 12. Anova analysis findings regarding monthly income status ($=American dollar)

Independent variable	**Factor**		**Social recognition**		**Skill development**		**Family togetherness**		**Escaping Family**		**Achievement**		**Satisfaction**	
Income	**f**	**%**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**
Less than 1500	96	24.2	2.69	.93	3.72	.80	3.40	.94	3.36	.91	3.73	.89	3.03	1.04
1500-2500	163	41.2	2.79	.85	3.73	.72	3.44	1.01	3.41	.81	3.65	.76	3.21	.94
2501-3500	44	11.1	3.03	.72	3.78	.67	3.48	1.06	3.65	.66	3.68	.83	3.18	.86
3501-4500	47	11.9	2.87	1.15	3.92	.97	3.75	1.01	3.52	.73	3.98	.71	3.49	.90
4501 and above	46	11.6	2.99	.93	3.46	.83	3.47	.89	3.26	.80	3.61	.82	3.45	.59
F			1.471		2.038		1.138		1.663		1.754		2.765	
p value			.210		**.048**		.338		.158		.137		**.027**	
LSD post-hoc tests			-		1500-2500> 4501 and above		-		-		-		Less than 1500>3501-4500	
$H6_1$			Rejected		**Accepted**		Rejected		Rejected		Rejected		**Accepted**	

As seen in Table 12, hypothesis $H6_1$ is rejected for social recognition, family togetherness, escaping family and achievement dimensions (p>0.00). However, $H6_1$ hypothesis is accepted for skill development and satisfaction dimensions. In addition, those with 3501-4500 ₺ both attach more importance to the skill development dimension and have higher satisfaction levels with recreational areas. The difference between the groups stems from those with an income of 1500-2500 and 4501 and above. Finally, the difference between the groups is between those with an income of 1500 and those with an income of 3501-4500.

$H7_1$: Participants' recreation experience preference and satisfaction levels with recreational areas differ according to education level.

In Table 13, hypothesis $H7_1$ is rejected for family togetherness and skill development dimensions (p>0.00). However, hypothesis $H7_1$ is accepted for social recognition, escaping family, achievement and satisfaction dimensions. Those with Masters degrees give more importance to the social recognition dimension compared to other education degrees. The difference between the groups is based on primary school and high school. On the other hand, those with faculty degrees attach more importance to escaping family and achievement dimension compared to other educational degrees. The difference in this dimension is due to faculty degrees and primary school, and high school and faculty degrees. Participants with masters degrees have a higher level of satisfaction with recreational areas compared to other education degrees. The difference regarding the satisfaction dimension is between those with primary school and those with faculty degrees.

H8$_1$: Participants' recreation experience preference and satisfaction levels with recreational areas differ according to their nationality.

Table 13. Anova analysis findings regarding educational status

Independent variable	Factor		Social recognition		Skill development		Family togetherness		Escaping Family		Achievement		Satisfaction	
Education	**f**	**%**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**
Primary school	42	10.6	2.50	1.07	3.47	1.03	3.29	1.16	3.23	.95	3.48	1.06	2.89	.98
High school	111	28.0	2.87	.92	3.69	.82	3.34	1.07	3.32	.93	3.57	.96	3.17	1.07
Facuty degrees	198	50.0	2.82	.83	3.80	.65	3.56	.90	3.53	.69	3.82	.74	3.29	.83
Masters degrees	45	11.4	3.05	1.02	3.71	.94	3.32	.91	3.40	.81	3.76	.81	3.37	.86
F			2.894		2.056		1.427		2.490		3.403		2.705	
p value			**.035**		.106		.234		**.040**		**.018**		**.045**	
LSD post-hoc tests			Primary school> High school		-		-		Facuty degrees> Primary school		High school> Facuty degrees		Primary school> Facuty degrees	
H7$_1$			**Accepted**		Rejected		Rejected		**Accepted**		**Accepted**		**Accepted**	

Table 14. Anova analysis findings regarding nationality status

Independent variable	Factor		Social recognition		Skill development		Family togetherness		Escaping Family		Achievement		Satisfaction	
Nationality	**f**	**%**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**
Turkish	135	34.1	2.47	.81	3.54	.85	3.41	1.03	3.34	.88	3.58	.93	2.67	.93
German	69	17.4	2.97	.92	3.69	.67	3.43	1.01	3.36	.82	3.56	.79	3.47	.64
Russian	77	19.4	2.94	.83	3.97	.64	3.84	.71	3.59	.67	3.91	.67	3.55	.78
English	75	18.9	2.92	.96	3.76	.88	3.35	1.11	3.42	.74	3.78	.75	3.44	1.01
Scandinavian	40	10.1	3.39	.83	3.86	.68	3.30	.90	3.49	.89	3.87	.66	3.64	.93
F			10.820		4.125		3.467		1.369		3.240		22.686	
p value			**.000**		**.003**		**.008**		.244		**.012**		**.000**	
LSD post-hoc tests			Turkish> German		Turkish> Russian		German> Russian		-		Turkish> Scandinavian		Turkish> English	
H8$_1$			**Accepted**		**Accepted**		**Accepted**		Rejected		**Accepted**		**Accepted**	

As seen in Table 14, the H8$_1$ hypothesis is rejected only for the escaping family dimension (p>0.00). However, hypothesis H8$_1$ is accepted for social recognition, skill development, family togetherness, achievement and satisfaction dimensions. Scandinavians give more importance to the social recognition dimension than other groups. The difference between the groups is due to the difference between Turkish and German nationalities. Russians attach more importance to the dimensions of skill development, family togetherness, achievement and satisfaction than the other groups. The difference between the groups is between Turkish and Russian nationalities for skill development, German and Russian nationalities for family togetherness and Turkish and Scandinavian nationalities for achievement.

H9$_1$: Participants' recreation experience preferences and satisfaction levels with recreational areas differ according to their length of stay in the tourism region.

Table 15. Anova analysis findings regarding residence status

Independent variable	Factor		Social recognition		Skill development		Family togetherness		Escaping Family		Achievement		Satisfaction	
Residence	**f**	**%**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**	$\bar{X}$	**S.D.**
Less than 1 year	66	16.7	2.92	.87	3.87	.85	3.49	1.01	3.38	.79	3.79	.71	3.53	.68
1-3 years	94	23.7	3.21	.80	3.88	.77	3.69	.90	3.58	.78	3.93	.77	3.40	.83
4-6 years	66	16.7	2.78	.88	3.75	.56	3.32	.80	3.58	.79	3.65	.67	3.28	.88
More than 6 years	170	42.9	2.60	.92	3.57	.82	3.41	1.07	3.29	.83	3.57	.89	2.98	1.02
F			10.250		4.232		2.285		3.538		4.348		7.634	
p value			**.000**		**.006**		.078		**.015**		**.005**		**.000**	
LSD post-hoc tests			Less than 1 year>1-3 years		Less than 1 year> More than 6 years		-		1-3 years> More than 6 years		1-3 years>4-6 years		1-3 years> More than 6 years	
H9$_1$			**Accepted**		**Accepted**		Rejected		**Accepted**		**Accepted**		**Accepted**	

In Table 15, the H9$_1$ hypothesis is rejected only for the family togetherness dimension (p>0.00). However, H9$_1$ hypothesis is accepted for social recognition, skill development, escaping family, achievement and satisfaction dimensions. Those who reside in the region for 1-3 years attach more importance to all of the dimensions than the other groups. The difference between the groups is between less than 1 year and 1-3 years for social recognition, less than 1 year and more than 6 years for skill development, 1-3 years and more than 6 years for escaping family, and 1-3 years and 4-6 years for achievement. Finally, those who stayed in the tourism region for 1-3 years are more satisfied with recreational areas than the others. The difference between the groups is between 1-3 years and more than 6 years.

H10$_1$: Location-centered satisfaction has a correlation with The REP.

A significant low positive correlation was found between the satisfaction and social recognition, skill development, family togetherness and achievment, while a significant very low positive relationship was found only with escaping family (Table 16, p <0.05). $H10_1$ was accepted.

$H11_1$: Location-centered satisfaction is influenced by The REP.

Table 16. Pearson's correlation analysis

Factor	F1	F2	F3	F4	F5	Satisfaction
F1-Social recognition	**1**					
F2-Skill development	.280**--- .000	**1**				
F3-Family togetherness	.171**--- .001	.459**--- .000	**1**			
F4-Escaping Family	.164**--- .000	.297*--- .000	.298**--- .000	**1**		
F5-Achievement	.205* --- .000	.693**--- .000	.486**--- .000	.386**--- .000	**1**	
Satisfaction	.326* --- .000	.263*--- .000	.225*--- .000	.127*--- .011	.289* --- .000	**1**

Table 17. Regression analysis findings related to satisfaction

REP Scale Domain	B	β	t-value	p-value	Adjusted R^2	R^2	F	p.
Constant	1.415		5.414	.000	.141	.152	13.950	.000
F1-Social recognition	**.274**	**.269**	**5.507**	**.000**				
F2-Skill development	.107	.091	1.354	.176				
F3-Family togetherness	**.097**	**.103**	**1.877**	**.041**				
F4-Escaping Family	-.003	-.003	-.056	.955				
F5-Achievement	.083	.072	1.052	.293				

Upon analyzing the multiple linear regression results presented in Table 17, it becomes evident that the model shows significance at all levels (F=13.950; p=0.000<0.05). The parameter value for the social recognition experience is found to be .274. This means that a one-unit increase in the social recognition experience is associated with a .274 unit increase in satisfaction with recreational areas. By comparing the Beta values of parameters with significant t-values, it is clear that the social recognition experience (β=.274) has a greater influence on satisfaction compared to the improving family togetherness experience (β=.097). Furthermore, the statistical analysis indicates that the independent variables collectively account for a significant portion of the variation in the dependent variable. The Adjusted R^2 value is .141, which means that 15% of the variation in satisfaction with recreational areas can be explained by the independent variables. As a result of these findings, the research accepts the hypothesis $H11_1$, indicating that the social recognition experience and improving family togetherness experience significantly contribute to explaining the variance in the level of satisfaction with recreational areas.

DISCUSSION

Working time is time passed earning money. The time that is spent at home by doing fun things with the family or remaining from doing compulsory work is called free time or residual time. However, since free time is not always free/empty, residual time expression is now used to make this distinction. In residual time personal care, exercise, family togetherness, recreation, self-development and many other things are done. Leisure time is free time where recreational activities are done and expresses a mental state (Shores, 2005: 2). According to the analysis, it is seen that satisfaction with recreational areas has a medium level mean. Arslan and Türkmen (2012: 45) assert that leisure and recreational activities play a significant role in addressing various urban troubles and even in proactively averting potential issues. The plans of local authorities for recreational activities will contribute to the improvement of life conditions in urban areas (related to environmental quality such as clean air, clean water, comfort, silence and diversity of areas).

Mahon et al. (2000) suggest that participating in leisure activities alongside family members has a profound impact on individual growth and social development. According to the analysis, married people give more importance to the experience of strengthening family ties. Based on Karaküçük and Gürbüz's research (2007: 48), engaging in leisure activities with the family, whether in outdoor or indoor recreation areas, proves highly beneficial for reinforcing family bonds. The 18-24 and 45-54 age groups participating in the research want to experience strengthening family ties. The life experiences that recreational activities will provide to the members of the society offer important opportunities for children and young people to solve their problems and integrate with the society. In this context, when we look at the research findings, the 18-24 age group gives more importance to the sense of socialization.

The motivation to be accepted by the society leads the retirees to recreational activities more. The change of retirement age from country to country takes the attention of those who deal with tourism and recreation management in terms of third age tourism (Demir and Çevirgen, 2006: 6). For this reason, the arrangement of short flights by many airline companies positively affects the increase of travel clubs (Mclean and Hurt, 2012: 2). Those in the third age group and young people are more satisfied with recreational areas than other groups. According to Karaküçük and Gürbüz (2006: 28), people who have more free time during retirement prefer travelling to adapt to retirement and live it well. While there is a moderate level of satisfaction with the recreational areas in the region, the third age group's higher satisfaction arises from the different leisure activities they participate in due to physical conditions and social disadvantages. In addition, officers are in the experience of being temporarily removed from the family environment.

According to Karaküçük and Gürbüz (2007: 27), demand for recreational activities is more intense in societies with high income levels. In this respect, it can be said that research and literature findings are similar. Those in the middle-income group participating in the research generally desire to have a talent development experience. Demir and

Çevirgen (2006: 6) state that as the welfare level of people increases, they desire more non-working time. It is seen that the satisfaction level of the income group below the minimum wage in the research is quite low.

According to Karaküçük and Gürbüz (2007: 49), self-discovery of individuals and understanding what kind of skills they have depends only on the person's willingness to do the work he/she does. For this reason, one of the most important ways to determine the interests and abilities of both adults and children in the early stages and to direct their education is to participate in recreational activities. According to the findings, university graduates want to socialization experience.

Stokowski (2002: 368) suggested that individuals who have close ties to their families tend to do their leisure time activities with their family members. In the analyzes made, Russians have a sense of having experience to strengthen family ties. According to Karaküçük and Gürbüz (2010: 51), the main reason for the formation of recreational needs in the social sense is that it allows every people to get to know each other, establish friendships, and work around common goals. In the analyzes made, the sense of acceptance from society provides Scandinavians with a higher level of motivation to participate in recreational activities. It can be said that these research findings overlap with the literature.

CONCLUSIONS AND RECOMMENDATIONS

The primary objective of this study is to investigate and compare the recreation experience preferences and satisfaction levels of individuals living in Alanya, including both the local residents and second home owners. Regarding the recreation centers to be added to the region, it should include plans for the areas where families can spend time together. In addition, both the 18-24 age group and the married people want to spend time with their families. It reveals the importance of considering the places where people can spend time with their family in recreational area planning of local authorities.

It is considered extremely important that local authorities make new places where the third age group can protect their physical and psychological health. In this direction, the natural beauties of the destination and especially the climatic conditions suitable for third age tourism increase its preferability. Local authorities should take precautions to protect the values of the region. Structural constraints such as financial impossibility should be considered in recreational area planning. In the recreational area planning, local authorities should gain new facilities for the region that will eliminate negative psychological disorders such as fatigue and stress. New areas should be created that will enable the residents of the destination to get to know each other, establish friendships and work around common goals.

It is very important to understand the motivation of local people and second home owner to participate. In particular, the motivation-satisfaction relationship has always been a popular research interest of many scholars, because satisfaction has been shown to have a positive impact on local people and second home owner post-purchase behavior, such as recommendation and revisit intention.

Limitations

As every study has limitations, this study also has limitations. This research was conducted for the local people and foreign residents living in Alanya, Turkey. If the research mentioned is done in other destinations or countries, different results may be obtained and compared with this study. On the other hand, individuals under the age of 18 were not included in this research. The participation of people in recreational activities may be determined by different motivation dimensions in the context of recreational experience preference.

Author Contributions: Conceptualization, M.K.; methodology, İ.K.; software, İ.K.; validation, M.K.; formal analysis, İ.K.; investigation, M.K.; data curation, İ.K.; writing - original draft preparation, İ.K.; writing - review and editing, M.K.; visualization, İ.K.; supervision, M.K.; project administration, İ.K. and M.K. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Ab Dulhamid, H., Isa, M.I., Mohamed, B., & Sazali, M.F. (2023). Motivation of outdoor recreation participation among rural and urban communities. *Planning Malaysia*, 21(1), 470-483 https://doi.org/10.21837/pm.v21i25.1251

Acha-Anyi, P.N. (2020). Local community participation in recreation and mental health experiences: A case study of the Eastern Cape Province–South Africa. *GeoJournal of Tourism and Geosites*, 31(3), 1153-1160 https://doi.org/10.30892/gtg.31329-552

Arslan, S., & Türkmen, M. (2012). Effects of recreation services offered by local government on quality of life: a factor analysis application, *TOJRAS: The Online Journal of Recreation and Sport*, 1(1): 46-52.

Assaker, G., & Hallak, R. (2013). Moderating effects of tourists' novelty-seeking tendencies on destination image, visitor satisfaction, and short-and long-term revisit intentions. *Journal of Travel Research*, 52(5), 600-613 https://doi.org/10.1177/00472875134784

Aydın, T. (2009). *Türk idare sisteminde yerleşik yabancılara yönelik bir idari örgütlenme modeli: göçmen ofisleri [A organizational model in Turkish administrative system for settled foreigners: Migration offices]*, Unpublished PhD Master, Akdeniz University, Antalya, Turkey.

Baker, D.A., & Crompton, J.L. (2000). Quality, satisfaction and behavioral intentions. *Annals of Tourism Research*, 27(3), 785-804 https://doi.org/10.1016/S0160-7383(99)00108-5

Balkır, C., & Kırkulak Uludağ, B. (2014). Antalya'da yaşayan yerleşik yabancı emekli göçmenlerin yerel ekonomiye etkisi [The impact of resident foreign retired immigrants living in Antalya on the local economy]. M. Tuna (Ed.), *Türkiye ve yeni uluslararası göçler [Turkey and new international migrations]*, 77-106, Sentez Publishing, Ankara.

Baş, T. (2006). *Anket [Survey]*. Seçkin Publishing, Ankara, Turkey

Broadhurst, R. (2001). *Managing environments for leisure and recreation*. UK: GBR Roudledge.

Brown, P.J., & Haas, G.E. (1980). Wilderness recreation experience: The Rawah case. *Journal of Leisure Research*, 12(3), 229-241 https://doi.org/10.1080/00222216.1980.11969447

Butler, G. (1968). *An introduction to community recreation*. London.

Chang, S. (2009). *Relationship between active leisure and active vacations*. A Dissertation Presented to The Graduate School of The University of Florida in Partial Fulfillment of The Requirements for The Degree of Doctor of Philosophy, University of Florida.

Chashina, B., Ramazanova, N., Atasoy, E., Berdenov, Z., & Ilieş, D.C. (2020). Natural recreation potential of the West Kazakhstan region of the Republic of Kazakhstan. *GeoJournal of Tourism and Geosites*, 32(4), 1355-1361 https://doi.org/10.30892/gtg.32424-580

Chen, C.F., & Chen, F.S. (2010). Experience quality, perceived value, satisfaction and behavioral intentions for heritage tourists. *Tourism Management*, 31(1): 29–35 https://doi.org/10.1016/j.tourman.2009.02.008

Cohen, S.A., Duncan, T., & Thulemark, M. (2015). Lifestyle mobilities: the crossroads of travel, leisure and migration. *Mobilities*, 10(1), 155-172 https://doi.org/10.1080/17450101.2013.826481

Cong, L.C. (2016). A formative model of the relationship between destination quality, tourist satisfaction and intentional loyalty: An empirical test in Vietnam. *Journal of Hospitality and Tourism Management*, 26, 50–62 https://doi.org/10.1016/j.jhtm.2015.12.002

Demir, C., & Çevirgen, A. (2006). *Turizm ve çevre yönetimi: Sürdürülebilir çevre yönetimi [Tourism and environmental management: Sustainable environmental management]*. Nobel Publishing Group, İstanbul, Turkey.

Driver, B.L. (1976). *Toward a better understanding of the social benefits of outdoor recreation participation*. North Carolina, US: General Technical RDTort SE-9.

Driver, B.L. (1983). *Master list of items for recreation experience preference scales and domains*. Unpublished Document. US: Fort Collins.

Driver, B.L., & Brown, P.J. (1975). A sociopsychological definition of recreation demand, with implications for recreation resource planning. In *Assessing demand for outdoor recreation*, US: National Academy of Sciences.

Driver, B.L., & Knopf, R.C. (1977). Personality, outdoor recreation and expected consequences. *Environment and Behavior*, 9 (2), 169-193 https://doi.org/10.1177/001391657792002

Driver, B.L., & Tocher, S.R. (1970). Toward a behavioral interpretation of recreation engagements with implications for planning. In B.L. Driver (Ed.), *Elements of outdoor recreation planning*. US: Ann Arbor

Ekici, S., & Tuncel, G. (2015). *Göç ve insan [Migration and human]*. Birey ve Toplum Sosyal Bilimler Dergisi, 5(1), 9-22, (in Turkish) https://doi.org/10.20493/bt.71783

Eskildsen, J.K., & Kristensen, K. (2006). Enhancing importance-performance analysis. *International Journal of Productivity and Performance Management*, 55(1), 40-60 https://doi.org/10.1108/17410400610635499

Fofana, N.K., Latif, F., Sarfraz, S., Bashir, M.F., & Komal, B. (2020). Fear and agony of the pandemic leading to stress and mental illness: an emerging crisis in the novel coronavirus (COVID-19) outbreak. *Psychiatry Research*, 291, 113230 https://doi.org/ 10.1016/j.psychres.2020.113230

Gaffar, V., Yuniawati, Y., & Ridwanudin, O. (2019). A study of outdoor recreation motivation and activity preferences. *Journal of Southwest Jiaotong University*, 54(3), 1-10 https://doi.org/10.35741/issn.0258-2724.54.3.23

Giuliani, M.V., & Feldman, R. (1993). Place attachment in a developmental and cultural context human behavior and environment. *Advances in Theory and Research*, 12 (1), 269-270 https://doi.org/10.1016/S0272-4944(05)80179-3

Hair, J.F., Anderson, R.E., Tatham, R.L., & Black, W.C. (1998). *Multivariate data analysis* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Haywood, L., Kew, F., & Bramham, P. (1989). *Understanding leisure*. US: Nelson Thornes.

Jun, J. (2022). The moderating role of social class on the relationship between motivation and outdoor recreation. *Korean Journal of Leisure, Recreation & Park*, 46(3), 83-92 http://dx.doi.org/10.26446/kjlrp.2022.9.46.3.83

Kaplan, M. (1975). *Leisure: theory and practice*. John Wiley, New York.

Karaküçük, S., & Gürbüz, B. (2007). *Rekreasyon ve kent(li)leşme [Recreation and urbanization]*, Gazi Publishing, Ankara, Turkey.

Kavacık, M., & Kurar, İ. (2022). Innovation management practices and benefit of innovation management in the accomodation industry. *Five Zero*, 2(2), 60-81 https://doi.org/10.54486/fivezero.2022.16

Khamung, R., & Hsu, P.S. (2022). Social distancing and beach open spaces: recreational experiences of tourists at Bangsaen beach after the pandemic. *Cogent Social Sciences*, 8(1), 2143056 https://doi.org/10.1080/23311886.2022.2143056

Khasawneh, M.S., & Alfandi, A.M. (2019). Determining behaviour intentions from the overall destination image and risk perception. *Tourism and Hospitality Management*, 25(2), 355-375 https://doi.org/10.20867/thm.25.2.6

Kalaycı, S. (2010). *SPSS uygulamalı çok değişkenli istatistik teknikleri [SPSS applied multivariate statistical techniques]*. Asil Publishing, Ankara, Turkey.

Kelly, J.R. & Freysinger, V.J. (2000). *21st century leisure: current issues*. US: Allyn & Bacon.

Kibler, A.M., & Smith, R.W. (2000). Leisure needs and leisure satisfaction levels of adult males with HIV and AIDS. *Therapeutic Recreation Journal*, 200(34), 120-140.

Kim, S.S., Lee, C.K., & Klenosky, D. (2003). The ınfluence of push and pull factors at Korean national parks. *Tourism Management* (24), 169-180 https://doi.org/10.1016/S0261-5177(02)00059-6

Knopf, R.C., Driver, B.L., & Bassett, J.R. (1973). *Motivations for Fishing*. In transactions of the 28th North American wildlife and natural resources conference, US: Wash DC: Wildlife Management Institute.

Kraus, R.G., & Curtis, J.E. (2000). *Creative management in recreation, parks and leisure services* (6th ed.). United States: McGraw Hill

Kurar, İ. (2019). *Kültür, rekreasyonel deneyim tercihleri ve memnuniyet arasındaki ilişki: Alanya örneği [The relationship between culture, recreatıon experience preference and satisfaction: The sample of Alanya]*. Unpublished PhD Thesis, Akdeniz University, Antalya, Turkey

Lloyd, K., & Auld, C. (2002). Social indicators research: an international and interdisciplinary. *Journal for Quality-of-Life Measurement*, 57 (1), 43-71.

Lu, L., & Hu, C.H. (2005). Personality, leisure experiences and happiness. *Journal of Happiness Studies*, 6(3), 325-342 https://doi.org/10.1007/s10902-005-8628-3

Mahon, M.J., Mactavish, J., Bockstael, E., O'Dell, I., & Siegenthaler, K.L. (2000). Social integration, leisure and individuals with intellectual disability. *Parks & Recreation*, 35(4), 25-34.

Malhotra, N.K. (2007). *Marketing research, an applied orientation* (5th ed.). Pearson Prentice Hall.

Manfredo, M.J., Driver, B.L., & Tarrant, M.A. (1996). Measuring leisure motivation: A meta-analysis of the recreation experience preference scales. *Journal of Leisure Research*, (28), 188-213 https://doi.org/10.1080/00222216.1996.11949770

Mazza, C., Ricci, E., Biondi, S., Colasanti, M., Ferracuti, S., Napoli, C., & Roma, P. (2020). A nationwide survey of psychological distress among Italian people during the COVID-19 pandemic: immediate psychological responses and associated factors. *International Journal of Environmental Research and Public Health*, 17(9), 31-65 https://doi.org/10.3390/ijerph17093165

Mclean, D., & Hurt, A. (2015). *Kraus' recreation and leisure in modern society*. (Tenth Edition). US: Jones & Bartlett Publishers.

Mercan, G. (2022). Covid-19 salgınının dünya ve türkiye ekonomisine etkileri ve 2008 krizi ile mukayesesi [The effects of the covid-19 to the world and Turkish economy: a precise comparison with the 2008 crisis], *Necmettin Erbakan Üniversitesi Siyasal Bilgiler Fakültesi Dergisi*, 4(2): 132-143, (in Turkish) https://doi.org/10.51124/jneusbf.2022.33

Nakip, M. (2003). *Pazarlama araştırmaları teknikler ve (SPSS destekli) uygulamalar [Marketing research techniques and (SPSS supported) applications]*, Seçkin Publishing, First Edition, Ankara, Turkey.

Nguyen Viet, B., Dang, H.P., & Nguyen, H.H. (2020). Revisit intention and satisfaction: The role of destination image, perceived risk, and cultural contact. *Cogent Business & Management*, 7(1), 1796249 https://doi.org/10.1080/23311975.2020.1796249

O'Reilly, K. (1995). Constructing and managing identities: 'residential tourists' or a British expatriate community in Fuengirola, southern Spain. *Essex Graduate Journal of Sociology*, 1, 25-37.

Osiako, P.O., Kummitha, H.R., & Szente, V. (2022). Motivational decisions, satisfaction, and revisit behavior of domestic tourists: An empirical analysis, *Geojournal of Tourism and Geosites*, 44(4), 1442-1449 https://doi.org/10.30892/gtg.44432-964

Özdamar, K. (2003). *Modern bilimlerde araştırma yöntemleri [Research methods in modern sciences]*. Kaan Publishing, Eskişehir, Turkey.

Özgürel, G. (2020). *Turizm destinasyonlarında yerleşik yabancı-yerel halk etkileşimi üzerine bir inceleme [A study on the interactions between foreign residents and local people in the tourism destinations*], Unpublished PhD Thesis, Balıkesir University, Balıkesir, Turkey.

Ratkowski, W., & Ratkowska, J. (2018). Sports events as a determinant of sport tourism. *Baltic Journal of Health and Physical Activity*, 10(1), 86-94 https://doi.org/10.29359/bjhpa.10.1.09

Schmitt, T.A. (2011). Current methodological considerations in exploratory and confirmatory factor analysis. *Journal of Psychoeducational Assessment*, 29(4), 304-321 https://doi.org/10.1177/0734282911406653

Shores, K.A. (2005). *The relationship of time perspective to time allocation, recreation experience preferences, and wellness*. (PhD Thesis). Texas A&M University, US.

Sivan, A., & Ruskin, H. (2000). *Leisure education, community development and populations with special needs*. UK: CAB Publishing.

Smith, K.M. (2011). *The relationship between residential satisfaction, sense of community, sense of belonging and sense of place in a Western Australian urban planned community*. Unpublished PhD Thesis, Edith Cowan University Faculty of Computing Health & Science. Joondalup, Australia.

Stebbins, R.A. (2005). Choice and experiential definitions of leisure. *Leisure Sciences*, 27 (1), 349-352. https://doi.org/10.1080/01490400590962470

Stokowski, P. (2002). Languages of place and discourses of power: Constructing new senses of place. *Journal of Leisure Research*, (34): 368-382 https://doi.org/10.1080/00222216.2002.11949977

Şentürk, B. (2019). *Edremit ilçesi yerel halkının turizm gelişimine yönelik algısı [The perception of local people of Edremit district towards tourism development]*. Unpublished Master Thesis, Aydın Adnan Menderes University, Aydın, Turkey.

Şimşek, O.F. (2007). *Yapısal eşitlik modellemesine giriş: Temel ilkeler ve LISREL uygulamaları [Introduction to structural equation modeling: Basic principles and applications of LISREL]*. Ekinoks Publishing, Ankara, Turkey.

Talipoğlu, Ü. (2020). *Toplumsal değer inşasında medyatik üretimlerin rolü: İlim ve Sanat Dergisi örneği [The role of mediatic productions in construction of social values: Example of Science and Art Journal*], Unpublished PhD Thesis, Marmara University, İstanbul, Turkey.

Toprak, Z. (2008). *Yerel yönetimler [Local governments]*, Siyasal Publication, İzmir, Turkey.

Torkildsen, G. (1999). *Leisure and recreation management*. Fifth Edition. London: Routledge.

Wellman, J.D. (1979). Recreational response to privacy stress: A validation study. *Journal Leisure Research*, 11(1), 61-73 https://doi.org/10.1080/00222216.1979.11969376

Wichasin, P. (2007). *A Study of Thai women as health tour participants in relation to lifestyle and leisure practice,* Doctoral Dissertation, Bournemouth University, UK.

Williams, A., & Hall, C.M. (2002). Tourism, migration, circulation and mobility. In C. M. Hall A. and Williams (Eds.), *Tourism and migration: new relationships between production and consumption*, 1-52. Netherlands: Kluwer Academic Publishers.

Williams, D.R., & McIntyre, N. (2012). Place affinities, lifestyle mobilities and quality-of-life. In M. Uysal, R. Perdue, and J. Sirgy (Eds.), *Handbook of tourism and quality-of-life research: enhancing the lives of tourists and residents of host communities, ınternational handbooks of quality-of-life*, 209-231, London: Springer

Xie, J., Luo, S., Furuya, K., & Sun, D. (2020). Urban parks as green buffers during the COVID-19 pandemic. *Sustainability*,12(17), 6751 https://doi.org/10.3390/su12176751

Yıldız, M.A., & Baki, D.U.Y. (2016). Development of anger regulation scale for adolescents (ARS-A): validity and reliability studies. *Dusunen Adam The Journal of Psychiatry and Neurological Sciences*, 29(3), 247-248. https://doi.org/10.5350/dajpn2016290306.

Yılmaz, M. (2023). Doğum oranı ve doğuşta beklenen yaşam süresi-ekonomik büyüme ilişkisi: Türkiye için ampirik bir analiz [Birth rate and life expectancy tt birth - economic growth relationship: an empirical analysis for Turkey]. *Necmettin Erbakan Üniversitesi Siyasal Bilgiler Fakültesi Dergisi*, 5(1), 93-102, (in Turkish) https://doi.org/10.51124/jneusbf.2023.44

Zawadzki, P. (2014). The influence of modern hotel infrastructure on the number of hotel guests and the aspect of physical recreation in the local society. *Geojournal of Tourism and Geosites*, 14, 215-225.

Zhang, H., Wu, Y., & Buhalis, D. (2018). A model of perceived image, memorable tourism experiences and revisit intention. *Journal of Destination Marketing & Management*, 8, 326-336 https://doi.org/10.1016/j.jdmm.2017.06.004

Article history: Received: 01.07.2023 Revised: 02.09.2023 Accepted: 09.10.2023 Available online: 10.11.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1318-1329
DOI 10.30892/gtg.50412-1130

CITIZENS' SATISFACTION WITH THE SERVICE QUALITY OF KHMER CIVIL SERVANTS IN THE MEKONG DELTA, VIETNAM

Phan Van TUAN
Vinh University, College of Social Sciences and Humanities, Faculty of Politics and Journalism, Nghe An Province, Vietnam, e-mail: phanvantuan94@yahoo.com

Vu Thi Phuong LE
Vinh University, College of Social Sciences and Humanities, Faculty of Politics and Journalism, Province, Vietnam, e-mail: levtp@vinhuni.edu.vn

Nguyen Khanh LY
Nghe An University of Economics; Vinh University, College of Social Sciences and Humanities, Nghe An Province, Vietnam, e-mail: nguyenkhanhly@naue.edu.vn

Nguyen Chi HAI*
An Giang University, Vietnam National University Ho Chi Minh City, An Giang Province, Vietnam; Vinh University, College of Social Sciences and Humanities, Faculty of Politics and Journalism, Vietnam, e-mail: nchai@agu.edu.vn

Nguyen Thi Kim NGAN
An Giang University, Vietnam National University Ho Chi Minh City, An Giang Province, Vietnam, e-mail: ntkngan@agu.edu.vn

Citation: Tuan, P.V., Le, V.T.P., Ly, N.K., Hai, N.C., & Ngan, N.T.K. (2023). CITIZENS' SATISFACTION WITH THE SERVICE QUALITY OF KHMER CIVIL SERVANTS IN THE MEKONG DELTA, VIETNAM. *GeoJournal of Tourism and Geosites*, 50(4), 1318–1329. https://doi.org/10.30892/gtg.50412-1130

Abstract: Civil servants are part of the human resources of the public sector. The contingent of civil servants is an essential component of human social resources whose contributions always play a significant role in the overall socio-economic development achievements of the country and the locality. In this study, the research paradigm “citizen satisfaction with the service quality of Khmer civil servants” was used and converted with “the SERVPERF model.” Research data were collected from survey results by questionnaires from 596 citizens in the Mekong Delta, Vietnam. SPSS 20 and AMOS 24 software are used to analyze and evaluate the scale. The results of the research structure show that there are six factors affecting citizen satisfaction with the service quality of Khmer civil servants in the Mekong Delta, Vietnam, including competency, professional qualifications, profession, sense of responsibility and coordination in performing tasks, ethical qualities, working style; sense of organization and discipline; citizen service attitude; progress and results of task performance. From the research findings, the discussion proposes implications for public policy management to improve citizen satisfaction with the service quality of Khmer civil servants in the Mekong Delta, Vietnam.

Key words: satisfaction, service quality, civil servants, the Khmer, Vietnam

* * * * * *

INTRODUCTION

In the period of global economic integration and development, performing public administrative services and improving the quality of citizen services are essential tasks to build a clean and professional administration (Son et al., 2023). Accordingly, many new policies have been concretized in socio-economic development projects to attract investment and support the development of economic sectors (Van de Walle, 2018). It creates an excellent legal basis for investors' activities and improves citizens' lives. Improving citizens' satisfaction with the service quality of civil servants is the focus (Zhang et al., 2022). At the same time, it is also an important issue that requires coordination between individuals and organizations in many enforcement agencies (Boyer and Van Slyke, 2019).

Several studies have shown a relationship between operational efficiency, the quality of public service activities, and the improvement and enhancement of the quality of public services (Vigoda-Gadot et al., 2012). Service quality is an essential measure of the performance of administrative agencies (Wenene et al., 2016). Improving the quality of administrative services should be recognized as an essential goal to demonstrate the effectiveness of administrative agencies (Nguyen et al., 2020). Assessing the service quality of civil servants through service user satisfaction assessment is a new approach in administrative work in Vietnam (Hai et al., 2023). Citizens' satisfaction with civil servants and administrative agencies is a significant criterion for evaluating and ranking civil servants and administrative agencies across the country (Nguyen, 2019). In addition to serving citizens, civil servants in administrative agencies have to perform many other functions, such as supporting growth, adjusting the growth rate, and orienting growth for a locality or country (Neo et al., 2022).

* Corresponding author

From the performance results of civil servants in Vietnam (Nguyen, 2022). It shows that the work efficiency of civil servants in some areas still needs to improve, and their work coordination needs to be synchronized. Too many administrative procedures are causing difficulties in many areas, including investment projects, business registration, and licensing, causing troubles for organizations and citizens (Blane and Daan, 2009).

The application of information technology and the quality management system in administrative agencies are flexible (Sun et al., 2021). This has directly affected people's problem-solving, reducing their trust in public administration and the state (Nguyen, 2022). Therefore, assessing the level of people's satisfaction with the service quality of Khmer civil servants in the Mekong Delta, Vietnam, is necessary. Evaluating citizens' satisfaction with the service quality of Khmer civil servants is actual content. It will help administrative agencies in Vietnam to develop strategies, improve the quality of public services and build citizens' trust in the state (Nurul et al., 2022). The above purpose is to improve and enhance civil servants' service quality in Vietnam. The specific objective of the study is to assess the citizens' satisfaction with the service quality of Khmer civil servants in the Mekong Delta, Vietnam.

LITERATURE REVIEW

Khmer people in the Mekong Delta, Vietnam, have a large number and live widely in the region. Nearly 1.3 million Khmer people live in the region, accounting for nearly 7% of the population. By 2020, the number of Khmer civil servants working in local government from provincial to commune levels in the Mekong Delta provinces will be significant. Provinces with many Khmer people, including Tra Vinh, Soc Trang, Kien Giang, An Giang, Bac Lieu, and Ca Mau, have more than 14,000 civil servants, accounting for 11.01% of the total number of civil servants in the region (Hai and Ngan, 2022).

Citizen satisfaction with the service quality of civil servants can vary depending on many factors, and it is different in different regions of the world. Several important factors can affect citizens' satisfaction with civil servants, including Citizens' satisfaction with the quality of services they receive from civil servants. If civil servants work professionally, quickly and effectively, citizens may feel more satisfied (Bui, 2023). The behaviour of public officials can displease citizens and reduce satisfaction with public officials and public services.

There have been many studies concerned with Citizen satisfaction with the service quality of civil servants. Halimah et al. (2023) researched citizen perceptions and public servant accountability of local government service delivery in Malaysia. The study examined citizen perceptions and public servant accountability in delivering local government services. There are three concerns about accountability, including inadequate citizen participation in programs, actions related to complaints, and slow response in repairing deteriorating basic infrastructure (Halimah et al., 2023). The qualifications and ethics of civil servants affect citizen satisfaction. If civil servants are well-trained and adhere to professional ethics, citizens can have more trust. Improvements in administrative processes and reduced complicated forms and procedures can also increase citizens' satisfaction with civil servants (Bui et al., 2023).

Research factors affecting citizen satisfaction: Examining from the perspective of the expectation disconfirmation theory and individual differences by Chung-Pin et al. (2022). Research examining whether citizen satisfaction depends on objective policy factors has been conducted in the United Kingdom and the United States. The results show people's happiness in three policy areas: public safety, transportation and environmental sanitation (Chung-Pin et al., 2022). Low-paid civil servants can lead to poor work attitudes and reduce citizen satisfaction. Furthermore, evaluating the work of civil servants can ensure they always work effectively and reliably. Transparency in managing the work of civil servants and providing correct information to citizens is an essential factor.

According to Ju et al. (2023) study on citizen preferences and government chatbot social characteristics: Evidence from a discrete choice experiment. E-government is gaining popularity as artificial intelligence-based tools improve communication between government and citizens; investigation in China on applying e-government to people's preferences (Ju et al., 2023). The results indicate that conscientiousness significantly influences people's choices. Citizen satisfaction with the quality of Service provided by civil servants can vary considerably from person to person and region to region (Lei and Bo, 2023). To improve this satisfaction, the government should consider and enhance the above factors and take measures to prevent corruption and increase transparency in the work management of civil servants (Sun et al., 2023).

In addition, the study of civil servants' integrity in the public sector: The case of Nepal by Khanal et al. (2022). Public servants' integrity in delivering public services is at the worldwide heart of public sector governance (Khanal et al., 2022). Ensuring higher levels of integrity for civil servants is complex because many factors influence it. The study's findings show that citizens perceive the integrity of civil servants in public Service to be positively affected by civil servants' compliance with regulations, responsiveness in service delivery, Service on time, hassle-free Service, and satisfactory salary. While negatively affected by complicated procedures, public officials demand bribes to serve the public good. We should have proposals that focus on these factors to build and maintain the integrity of civil servants in public service delivery.

Civil servants and service quality civil servants

Civil servants refer to people working in organizations under the political system, according to the Law on Cadres and Civil Servants of the Socialist Republic of Vietnam. Civil servants are Vietnamese citizens; They are recruited and appointed to titles corresponding to employment positions in state agencies and socio-political organizations at central, provincial, and district levels. Civil servants receive salaries from the state budget.

Activities of civil servants contribute to social stability and economic development orientation. The activities of civil servants contribute to accelerating the national and regional socio-economic development goals (Falk et al., 2022). Civil servants' activities occur in many different areas and fields associated with the functions and tasks of agencies and organizations in the public sector (Yuguo and Hindy, 2018). The activities of civil servants are of the management nature of state agencies, criticism of socio-political organizations, activities of providing public services, and public non-business units. All of them create different aspects of social life. Especially in state management, civil servants are the core force in formulating programs, plans, and organizing implementation to realize the state's policies (Giannoccaro et al., 2008).

State administrative agencies are the forces that regularly receive requests and recommendations, carry out administrative procedures and solve problems of organizations and citizens (Fan et al., 2022). If civil servants understand the law, have good capacity and qualities, and have professional manners, the legitimate rights, interests and necessary needs of citizens will be resolved. Thus, local socio-economic development issues and citizens' lives are improved (To, 2023).

The quality of the performance of civil servants determines the effectiveness and efficiency of state management and the effective use of local resources. State administrative agencies are public organizations representing the community to exploit and use national and local resources for different purposes in each period (Chan et al., 2021). At the same time, the state administrative agency is the direct subject of comprehensive impact, covering all areas of social life. However, state agencies are operated by specific civil servants of the state (Suzuki and Demircioglu, 2021). Therefore, when civil servants operate effectively, they will be the driving force for the activities of state agencies to be improved in efficiency and effectiveness (Arménio et al., 2010). National and local resources will be exploited adequately for development goals.

Satisfaction and civil satisfaction of service quality civil servants

Different concepts of general customer satisfaction exist, and a significant quantity of debate exists. Satisfaction is the difference between a customer's expectations and the actual perception they receive (Kotler and Keller, 2009). Satisfaction or disappointment after consumption is understood as the customer's response to the assessment by feeling the difference between the expectation before consumption and the actual product perception after consuming it (Chen et al., 2018). Satisfaction is a person's pleasure or disappointment resulting from comparing the performance of the perceived product or service with the customer's expectations. If the product meets expectations, the customer is satisfied, and if the product exceeds expectations, the customer is delighted. Customer satisfaction depends on the performance one perceives from a product or a service when it provides value compared to buyer expectations. The buyer will be satisfied if the product's performance exceeds the buyer's expectations.

If its performance matches the buyer's expectations, the buyer will be satisfied. The buyer will be excited if its performance exceeds the buyer's expectations. Overall, satisfaction is the comparison between actual perceived benefits and expectations. The customer will be satisfied if the benefits are as expected. If the actual benefits meet the set expectations, the customer will be satisfied; if the actual benefits are higher than the customer's expectations, the phenomenon of higher satisfaction or satisfaction will be created (Gutiérrez et al., 2009).

Service quality and satisfaction are two concepts closely related to service research. Satisfaction is the degree to which a customer's requirements are met. According to Parasuraman et al. (1998), service quality is the gap between customers' expectations before using and their perception after using the service. Moreover, Zeithaml (2000) said that customer satisfaction is affected by many factors, such as product quality, service quality, price, situational factors, and personal characteristics (Zeithaml and Bitner, 2000). The reason is that service quality is related to service delivery, while satisfaction can only be assessed after using the service. Thus, service quality is the cause of satisfaction and satisfaction. Service quality and customer satisfaction are interrelated (Tran and Truong, 2021). High-quality service leads to increased customer satisfaction; service quality should only be measured by assessing customer satisfaction.

Measure citizen satisfaction with the service quality

In measuring service quality, Parasuraman et al. (1998) developed the SEVRQUAL model, which is cited a lot in the research on service quality and, in their studies, proposed to measure service quality through 10 factors. However, in the improved version, the service quality measurement factors to 5, including tangible means, reliability, service capabilities, responsiveness, and sympathy (Parasuraman et al., 1998). The SERVQUAL model measures service quality by calculating the gap between perceived service performance and expectations. Using this model helps to identify the factors and components that explain service quality, thereby helping managers know which factors need to be improved to meet customer needs better. However, according to Cronin and Taylor (1992), expectations are difficult to determine; customers need to set expectations. Therefore, more theoretical and practical support must be needed to calculate the gap between perceived results and expectations to measure service quality (Cronin and Taylor, 1992). They propose the SERVPERF model, which is a successor to the SERVQUAL model, to study service quality satisfaction. Research by Cronin and Taylor (1992) shows that service quality leads to satisfaction (Cronin and Taylor, 1992). This implies that, in public administration, managers need to focus on the satisfaction of citizens and the service quality of civil servants.

THEORETICAL FRAMEWORK AND RESEARCH STRUCTURE

Theoretical framework

There are many studies on citizen satisfaction with the service quality of civil servants. According to Gregg et al. (2015), in the study, service quality, administrative process, and citizens' evaluation of local government in the US. According to the author, researchers and public administration practitioners should clearly understand the process people use to form overall satisfaction assessments of the quality of local government services (Gregg et al., 2015). Accordingly, the author has built a satisfaction evaluation model including (1) Expectations are the consumer's or citizen's predictions or anticipations of the performance of a product or service; (2) Performance is hypothesized as an exogenous variable as well and refers to the consumer's evaluation of various features or facets of the product or service, based on a recent consumption experience; (3) Disconfirmation again is the discrepancy between the anticipated quality of the good or service and the quality that was received or experienced. According author Ma (2017), in the study "Performance management and citizen satisfaction with the government: Evidence from Chinese municipalities", The author argues that performance management is widely adopted in the public sector today. In the study, the author used survey data and multi-level modelling to analyze the impact of multiple performance management components on citizens' perception of government performance across 19 cities in China (Ma, 2017). The results show that performance management has a positive impact on citizen satisfaction. In addition, citizen participation, performance feedback, accountability, and openness of information are positively related to people's satisfaction.

In the study "Citizen Trust in civil servants: A cross-national examination" by David et al. (2016). The authors acknowledge that citizen trust is a concept in the study and practice of public administration. Because it is presented as a primary justification and a potential outcome of efforts to reform modern worldwide. Citizens' attitudes towards public officials are essential because government officials interact with them (Obedgiu et al., 2020). The assumption of a link between government performance and trust is the basis of recent efforts to reform public administration (David et al., 2016). The results found that government performance is related to citizens' trust in public servants under the performance-trust hypothesis. It has also been found that citizen trust is lower in countries with a high tendency to corruption. Therefore, administrative reform efforts to improve public confidence must build capable public institutions and honesty and fairness (Trung et al., 2021). The national context dictates general attitudes about public officials, meaning that strategies to enhance public confidence must be tailored to address a particular country's specific challenges.

According to Nguyen et al. (2020) in the study "The determinants of citizens' satisfaction of e-government: An empirical study in Vietnam". The study aims to identify the factors affecting the satisfaction of e-government in Hanoi, Vietnam, and evaluate their impact. The authors analyzed six externally observed variables related to citizen satisfaction with e-government, including efficiency; faith; reliability; convenience; citizen support and transparency). Besides, it has four control variables (age, gender, education level, and frequency of Internet use) (Nguyen et al., 2020).

In the study "Impacts of cultural behaviour of civil servants on Citizens' Satisfaction: A Survey on licensing services of Indonesian local government agencies" by Ulung and Hyung-Jun (2021). The author believes that the low level of people's satisfaction with public services is one of the central problems in developing countries. The author used attitudes and behaviours of civil servants, including Strong ties to the community; Empathy attitude; Cooperative attitude; Obeying social norms; Keeping harmony; Honest and trustworthiness; Giving priority to duty as the factors affecting the quality of public services and the satisfaction of the people (Ulung and Hyung-Jun, 2021). The reform agenda to improve the quality of civil servants needs to consider cultural aspects, which are essential in determining how government services are perceived and evaluated (Zhang, 2012). Thus, the research on the service quality of civil servants; Citizens' satisfaction with the service quality of civil servants is rich and diverse. Previous studies have mentioned theory and practical experience on the service quality of civil servants; Citizens' satisfaction with them has become common in the world (Miao et al., 2018). These studies are essential for applying to the research model of citizen satisfaction with the service quality of Khmer civil servants in the Mekong Delta, Vietnam.

Hypotheses

Based on inheriting the SERVPERF service quality measurement model. We propose a model of Citizens' satisfaction with the service quality of Khmer civil servants in the Mekong Delta, Vietnam. It is shown in Figure 1.

Based on research theories, the following hypotheses have been proposed.

Hypothesis (H1): Citizens' satisfaction with the service quality of Khmer civil servants includes what factors?

Hypothesis (H2): What factors affect the service quality of Khmer civil servants that can affect citizen satisfaction?

H2.1: Factor Competency, professional qualifications, and profession affect the service quality of Khmer civil servants and can affect citizen satisfaction.

H2.2: Factor Sense of responsibility and coordination in performing tasks affects the service quality of Khmer civil servants and can affect citizen satisfaction.

H2.3: Factor Ethical qualities and working style affect the service quality of Khmer civil servants and can affect citizen satisfaction.

H2.4: Factor Sense of organization and discipline affects the service quality of Khmer civil servants and can affect citizen satisfaction.

H2.5: Factor Citizen service attitude affects the service quality of Khmer civil servants and can affect citizen satisfaction.

H2.6: Factor Progress and task performance results affect Khmer civil servants' service quality and can affect citizen satisfaction.

Research structure

Based on a theoretical framework combined with a practical survey on citizen satisfaction with the service quality of Khmer civil servants in the Mekong Delta, Vietnam. The initial study hypothesized that there are six factors affecting the satisfaction of citizens on service quality of Khmer civil servants in the Mekong Delta, Vietnam, including (1) Competency, professional qualifications, profession; (2) Sense of responsibility and coordination in performing tasks; (3) Ethical qualities, working style; (4) Sense of organization and discipline; (5) Citizen service attitude; (6) Progress and results of task performance. It is shown in Figure 1.

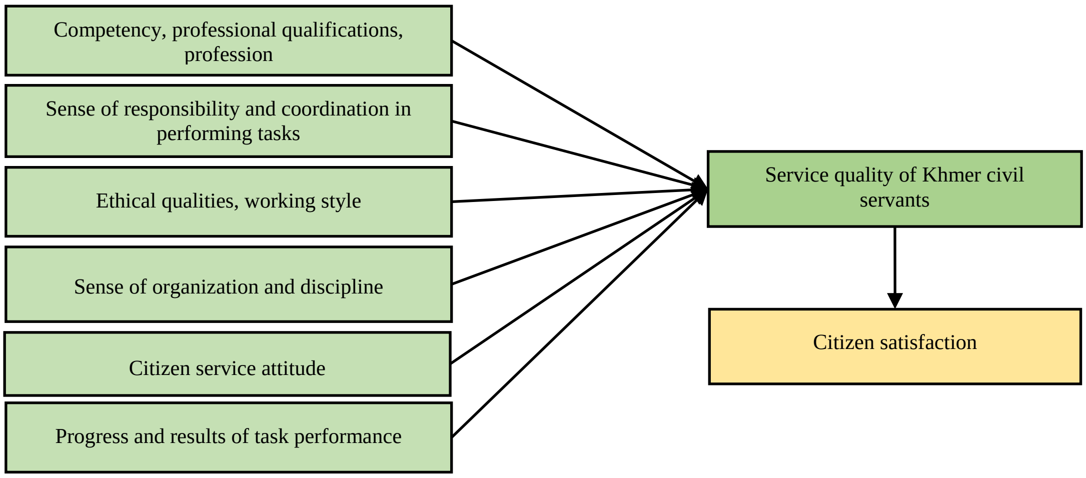


Figure 1. Research structure (Source: Authors, 2023)

Observable variables of factors in the research structure of citizen satisfaction about the service quality of Khmer civil servants in the Mekong Delta, Vietnam. It is shown in Table 1.

Table 1. Observed variables in research structure (Source: Authors compiled from evaluation studies, 2023)

Factors in the research structure	Encode	Observed variables
Competency, professional qualifications, profession	CPQP	(1) good communication ability; (2) knowledge; (3) professional problem-solving skills; (4) taking responsibility for the work; (5) learning to improve qualifications.
Sense of responsibility and coordination in performing tasks	SRCP	(1) citizens easily connect with civil servants; (2) civil servants handle work flexibly and timely; (3) citizens' questions are satisfactorily resolved by civil servants; (4) civil servants understand the requirements of citizens; (5) relationships with colleagues.
Ethical qualities, working style	EQWS	(1) civil servants who have culture and role models; (2) friendly to everyone's community; (3) elegant and careful working style; (4) creativity, improving the working environment.
Sense of organization and discipline	SODI	(1) obey the law; (2) comply with the regulations of the agency where the civil servant is working; (3) comply with the discipline of working time; (4) perform assigned duties and tasks.
Citizen service attitude	CSAT	(1) be polite when dealing with the citizens; (2) be friendly when answering the citizen's questions; (3) clear instructions by regulations; (4) do not cause harassment or trouble to the citizens.
Progress and results of task performance	PRTP	(1) guaranteed work progress; (2) work completed on time; (3) the quality of each work is good; (4) the quality of performing assigned tasks.
Service quality of Khmer civil servants	SQCS	(1) working style, public service ethics; (2) qualifications, capacity, and working skills; (3) attitude, responsibility, and work results.
Citizen satisfaction	CISA	(1) satisfied with the service quality of civil servants; (2) satisfied with the service style; (3) satisfied when contacts; (4) highly appreciated for civil servants.

METHODOLOGY

To detect and evaluate the factors affecting citizen satisfaction with the service quality of Khmer civil servants in the Mekong Delta, Vietnam. We have built the research structure on the theoretical framework combined with the literature study. The methods used include descriptive statistics, exploratory factors, and regression analysis to test the research model. The steps of the research method are shown in Figure 2.

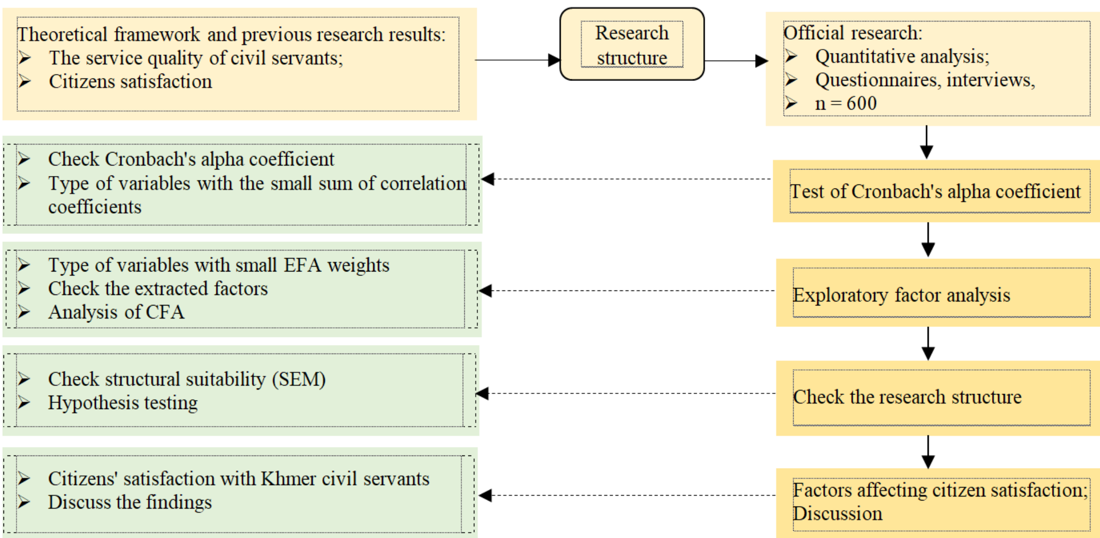


Figure 2. Flowchart of research methodology steps (Source: Authors, 2023)

Research area

In Vietnam, the Khmer are an indigenous people with a long history; they live mainly in the South of Vietnam. According to the 2019 Population and Housing Census, Khmer people in Vietnam have a population of 1,319,562 people; Khmer people live mainly in the Mekong Delta.

According to the principle of random selection, the study sample was taken from 8 localities in the Mekong Delta, including Soc Trang, Hau Giang, Bac Lieu, Can Tho, An Giang, Tra Vinh, Ca Mau, and Kien Giang. The study area is shown in Figure 3.

Research data analysis

Based on preliminary discussion results, a questionnaire was developed on citizens' satisfaction with the service quality of Khmer civil servants in the Mekong Delta, Vietnam. Data collection took place from October 2022 to March 2023. The survey questionnaire has 39 Likert items, including demographic questions with information about the survey area, gender, occupation, age, education level, number of meetings to work with civil servants, and eight scales of citizen satisfaction on service quality of Khmer civil servants in the Mekong Delta, Vietnam.

The Likert scale is used with a range of values from 1 to 5 to measure the perception of survey subjects (1) disagree entirely, (2) disagree, (3) neutral, (4) agree, (5) agree entirely. Respondents answered directly on the questionnaire. The questionnaire was distributed to 600 citizens in the Mekong Delta, Vietnam. A total of 596 valid responses were collected, as shown in Table 2.

Responses from the survey were coded and analyzed using SPSS software version 20 and AMOS version 24. Research on citizen satisfaction with the service quality of Khmer civil servants in the Mekong Delta Long, Vietnam, with steps included in assessing the scale's reliability. Exploratory factor analysis (EFA). Hypothesis testing by the linear structural model (SEM) on citizen satisfaction about the service quality of Khmer civil servants in Mekong Delta, Vietnam; and evaluate the influence of factors on service quality of Khmer civil servants; the level of citizen satisfaction about the service quality of Khmer civil servants in the Mekong Delta, Vietnam.

RESULTS

The results of testing the reliability of the scales

Cronbach's Alpha coefficient is used to check the close correlation of the scales. According to the researchers on the scale, it is possible to use Cronbach's Alpha coefficient > 0.6. The best scale is in the range of 0.8 to 1. In addition, variables with a total variable correlation coefficient < 0.3 will be lost and excluded from the research model (Nunnally and Bernstein, 1994). The data processing results in Table 3 have shown that all eight scales have high reliability. Cronbach's Alpha coefficient is > 0.8, and the total correlation coefficient is > 0.3 (Cronbach, 1951). They represent the appropriateness of the scale.

Exploratory factor analysis (EFA) for the scales

The KMO and Bartlett's test results in the KMO and Bartlett's test tables show that the KMO value = 0.851, proving that this discovery factor is suitable for the scale. Bartlett's test, value Sig.= 0.000 (< 0.05), proves that the

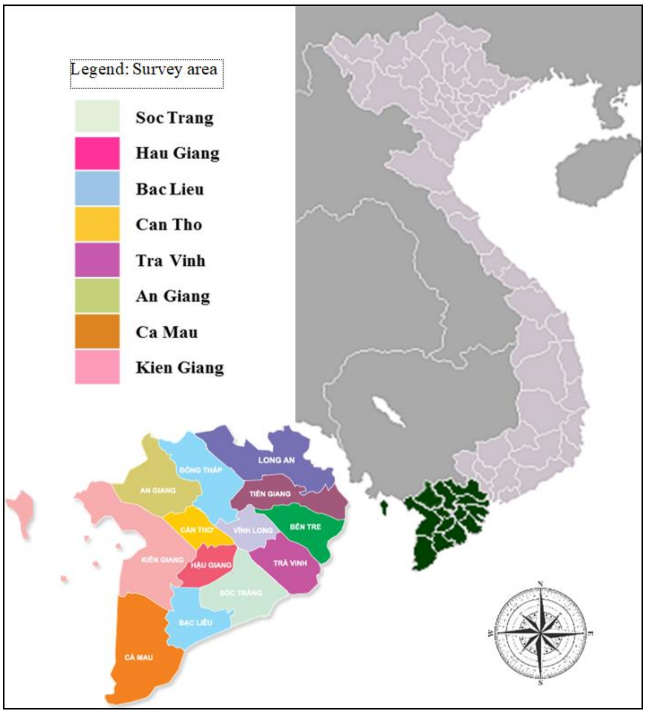


Figure 3. Survey area in the Mekong Delta, Vietnam, Ratio: 1/250000 (Source: Authors gathered, 2023)

Table 2. Demographic characteristics of the survey sample (Source: Authors summary of survey data processing results, 2023)

Characteristics and survey area	Number of citizens	Percentage
1. Survey area	**596**	**100%**
Soc Trang	83	13.9
Hau Giang	77	12.9
Bac Lieu	48	8.1
Can Tho	65	10.9
Tra Vinh	58	9.7
An Giang	115	19.3
Ca Mau	58	9.7
Kien Giang	92	15.4
2. The gender	**596**	**100%**
Male	306	51.3
Female	290	48.7
3. Age (years)	**596**	**100%**
<30	137	23.0
30-40	147	24.7
40-50	164	27.5
>50	148	24.8
4. Education	**596**	**100%**
Master or PhD	25	4.2
College or Bachelor	199	33.4
Professional diploma holders	198	33.2
Other	174	29.2
5. Occupation	**596**	**100%**
State employees	54	9.1
Company leadership	67	11.2
Researchers	32	5.4
Business staff	116	19.5
Technical staff	58	9.7
Teacher	115	19.3
Freelance labor	58	9.7
Other	96	16.1
6. Number of meetings to work with civil servants	**596**	**100%**
1	137	23.0
2-3	147	24.7
4-5	164	27.5
>5	148	24.8

variables are correlated in factors. Parameter Eigenvalues ≥ 1 are kept in the analytical model. The analysis results showed that Eigenvalue = 1,002 (≥ 1) and eight factors were extracted with the best meaning of summarizing information. The sum of squares of the cumulative factor loading coefficient (Cumulative) is 77.933% (≥ 50%), showing that the EFA model is appropriate (Hair et al., 2010). Therefore, all eight factors are kept in the research model, shown in Table 4.

Table 3. Results of testing scales (Source: Authors summary of survey data processing results, 2023)

Scales of measurement	**Encode**	**No. of items**	**Cronbach's Alpha**	**Corrected Item-Total Correlation range**
Competency, professional qualifications, profession	CPQP	5	.886	.687 - .821
Sense of responsibility and coordination in performing tasks	SRCP	5	.875	.659 - .736
Ethical qualities, working style	EQWS	4	.857	.684 - .720
Sense of organization and discipline	SODI	4	.920	.764 - .861
Citizen service attitude	CSAT	4	.843	.590 - .812
Progress and results of task performance	PRTP	4	.928	.805 - .876
Service quality of Khmer civil servants	SQCS	3	.968	.914 - .947
Citizen satisfaction	CISA	4	.982	.949 - .962

The results of the rotation matrix in Table 4 show that 33 observed variables are classified into eight factors, all observed variables have Factor Loading coefficients greater than 0.5, and there are no terrible variables (Doll et al., 1994). Therefore, all eight factors are kept in the research model.

Table 4. Rotated component matrix
(Source: Authors summary of survey data processing results, 2023)

	Component							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
CISA3	.970							
CISA1	.960							
CISA4	.956							
CISA2	.951							
CPQP5		.869						
CPQP3		.815						
CPQP2		.773						
CPQP4		.765						
CPQP1		.765						
SRCP4			.826					
SRCP3			.819					
SRCP5			.819					
SRCP1			.792					
SRCP2			.758					
PRTP4				.924				
PRTP2				.898				
PRTP3				.896				
PRTP1				.869				
SODI3					.905			
SODI4					.894			
SODI1					.851			
SODI2					.836			
EQWS3						.835		
EQWS4						.826		
EQWS2						.808		
EQWS1						.794		
CSAT4							.885	
CSAT2							.819	
CSAT1							.767	
CSAT3							.738	
SQCS2								.793
SQCS1								.791
SQCS3								.749

Confirmatory factor analysis in the research model

Confirmatory factor analysis (CFA) is a statistical technique of linear structural modelling (SEM). Confirmatory factor analysis was used to check the scales and the appropriateness of the research structure. Confirmatory factor analysis results are evaluated through the following criteria: reliability, convergence, and distinction. We tested Composite Reliability, Convergence, and Discrimination. It is shown in Table 5. Convergent validity tests include Composite Reliability and Average Variance Extracted. The test results show that the Composite Reliability (CR) > 0.7 means that the reliability of the scales is guaranteed; All Average Variances Extracted Average Variance Extracted (AVE) ≥ 0.5. Thus, both indexes show Guaranteed Convergence. The Discriminant validity test includes Maximum Shared Variance (MSV); The square root of the mean variance is extracted from the Square Root of AVE (SQRTAVE). The test results in Table 5 show that all Maximum Shared Variance (MSV) < Average Variance Extracted (AVE).

In addition, Discriminant Validity is shown in the Square Root of AVE (SQRTAVE) > Inter-Construct Correlations. Thus, Discriminant Validity is guaranteed (Baumgartner and Homburg, 1996). Therefore, the test results for convergence and discriminant validity are shown in Tables 5, showing the combined reliability; convergent; discriminant validity was guaranteed at all scales.

Table 5. Results of tests reliability and convergence (Source: Authors summary of survey data processing results, 2023)

Factor construct	CR	AVE	MSV	MaxR(H)	CISA	CPQP	SRCP	PRTP	SODI	EQWS	CSAT	SQCS
CISA	0.983	0.934	0.084	0.983	0.967							
CPQP	0.888	0.616	0.244	0.905	0.168	0.785						
SRCP	0.877	0.587	0.097	0.879	0.122	0.294	0.766					
PRTP	0.926	0.760	0.076	0.951	0.222	-0.022	-0.060	0.872				
SODI	0.921	0.746	0.160	0.927	0.096	0.343	0.243	-0.040	0.864			
EQWS	0.857	0.601	0.235	0.860	0.129	0.246	0.180	0.079	0.178	0.775		
CSAT	0.851	0.594	0.182	0.912	0.057	0.331	0.132	0.060	0.146	0.298	0.771	
SQCS	0.969	0.912	0.244	0.973	0.289	0.494	0.311	0.276	0.400	0.485	0.426	0.955

Result test of the structural model

To check the suitability of the research structure, the results of analysis of the linear structural model (SEM) in Figure

2 shows that it has Chi-square = 2.188; CFI = .968; GFI = .909; RMSEA = .045; TLI = .963; PCLOSE = .991, the coefficients just shown are acceptable (Doll et al., 1994). The linear structural model analysis (SEM) results in Figure 2 show the agreement in the studied structure. The results of testing the linear structure of the model citizen satisfaction on the service quality of Khmer civil servants in the Mekong Delta, Vietnam, are shown in Figures 4 and 7. The data show the Sig values of the scales CPQP = .000 (<.05), SRCP = .000 (<.05), EQWS = .000 (< .05), SODI = .000 (< .05), CSAT = .000 (< .05), PRTP = .000 (< .05), SQCS = .000 (< .05). The Sig values it has been shown that there is an impact relationship between the independent variable and the dependent variable (Hu and Bentler, 1999).

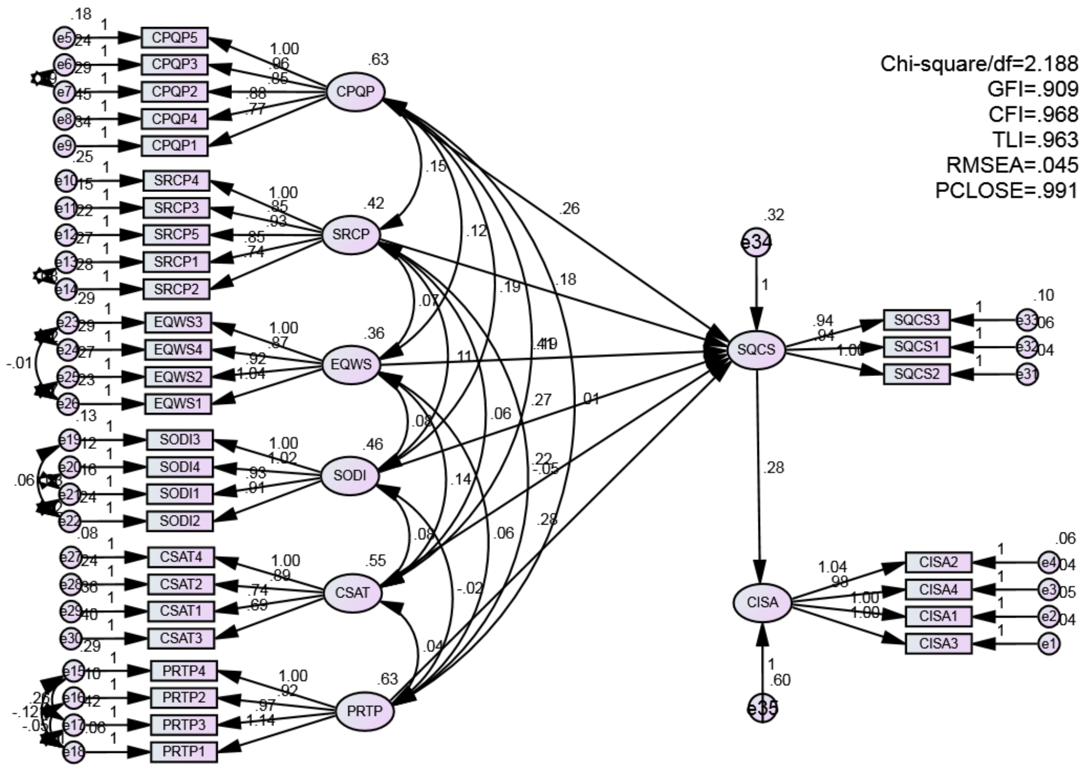


Figure 4. Results of test the structure of citizen satisfaction about the service quality of Khmer civil servants (Source: Authors summary of survey data processing results, 2023)

Results of standardized regression coefficients Table 7, the larger the normalized regression coefficients, the stronger the impact of the corresponding independent variable on the dependent variable (SQCS). Factors affecting the service quality of Khmer civil servants include EQWS = .283, PRTP = .265, CPQP = .256, SODI = .214, CSAT = .193, SRCP = .124.

Table 7. Results of testing the relationship between research concepts (Source: Authors summary of survey data processing results, 2023)

The relationship between direct effects	**Estimates**	**Sig**	**Standardized estimates**
SQCS <----- CPQP	.270	.000	.256
SQCS <----- SRCP	.166	.000	.124
SQCS <----- EQWS	.368	.000	.283
SQCS <----- SODI	.263	.000	.214
SQCS <----- CSAT	.222	.000	.193
SQCS <----- PRTP	.246	.000	.265
CISA <------ SQCS	.276	.000	.291

The results of testing the linear structure of the research model have R2 (Adjusted R Square) of SQCS = .544, which means that the regression model is suitable. The explanatory regression model is that the independent variables affect 54.4% of the model's dependent variable (SQCS) variation. In addition, R2 (Adjusted R Square) of CISA = .084 explains that the independent variables affect 8.8% of the dependent variable (CISA) variation in the model.

Table 8. The relationship of indirect effects by the intermediate observed variable (Source: Authors summary of survey data processing results, 2023)

The relationship of indirect effects	**Estimates**	**Sig**	**Standardized estimates**
CISA <------ SQCS <------ CPQP	.074	.002	.074
CISA <------ SQCS <------ SRCP	.046	.003	.036
CISA <------ SQCS <------ EQWS	.101	.001	.082
CISA <------ SQCS <------ SODI	.072	.002	.062
CISA <------ SQCS <------ CSAT	.061	.002	.056
CISA <------ SQCS <------ PRTP	.068	.003	.077

In the relationship of indirect effects by the intermediate observed variable Table 8, the independent variables affecting the dependent variable (CISA) through the intermediate variable (SQCS) have the value Sig EQWS = .001, PRTP = .003, CPQP = .002, SODI = .002, CSAT = .002, SRCP = .003. This shows significant impact relations between the independent variables affecting the dependent variable (CISA) and the intermediate variable (SQCS).

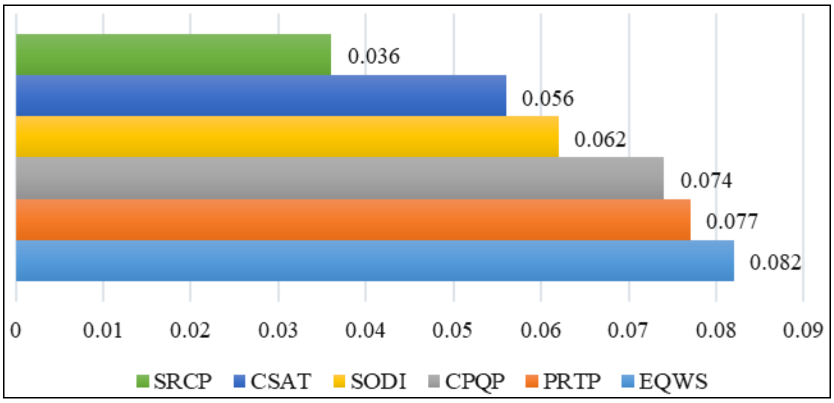


Figure 5. Citizen Satisfaction with Khmer Civil Servants (Source: Authors analyzed data from the survey, 2023)

Results of standardized regression coefficients Table 8, the larger the normalized regression coefficients, the stronger the impact of the corresponding independent variable on the dependent variable (CISA). Factors of indirectly affects citizen satisfaction, include EQWS = .082, PRTP = .077, CPQP = .074, SODI = .062, CSAT = .056, SRCP = .036. It is clearly shown in Figure 5.

DISCUSSION OF THE FINDINGS

Checking Hypothesis 1

Research results show that the scales are reliable and valid for model evaluation. The findings of the study show that there are six factors affecting the satisfaction of citizens about the service quality of Khmer civil servants in the Mekong Delta, Vietnam, including Competency, professional qualifications, profession; A sense of responsibility and coordination in performing tasks; Ethical qualities, working style; Sense of organization and discipline; Citizen service attitude; Progress and results of task performance.

Checking Hypothesis 2

Competency, professional qualifications, and profession directly affect the service quality of Khmer civil servants .256, and the indirect influence on citizen satisfaction is .074 by the service quality of Khmer civil servants. The Competency, professional qualifications, and working style of civil servants significantly influence citizens' satisfaction with the service quality of civil servants. Therefore, public administration agencies should develop short-term and long-term training plans for Khmer civil servants. The training can be done at the agency so that civil servants can update new legal documents, acquire knowledge, and foster weak skills (Hai, 2022). Organizing learning experiences in localities with improved models or for civil servants to learn practically is advisable.

Sense of responsibility and coordination directly affect the service quality of Khmer civil servants .124, and the indirect influence on citizen satisfaction is .036 by the service quality of Khmer civil servants. Civil servants' sense of responsibility and coordination is essential; it affects people's satisfaction. Raising the sense of responsibility of civil servants and the smooth coordination of the civil service apparatus will well handle administrative procedures for citizens. We should improve the strict requirements of the civil service process, and the civil servant's behaviour element should be enhanced (Ciobanu and Androniceanu, 2015). Therefore, public administrative agencies should have solutions to improve the service level of civil servants. In completing the assignment of civil servant management in the direction of clearly defining the tasks and powers of each position and job title and renovating the working methods of the coordinating agencies.

Moral qualities and working style directly affect the service quality of Khmer civil servants .283, and the indirect influence on citizen satisfaction is .082 by the service quality of Khmer civil servants. The ethical qualities and working style of civil servants should be regularly trained. Public administration agencies should pay attention to well-implementing solutions to organize training in civil service ethics for civil servants (Rumambi et al., 2022). In addition, local authorities should develop a system to collect comments from the people. It is advisable to improve administrative discipline and discipline in association with improving public service ethics and the professional ethics of civil servants (Bouzas-Lorenzo and Mahou-Lago, 2015). We should be open and transparent in state agencies' activities and public officials' accountability and improve the mechanism of citizen supervision over the activities of public servants (Alkraiji and Ameen, 2022).

Sense of organization and discipline directly affect the service quality of Khmer civil servants .214, and the indirect influence on citizen satisfaction is .062 by the service quality of Khmer civil servants. The sense of organization and discipline are characteristics of civil servants, expressed through the civil servant's attitude toward serving the citizens. We should monitor the activities of civil servants when they perform their official duties. Administrative agencies should develop a schedule to receive citizens and deal with the issues they care about (Nguyen et al., 2023). It is possible to set up a hotline to connect with agency leaders for citizens to propose complex issues that have yet to be resolved by civil servants or that have not been satisfactorily resolved by subordinates for citizens (Saputra and Fajri, 2020).

Citizen service attitude directly affects the service quality of Khmer civil servants .193, and the indirect influence on citizen satisfaction is .056 by the service quality of Khmer civil servants. A civil servant's attitude to serving citizens is the spirit, action and behaviour of a public employee working with citizens. Citizen service attitude requires that public officials should be respectful, polite, and enthusiastic in answering questions and assisting in meeting citizens' requests (Hai et al., 2023). Therefore, civil servants should improve their communication skills (Martin, 2015). Public administration agencies should organize training courses to improve communication skills for civil servants, such as persuasion skills, situational judgment skills, and decision-making on management procedures for citizens (Alkraiji, 2021). Civil servants should be trained in knowledge and skills to deal with problems. The service attitude of civil servants should be improved firstly in terms of awareness (Lin and Doong, 2018).

Progress and results of task performance directly affect the service quality of Khmer civil servants .265, and the indirect influence on citizen satisfaction is .077 by the service quality of Khmer civil servants. Progress and results of the performance of duties by civil servants, state administrative agencies must ensure that they give citizens appropriate instructions, helping citizens solve problems related to administrative procedures. Public servants must be held accountable to citizens if public officials wrongly advise them on administrative procedures (Christensen and Lægreid, 2020). Currently, civil servants' service level is clearly and fully specified in the law on public service obligations of public servants (Awang et al., 2020). However, civil servants should work harder to achieve the required results or work in moderation, which means they have not completed their duties and have low service levels.

CONCLUSION AND RECOMMENDATIONS

The hypothetical research model has been tested through the scales showing the suitability of the factors. The research results have verified the model of citizen satisfaction with the service quality of Khmer civil servants in the Mekong Delta, Vietnam. There are six factors affecting the service quality of Khmer civil servants, including (1) Competency, and professional qualifications, profession; (2) A sense of responsibility and coordination in performing tasks; (3) Ethical qualities and working style; (4) A sense of organization and discipline; (5) Citizen service attitude; (6) Progress and results of task performance. In addition, the service quality of Khmer civil servants influences citizen satisfaction in the Mekong Delta, Vietnam. Thus, the results achieved in the study satisfied the set objectives.

It is necessary to study the factors affecting citizens' satisfaction with the service quality of civil servants. It will help state management agencies promote the positive aspects and limit the negative factors to improve the quality of public administrative services. This study aims to build and test a model showing the relationship between influencing factors and people's satisfaction using public administrative services. The proposed discussion helps administrators understand the relationship between independent factors with the service quality of civil servants and citizens' satisfaction with civil servants.

The study only focuses on a few typical localities, the sample size is relatively small, and several other factors may affect the service quality of civil servants and citizens' satisfaction. From these limitations, the research direction for future studies should expand the scope of comparative research between localities. Expand the research sample size and consider adding new factors to the research model to improve the explanatory power of the current model.

The quality of public service is an essential factor for the success of public services. The quality of civil servants' services contributes to improving people's trust and satisfaction in public services and, at the same time, helps improve public service efficiency and reliability. This topic is of interest to countries around the world to improve and enhance the quality of public administration. People's satisfaction with the quality of public servants' services is essential in ensuring the transparency and quality of public services. The findings in the study suggest that the government should pay attention to the factors to improve the service quality of civil servants. Regular assessment and improvement of public service issues will help to increase public trust and confidence in government and administrative agencies.

Author Contributions: Conceptualization, Tuan, P.V., Le, V.T.P., Ly, N.K., Hai, N.C., and Ngan, N.T.K.; methodology, Tuan, P.V., Le, V.T.P., and Hai, N.C.; software, Hai, N.C.; validation, Ly, N.K., and Tuan, P.V.; formal analysis, Hai, N.C., and Ngan, N.T.K.; investigation, Hai, N.C., and Tuan, P.V.; data curation, Hai, N.C.; writing - original draft preparation, Tuan, P.V., Le, V.T.P., Ly, N.K., Hai, N.C., and Ngan, N.T.K.; writing - review and editing, Hai, N.C., and Le, V.T.P.; visualization, Tuan, P.V.; supervision, Hai, N.C.; project administration, Tuan, P.V., Le, V.T.P., Ly, N.K., Hai, N.C. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Arménio, R., Carla, M., Susana, L., Filipa, S., & Miguel, P.C. (2010). Psychological capital and performance of Portuguese civil servants: Exploring neutralizers in the context of an appraisal system. *The International Journal of Human Resource Management, 21*(9), 1531-1552. https://doi.org/10.1080/09585192.2010.488459

Alkraiji, A.I. (2021). An examination of citizen satisfaction with mandatory e-government services: Comparison of two information systems success models. *Transforming Government: People, Process and Policy, 15*(1), 36-58. https://doi.org/10.1108/TG-01-2020-0015

Alkraiji, A., & Ameen, N. (2022). The impact of service quality, trust and satisfaction on young citizen loyalty towards government e-services. *Information Technology & People, 35*(4), 1239-1270. https://doi.org/10.1108/ITP-04-2020-0229

Awang, A.H., Haron, M., Zainuddin Rela, I., & Saad, S. (2020). Formation of civil servants' creativity through transformative leadership. *Journal of Management Development, 39*(4), 499-515. https://doi.org/10.1108/JMD-04-2019-0142

Baumgartner, H., & Homburg, C. (1996). Applications of structural equation modeling in marketing and consumer research: A review. *International Journal of Research in Marketing, 13*(2), 139-161. https://doi.org/10.1016/0167-8116(95)00038-0

Blane, D.L., & Daan, P. (2009). Determining citizen satisfaction with local public education in Indonesia: the significance of actual service quality and governance conditions. *Growth and Change: A Journal of Urban and Regional Policy, 40*(1), 85-115. https://doi.org/10.1111/j.1468-2257.2008.00462.x

Bouzas-Lorenzo, R., & Mahou-Lago, X.M. (2015). An evaluation of citizen service web portals in Latin America. *Academia Revista Latinoamericana de Administración, 28*(1), 99-114. https://doi.org/10.1108/ARLA-08-2013-0118

Boyer, E.J., & Van Slyke, D.M. (2019). Citizen attitudes towards public–private partnerships. *The American Review of Public Administration*, *49*(3), 259-274. https://doi.org/10.1177/0275074018769072

Bui, N.V. (2023). The influence of servant leadership on job performance through innovative work behavior: does public service motivation matter?, *Asia Pacific Journal of Public Administration, 45*(3), 295-315. https://doi.org/10.1080/23276665.2022.2070517

Bui, N.V., Ha, N.K.G., & Doan, V.H. (2023). How transformational leadership influences employees' job-related outcomes through public service motivation: Does power distance orientation matter? *Cogent Business & Management, 10*(1). https://doi.org/10.1080/23311975.2023.2176281

Chen, P.S., Chang, T.C., & Lin, Y.L. (2018). Customer satisfaction and quality of service towards public servants in a governmental education training center in taiwan. In: Barolli, L., Enokido, T. (eds) *Innovative mobile and internet services in ubiquitous computing*. IMIS 2017. Advances in Intelligent Systems and Computing, 612. Springer, Cham. https://doi.org/10.1007/978-3-319-61542-4_85

Christensen, T., & Lægreid, P. (2020). Coordination quality in central government - the case of Norway. *Public Organization Review, 20*(1), 145-162. https://doi.org/10.1007/s11115-018-00434-0

Chan, F.K.Y., Thong, J.Y.L., Brown, S.A., & Venkatesh, V. (2021). Service design and citizen satisfaction with e-government services: A multidimensional perspective. *Public Administration Review*, *81*, 874-894. https://doi.org/10.1111/puar.13308

Chung-Pin, L., Mei-Jen, H., & Don-Yun, C. (2022). Factors affecting citizen satisfaction: examining from the perspective of the expectancy disconfirmation theory and individual differences. *Asian Journal of Political Science, 30*(1), 35-60. https://doi.org/ 10.1080/02185377.2022.2047081

Ciobanu, A., & Androniceanu, A. (2015). Civil servants motivation and work performance in Romanian public institutions. *Procedia Economics and Finance, 30*, 164-174. https://doi.org/10.1016/S2212-5671(15)01280-0

Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika 16*, 297-334. https://doi.org/10.1007/BF02310555

Cronin, J.J., & Taylor, S.A. (1992). Measuring service quality: A reexamination and extension. *Journal of Marketing, 56*(3), 55-68. https://doi.org/10.2307/1252296

David, J.H., Nurgul, R.A., Andrew, L.M., & Chris, A.S (2016). Citizen trust in civil servants: A cross-national examination. *International Journal of Public Administration*, *39*(14), 1203-1214. https://doi.org/10.1080/01900692.2016.1156696

Doll, W.J., Xia, W., & Torkzadeh, G. (1994). A confirmatory factor analysis of the end-usercomputing satisfaction instrument. *MIS Quarterly, 18*(4), 453-461. https://doi.org/10.2307/249524

Fan, L., Feng, C., Robin, M., & Huang, X. (2022). Transformational leadership and service performance for civil servants of public organizations in China: a two-path mediating role of trust. *Chinese Management Studies.* Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/CMS-02-2021-0050

Falk, E., Sylvia, V., & Bastian, S. (2022). Role models in the senior civil service: how tasks frame the identification of senior bureaucrats with active and reactive roles. *International Journal of Public Administration, 45*(14), 991-1002. https://doi.org/10.1080/01900692.2021.1945623

Gregg, G.V.R. (2015). Service quality, administrative process, and citizens' evaluation of local government in the US. *Public Management Review, (17)*3, 425-442. https://doi.org/10.1080/14719037.2013.841456

Giannoccaro, R., Costantino, N., Ludovico, A.D., & Roberto, P. (2008). Measuring citizen satisfaction with aspects of public services from a local authority and determining their importance: A case study. *Public Organization Review*, *8*, 1-15. https://doi.org/10.1007/s11115-007-0044-1

Gutiérrez, R.P., Vázquez, B.J., Vaughan, R., & Edwards, J. (2009). Quality dimensions in the public sector: Municipal services and citizen's perception. *International Review on Public and Nonprofit Marketing, 6*, 75-90. https://doi.org/10.1007/s12208-009-0030-0

Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). *Multivariate data analysis*. 7th Edition, Pearson, New York.

Hai, N.C. (2022). Factors affecting student satisfaction with higher education service quality in Vietnam. *European Journal of Educational Research, 11*(1), 339-351. https://doi.org/10.12973/eu-jer.11.1.339

Hai, N.C., & Ngan, N.T.K. (2022). Factors affecting community participation in Khmer festival tourism development in Mekong Delta, Vietnam. *GeoJournal of Tourism and Geosites, 44*(4), 1482-1490. https://doi.org/10.30892/gtg.44436-968

Halimah, A.M., Ahmad, M.M., & William, S.H. (2023). Citizen perceptions and public servant accountability of local government service delivery in Malaysia. *International Journal of Public Administration*, *46*(12), 823-832. https://doi.org/10.1080/01900692.2022.2025829

Hai, N.C., Le, V.T.P., Son, N.T., & Tuan, P.V. (2023). Evaluation of citizens' satisfaction with the quality of public administrative services in the Mekong Delta, Vietnam. *GeoJournal of Tourism and Geosites*, *48*(2spl), 751–762. https://doi.org/10.30892/gtg.482spl09-1075

Hai, N.C., Tuan, P.V., Le, V. T.P., & Tan, T.H. (2023). Factors affecting the policy of training and fostering civil servants of Khmer ethnic minorities in the Mekong Delta, Vietnam. *GeoJournal of Tourism and Geosites, 46*(1), 163-173. https://doi.org/10.30892/gtg.46118-1012

Hu, L.T., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55. http://dx.doi.org/10.1080/10705519909540118

Ju, J., Meng, Q., Sun, F., Liu, L., & Singh, S. (2023). Citizen preferences and government chatbot social characteristics: Evidence from a discrete choice experiment. *Government Information Quarterly*. https://doi.org/10.1016/j.giq.2022.101785

Khanal, R., Gupta, A.K., & Bhattarai, P.C. (2022). Civil servants' integrity in public sector: The case of Nepal. *Heliyon*, *8*(12). https://doi.org/10.1016/j.heliyon.2022.e12632

Kotler, P., & Keller, L.K. (2009). *A Framework for Marketing Management*. Fourth Edition. Published by Prentice Hall.

Lei, T., & Bo, W. (2023). Demystifying the components of public service motivation among young public servants in China: a qualitative inquiry. *Asia Pacific Journal of Public Administration, 45*(3), 248-273, https://doi.org/10.1080/23276665.2022.2131587

Lin, Y., & Doong, H.S. (2018). The effects of co-creation on citizens' intentions to accept virtual civil servants. In: Kő, A., Francesconi, E. (eds) *Electronic government and the information systems perspective*. EGOVIS 2018. Lecture Notes in Computer Science, 11032. Springer, Cham. https://doi.org/10.1007/978-3-319-98349-3_2

Ma, L. (2017). Performance management and citizen satisfaction with the government: Evidence from Chinese municipalities. *Public Administration, 95*(1), 39-59. https://doi.org/10.1111/padm.12275

Martin, B. (2015). Performance information and citizen service attitudes: do cost information and service use affect the relationship?. *International Public Management Journal, 18*(2), 228-245. https://doi.org/10.1080/10967494.2015.1022676

Miao, Q., Newman, A., Schwarz, G., & Cooper, B. (2018). How leadership and public service motivation enhance innovative behavior. *Public Administration Review, 78*, 71-81. https://doi.org/10.1111/puar.12839

Neo, S., Grimmelikhuijsen, S., & Tummers, L. (2022). Core values for ideal civil servants: service-oriented, responsive and dedicated. *Public Administration Review*. https://doi.org/10.1111/puar.13583

Nguyen, H.H. (2019). The study on people's satisfaction towards public services of Vietnam: evidence of Tra Vinh provincial center of public administrative services. *The Journal of Asian Finance, Economics and Business, 6*(2), 183-187. https://doi.org/10.13106 /JAFEB.2019.VOL6.NO2.183

Nguyen, T.T., Phan, D.M., Le, A.H., & Nguyen, L.T.N. (2020). The determinants of citizens' satisfaction of e-government: An empirical study in Vietnam. *The Journal of Asian Finance, Economics and Business, 7*(8), 519-531. https://doi.org/10.13106/JAFEB.2020.VOL7.NO8.519

Nguyen, C.H. (2022). Factors affecting the development of cultural tourism in the Mekong Delta, Vietnam. *The Journal of Asian Finance, Economics and Business, 9*(3), 123-33. https://doi.org/10.13106/JAFEB.2022.VOL9.NO3.0123

Nguyen, T.P., To, C.M., Nguyen, H.N.T., & Tran, L.K.T. (2023). An evaluation on the exploitation level of tourist attractions, case study in An Giang province, Vietnam. *GeoJournal of Tourism and Geosites, 46*(1), 78–87. https://doi.org/10.30892/gtg.46109-1003

Nunnally, J.C., & Bernstein, I.H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.

Nurul, L.M.K., Christine, R., & Nur, H.A.R. (2022). Strengthening civil servants' entrepreneurial behaviour: an integrated framework. *International Journal of Public Administration, 45*(14), 1014-1026. https://doi.org/10.1080/01900692.2021.1947317

Obedgiu, V., Nkurunziza, G., Simiyu, G., & Lubogoyi, B. (2020). An investigation of key predictors of organizational citizenship behavior of civil servants: Empirical evidence from Uganda. *International Journal of Organization Theory & Behavior, 23*(2), 101-119. https://doi.org/10.1108/IJOTB-03-2019-0041

Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1998). Alternative scales for measuring service quality: a comparative assessment based on psychometric and diagnostic criteria. In: Bruhn M., Meffert H. (eds) *Handbuch Dienstleistungsmanagement*. Gabler Verlag, Wiesbaden. https://doi.org/10.1007/978-3-322-96503-5_19

Rumambi, S., Masengi, E.E., & Bogar, W. (2022). The effect of organizational commitment and work culture on civil servants public service performance in tomohon's district office. *Journal of Sosial Science, 3*(2), 415-422. https://doi.org/10.46799/jss.v3i2.320

Saputra, B., & Fajri, H. (2020). The role of performance as variable moderating of the influence of public services motivation and competence on job satisfaction of civil servants. *In International Conference on Public Administration, Policy and Governance* (ICPAPG 2019) (pp. 61-70). Atlantis Press. https://doi.org/10.2991/aebmr.k.200305.181

Son, N.T., Nguyen, Q.N., & Hoang, T.H.L. (2023). Factors influencing tourist satisfaction with agritourism in the Mekong Delta, Vietnam. *GeoJournal of Tourism and Geosites, 49*(3), 998–1005. https://doi.org/10.30892/gtg.49315-1099

Sun, M., Chen, Z., & Yang, Q. (2021). Servant leadership and civil servants' service attitude: The role of basic needs satisfaction. *Social Behavior and Personality: an international journal, 49*(9), 1-9 .https://doi.org/10.2224/sbp.10678

Suzuki, K., & Demircioglu, M.A. (2021). Is impartiality enough? Government impartiality and citizens' perceptions of public service quality. *Governance,* 34(3), 727-764. https://doi.org/10.1111/gove.12527

Sun, H., Fu, L., & Yang, S. (2023). What contributes to the government-citizen knowledge sharing: Analysis of 293 cities in China. *Journal of Innovation & Knowledge, 8*(2). https://doi.org/10.1016/j.jik.2023.100362

To, C.M. (2023). Assessment of factors affecting spiritual cultural tourism An Giang province, Vietnam. *GeoJournal of Tourism and Geosites, 46*(1), 227-233. https://doi.org/10.30892/gtg.46125-1019

Tran, T.K.P., & Truong, T.T. (2021). Impact of servant leadership on public service motivation of civil servants: empirical evidence from Vietnam. *The Journal of Asian Finance, Economics and Business, 8*(4), 1057–1066. https://doi.org/10.13106/JAFEB.2021.VOL8.NO4.1057

Trung, N.S., Hai, D.H., Nga, V.T.Y., & Hanh, T.T. (2021). The working capacity of vietnamese local civil servants. In: Yang, XS., Sherratt, S., Dey, N., Joshi, A. (eds) *Proceedings of Fifth International Congress on Information and Communication Technology.* Advances in Intelligent Systems and Computing, 1184. Springer, Singapore. https://doi.org/10.1007/978-981-15-5859-7_16

Ulung. P., & Hyung-Jun, K. (2021). Impacts of cultural behavior of civil servants on citizens' satisfaction: A survey on licensing services of Indonesian local government agencies. *Journal of Public Affairs, 22*(4), 1-9. https://doi.org/10.1002/pa.2662.

Van de Walle, S. (2018). Explaining citizen satisfaction and dissatisfaction with public services. In: Ongaro, E., Van Thiel, S. (eds) *The palgrave handbook of public administration and management in Europe.* Palgrave Macmillan, London. https://doi.org/10.1057/978-1-137-55269-3_11

Vigoda-Gadot, E., Zalmanovitch, Y., & Belonogov, A. (2012). Public servants' trust in citizens: An extension of theory and an empirical examination with structural equation modeling (SEM). *Public Organization Review*, *12*(4), 383-399. https://doi.org/10.1007/s11115-012-0179-6

Wenene, M.T., Steen, T., & Rutgers, M.R. (2016). Civil servants' perspectives on the role of citizens in public service delivery in Uganda. *International Review of Administrative Sciences, 82*(1), 169–189. https://doi.org/10.1177/0020852315576704

Yuguo, L., & Hindy, L.S. (2018). Exploring the antecedents of municipal managers' attitudes towards citizen participation. *Public Management Review, 20*(9), 1287-1308. https://doi.org/10.1080/14719037.2017.1363903

Zhang, J. (2012). Performance evaluation of civil servants from the perspective of service-oriented government. In: Tan, H. (eds) *Technology for education and learning.* Advances in Intelligent Systems and Computing, 136. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-27711-5_88

Zhang, J., Chen, W., Petrovsky, N., & Walker, R.M. (2022). The expectancy-disconfirmation model and citizen satisfaction with public services: A meta-analysis and an agenda for best practice. *Public Administration Review, 82*(1), 147-159. https://doi.org/10.1111/puar.13368

Zeithaml, V.A., & Bitner, M.J. (2000). *Services marketing: integrating customer focus across the firm*. 2nd Edition, McGraw-Hill, Boston.

Article history: Received: 20.07.2023 Revised: 08.09.2023 Accepted: 10.10.2023 Available online: 14.11.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1330-1338
DOI 10.30892/gtg.50413-1131

THE DEVELOPMENT OF METAVERSE TECHNOLOGY TO RAISE UP THE STANDARD OF HEALTH TOURISM

Pisit POTJANAJARUWIT*
Suan Sunandha Rajabhat University, Business Administration,
Faculty of Management Science, Bangkok, Thailand, e-mail : pisit.po@ssru.ac.th

Citation: Potjanajaruwit, P. (2023). THE DEVELOPMENT OF METAVERSE TECHNOLOGY TO RAISE UP THE STANDARD OF HEALTH TOURISM. *GeoJournal of Tourism and Geosites*, 50(4), 1330–1338. https://doi.org/10.30892/gtg.50413-1131

Abstract: This research aims to: 1. Investigate the factors of Metaverse technology development for VR spa glasses and their impact on the evolution of Metaverse applications for marketing; 2. Examine how the development of Metaverse applications for marketing influences the promotion of health tourism grounded in Thailand's creative economy (BCG). This study employs a mixed-methods approach. It involves surveying 372 tourists who utilized spa and Thai massage beauty services using a questionnaire. Additionally, focus group discussions were conducted with entrepreneurs and executives instrumental in elevating the standards of medical tourism. The data were analyzed using multiple regression analysis. The findings indicate that the advancement of Metaverse technology for VR spa glasses, encompassing aspects like content, functionality, and design, has significantly influenced the development of Metaverse applications for holistic marketing. This includes sensory experience, sensational experience, thought experience, action experience, and associated experience, with a notable R2 value of 0.590. The study also revealed that the development of Metaverse applications for marketing, encompassing aspects such as sensory experience, cognitive experience, action-oriented experience, and connected experience perceptions, significantly influences the overall drive of health tourism based on the creative economy (BCG) in the country. This encompasses factors like environmental friendliness, fairness, safety, cleanliness, and convenience, with a notable R2 value of 0.509.

Key words: Metaverse Technology for VR Spa Glasses, Metaverse Application development for Marketing, Metaverse Application development for Marketing, Promoting health tourism based on the creative economy (BCG) in the country, Perception through sensory experiences

* * * * * *

INTRODUCTION

Under the 13th National Economic and Social Development Plan, Thailand is embarking on a transformation into a progressive society with a focus on a 'Sustainable Value Creation Economy'. The National Strategy on Tourism (2018-2037) highlights the 5th tourism destination, emphasizing Thailand's commitment to retaining its status as a world-class tourism destination. Comprehensive development of the tourism infrastructure is essential, with an emphasis on attracting quality tourists and diversifying tourism experiences to meet their needs. The strategy also prioritizes the promotion of tourism in areas with significant potential, all while cherishing and preserving the nation's unique traditions, culture, and Thai identity. In addition to emphasizing the value of natural resources and the environment, the set objectives are: (1) to increase the contribution of tourism to the country's GDP, (2) to boost tourism revenue in secondary cities, and (3) to enhance the overall tourism competitiveness, all aiming for a better Thailand.

This is in alignment with the national strategy to enhance competitiveness, as detailed in the National Economic and Social Development Plan No. 13 (Chatkaewnapanon and Lee, 2022). However, since the emergence of the COVID-19 pandemic in December 2019, global tourism has seen a significant downturn. Restrictions on international travel remain in place, leading to a marked decrease in foreign tourist arrivals to Thailand, the most significant in over a decade. While vaccinations have been introduced to combat COVID-19, they haven't effectively controlled the spread of the virus's mutated variants. Based on the preliminary data from the Ministry of Tourism and Sports regarding foreign tourist arrivals to Thailand in 2021 (from January to October), there were 6,692,775 tourists in 2020. However, this number dramatically decreased to only 106,117 tourists in 2021. This is a staggering 98 percent decline, marking the most significant drop ever noted, as mentioned in the Master Plan of the 5th National Strategy on Tourism (Niyom et al., 2022).

Consequently, entrepreneurs must adapt by leveraging digital technology to cater to the changing preferences of modern tourists. This adaptation is particularly essential for attracting high-quality tourists from regions such as China, the Middle East, and South Asia, who have substantial purchasing power. In line with the principles set by the National Higher Education, Science, Research, and Innovation Policy Council, a strategy has been put forth to rejuvenate Thai tourism in the post-COVID era. This approach seeks to turn the crisis into an opportunity by enhancing products and services related to medical tourism, beauty, and Thai traditional medicine. Through the integration of creativity, science, technology, and innovation, with a particular emphasis on Health & Wellness and Digital Transformation, the aim is to position Thailand as the leading 'World Health Tourism City'. This is because Thailand has been lauded for its public health system, compassionate care, and effective management of the COVID-19 spread (Wongmonta, 2021).

* Corresponding author

Tang et al. (2021); conducted research on the significance of VR technology in the spa industry in China. Their findings revealed that spa users rapidly recognize the benefits of VR from the initial check-in, through waiting rooms and treatment sessions, to check-out. These insights assist spa professionals, owners, and practitioners in making informed decisions to enhance spa facilities, ultimately improving service efficiency and providing a unique experience for guests. According to a forecast by the Boston Consulting Group (BCG), Thailand's tourism economy is projected to fully recover by 2024. This recovery is accompanied by intriguing Thai consumer trends that present fresh opportunities for reshaping the tourism sector. These trends include: 1. Crafting novel travel experiences tailored to the preferences of Gen Y and Gen Z, the emerging travel-savvy generations. 2. The rise of medical or health tourism, which is garnering interest from both Thai and international tourists. BCG anticipates that by 2027, medical tourism in Thailand will witness a growth of 13%. 3. Adapting to the modern marketing landscape, which is heavily influenced by social media and digital technology, both playing pivotal roles in shaping travel decisions. 4. Prioritizing technological advancements and environmental considerations. This encompasses the introduction of innovations like Metaverse and AR technologies, virtual meeting spaces, and an emphasis on eco-friendliness. Cleanliness and hygiene are also being spotlighted as crucial selling points. 5. The emergence of the 'Hotel+' concept, which goes beyond mere accommodation. This innovative approach integrates various services such as co-working spaces, health centers, and shopping hubs, offering a comprehensive tourism experience (Liu et al., 2018).

Given the aforementioned reasons, the researcher is motivated to utilize Metaverse technology to enhance the standards of health tourism, targeting high-quality tourists within the nation's creative economy framework. The primary objective of this research is to investigate the use of Metaverse technology for VR spa glasses and to comprehend the marketing tactics that drive the promotion of health tourism anchored in the creative economy. This study is in line with the Boston Consulting Group's (BCG) vision for the country: achieving competitiveness, sustainability, and future-readiness through scientific research and innovation. Additionally, the research underscores the significance of employing technology to boost tourism marketing effectiveness, all while upholding social responsibility and environmental sustainability.

LITERATURE REVIEW

Metaverse Technology for VR Spa

A literature review highlighted that (Beták et al., 2023); has innovatively employed virtual reality technology to provide a distinct relaxation experience to its users. It replicates the ambiance of a day spa, which is designed for brief visits without overnight stays. What sets it apart is the absence of traditional massage beds. Instead, users in Los Angeles can be virtually transported to tranquil settings, such as a tropical island, where they can feel the sun's warmth and relax in a high-end massage chair. With 10 immersive experiences to choose from, including 'Paradise Garden' and 'Snow Hut,' users are given the sensation of a short getaway. A 30-minute session is priced at $45, and bookings can be made on the Esqapes Immersive Relaxation website. This service combines the innovation of VR technology with the feel of a traditional spa. Examples of integrating VR technology with traditional spa services include incorporating VR into treatments. Customers can unwind using VR prior to their massage or opt for a VR-only spa experience. Furthermore, this technology is utilized for promotional efforts to attract new customers and to offer incentives to existing ones. This represents a pivotal change in the spa and wellness industry. Given the rise of the "wellness everywhere" trend, spa-like services are now available in diverse settings, including airports, offices, and hospitals.

Hence, spa operators who incorporate VR technology into their services can stand out and achieve a competitive edge. Notably, masseuse wages often constitute a significant portion of a spa's expenses. If VR technology can help mitigate these costs, it's understandable why traditional spas are considering or embracing this innovation. Furthermore, millennials represent the demographic that visits spas most frequently. They are also passionate about technology, considering it an essential aspect of their lives. This generation exhibits unique habits and preferences that distinguish them from earlier generations. Notably, they are twice as likely to invest in a VR headset compared to their predecessors. Numerous studies have underscored the rising rates of depression, anxiety, and loneliness among American youth. These trends can be traced back to various factors, including the prevailing political and social climate, financial challenges, and the pervasive impact of social media. Consequently, many individuals are gravitating towards mental well-being practices such as yoga and meditation. Therefore, prioritizing good health is of paramount importance (Dwivedi et al., 2022).

According to (Rahmani et al., 2023); the future of relaxation is described as the "Virtual Spa." In a virtual spa, users don a head-mounted device that displays serene landscapes. Imagine gazing upon a lush garden, looking up to see the expansive branches of a towering tree, or witnessing the mesmerizing waves of a desert set against the amber hues of a sunset, all from the comfort of a private in-room pool. The experience engages more than just the sense of sight; it encompasses all sensory perceptions. Ears are serenaded with ambient sounds of nature, such as rustling winds and gentle rain, or perhaps soothing whispers guiding one through meditative breaths. A gentle fan replicates the sensation of a soft breeze on the face, complemented by the delicate aroma of essential oils. The journey concludes with the gentle vibrations of an automated massage chair, enveloping the user from head to toe. Such an immersive experience is offered under the name 'Relax VR'. Offering the aforementioned services, Relax VR Spa provides a 30-minute relaxation session for the brain and mind. This concise duration is ideal for corporate employees, allowing them to rejuvenate during their lunch break and return to their afternoon tasks with renewed energy and clarity (Csobán et al., 2022).

This vision aligns with that of Sourabh Jain, the founder of San Francisco-based Relax VR. With a background in yoga and meditation, he was inspired to create a virtual spa after experiencing VR for the first time. He noted that upon experiencing an underwater world simulation, he became convinced of the technology's potential in promoting relaxation.

This revelation inspired him to leverage VR's capabilities and establish a concrete virtual spa business. This resonates with research conducted by scholars from Harvard University and the University of Southern California. Their studies indicate that VR technology can genuinely enhance users' mental health, with its efficacy rooted in its immersive realism. Hence, virtual spas possess the capability to enhance relaxation and diminish anxiety and negative emotions in users. When integrated with meditation and stress management strategies, the benefits become even more pronounced. Nevertheless, when used judiciously, virtual spas appear to be effective tools for managing daily stress. They offer quick and cost-effective solutions, a concept that Relax VR emphasizes by marketing their virtual spa program to various spa establishments. This approach not only diversifies service offerings but also reduces operational costs. Given that millennials, constantly immersed in technology, often experience physical and mental tension, they can benefit from these brief relaxation sessions. After a short break, they can immediately return to their tasks rejuvenated (Wang and Yu, 2023).

Metaverse Application for Marketing

In today's landscape, developing Metaverse applications for marketing necessitates the integration of Augmented Reality (AR) and Virtual Reality (VR) technologies with the principles of experiential marketing. This combination aims to craft positive experiences that resonate both physically and emotionally with users. Organizations can craft and convey experiences to customers using marketing strategies. These experiences begin with sensory communication and perception, termed as 'Sense'. This leads to the building of attitudes or 'Feel', which then encourages customers to 'Think'. This thought process subsequently results in actions or the consumption of products, labeled as 'Act'.

The ultimate goal is to establish a connection rooted in personal experiences and extend it to broader communities or groups at various levels, known as 'Relate'. As noted by (Buhalis et al., 2022); virtual reality marketing strategies can craft immersive experiences for customers via Metaverse marketing. This cutting-edge technology offers a vivid visual experience, making customers feel as if they've genuinely lived it, a sensation distinct from viewing on a conventional two-dimensional screen. Virtual Reality and the Metaverse are burgeoning technologies that craft distinctive experiences for users. In fact, 62% of consumers claim they feel more engaged with a brand through these mediums than with traditional physical marketing. Concurrently, over 71% of consumers perceive brands utilizing virtual reality marketing as consistently forward-thinking. For instance, ANA leverages virtual reality marketing to showcase its 777-300ER flight, offering a virtual tour of the Business Class cabin and more (Novotny et al., 2015).

Similarly, Volvo offers a virtual reality test drive of their XC90 SUV using Google Cardboard. This allows customers to immerse themselves in a lifelike experience of the XC90 SUV without physically visiting a showroom. Aligning with Pramote Yodkaew's findings (2021, page 17), modern digital marketing in the Metaverse era emphasizes creating perceptions that mirror reality. These perceptions can be experienced via electronic media and devices, ranging from social media platforms to streaming applications, and tools like Google, SEO, SEM, YouTube, and Facebook. These marketing strategies are tailored uniquely to digital marketing goals and evolve based on the requirements of entrepreneurs, consumers, and the broader community (Szymczak, 2019).

According to (Dwivedi et al., 2023); there's an increasing trend towards health-focused business models. Many companies are leveraging Augmented Reality (AR), Virtual Reality (VR), and Extended Reality (XR) technologies to drive medical innovations, such as virtual surgical simulations and advanced psychiatric treatments. Khasawneh et al., (2023) also emphasized that in the metaverse era, digital marketing intersects with the health and beauty sectors, opening new avenues for entrepreneurs (Ioannidis and Kontis, 2023). This encompasses product sales, diverse content presentations, and direct consumer engagement. By crafting compelling product and service descriptions, businesses can tap into new revenue streams, ensuring their digital marketing strategies captivate online consumers.

In the Metaverse, consumers can interact with a store's products or services using their avatars, facilitated by smart devices equipped with AI-enabled software. Online advertising and marketing not only bolster the store's brand but also offer consumers immersive experiences through Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR). Simultaneously, these platforms can be utilized to host events like product launches, virtual concerts, fashion shows, or movie screenings. Buhalis et al. (2023) the immersive virtual imagery crafted makes users feel as if they are truly a part of the depicted scene. This unique aspect of the Metaverse sets it apart from the real world, offering brands a distinctive platform. For instance, Walt Disney has leveraged this, transforming iconic movies like Star Wars into immersive Metaverse realms using game development techniques. Similarly, brands like Nike and Gucci have ventured into the Metaverse, allowing users to create avatars and customize their appearances, including outfits, to their liking (Wåhlström and Sun, 2022).

Table 1. Data Source on the Impact of Metaverse Applications for VR Spa Marketing

Data source	Impact of Metaverse Applications for VR Spa Marketing				
	SENSE	FEEL	THINK	ACT	RELATE
Buhalis et al., (2023)	√		√		√
Ioannidis and Kontis, (2023)		√		√	
Novotny et al., (2015)	√		√		√
Szymczak, (2019)		√		√	
Wåhlström and Sun, (2022)	√		√		√

Metaverse technology to drive health tourism based on the creative economy (BCG)

While many businesses across various industries are leveraging virtual reality technology for marketing advantages, no major tourist destinations or entrepreneurs have yet harnessed its full potential for tangible benefits. In the aftermath of the COVID-19 pandemic, traditional tourism marketing strategies might not be as effective. Metaverse technology can simulate travel experiences in a virtual realm, providing tourists with a more authentic sense of notable destinations. This immersive insight can be pivotal in their travel decision-making. Furthermore, as the Metaverse technology unveils new markets for attractions, it facilitates income distribution and the creation of products tailored to tourists' needs.

This helps bridge disparities, as virtual tourism is inclusive, catering to all genders, ages, and backgrounds. It encompasses a broad spectrum of tourists, from baby boomers and Gen-X to Gen-Y and Gen-Z. Once tourists engage with and appreciate the presented tourism information, it can prompt them to plan their trips or make pre-bookings to experience the destination firsthand. While the experience derived from the actual location will undoubtedly differ, it's essential for all stakeholders to impart knowledge to users, ensuring mutual understanding and setting clear expectations. (Feng et al., 2023); As we transition into this virtual realm, workforce development becomes crucial. Personnel should hone the '4 ABCD' skills, which are pivotal to the digital business model: Art (crafting the virtual world), Business (for commerce and marketing), Content (developing engaging material), and Digital expertise. Relevant organizations will need to either recruit individuals with these skills or foster communities that nurture and develop these proficiencies, ensuring a sustainable transition into the digital age.

This aligns with (Kim et al., 2018); 'Incheon's' evolution as a model city in South Korea, which has seamlessly transitioned into a 'Smart City'. It employs Metaverse technology to enhance tourism in both the tangible and virtual realms, integrating AR and VR concepts to enrich travel experiences. For instance, tourists equipped with a single communication device can enhance their journey. By simply pointing their device at a road, arrows appear, guiding them towards nearby attractions and more. Furthermore, AR and VR technologies simplify travel for everyone and minimize communication barriers. Visitors have the option to select a tour guide in their desired language. Subsequently, a virtual guide materializes, providing detailed explanations about the significance of the location.

In Thailand, the Metaverse has been employed to enhance the tourist experience in the ancient city of Ayutthaya. By simply donning special glasses and following a designated path, tourists can witness visuals of Ayutthaya as it appeared 300 years ago, before its devastation from war. This VR device encapsulates information about the way of life, architecture, and various art pieces without the need to physically restore ancient sites, preserving their intrinsic value. Iconic figures, such as Thao Thong Kip Ma, emerge to guide visitors around the island of Ayutthaya. The experience culminates with a display of royal dishes, where users can click to access details about ingredients and origins for each menu item, among other features (Suanpang et al., 2022). This aligns with the Department of Tourism's 2023 initiative, which emphasizes the promotion of the BCG Tourism trend. This strategy aligns with the country's BCG economic model, focusing on enhancing products or services in existing tourist destinations, especially those in local communities, to stimulate economic circulation through systematic planning. The process begins with design and production at the source, ensuring that raw materials are used efficiently and can be repurposed or enhanced.

This approach not only reduces the consumption of raw materials but also optimizes their use, leading to increased revenue from tourism. Additionally, there's an emphasis on promoting tourism with a focus on environmental sustainability. This involves minimizing chemical usage and reducing waste, while also finding ways to repurpose waste into valuable resources. Health tourism, for instance, prioritizes rejuvenation in picturesque destinations, emphasizing relaxation. Products and services are elevated to meet cleanliness, convenience, and safety standards in line with the BCG economic model. Examples include promoting traditional massages using natural herbs, hydrotherapy, and vitamin therapies like Vitamin Drip during travel, among others.

In 2023, the Tourism Authority of Thailand (TAT) undertook initiatives to develop regions and coordinate activities in both the real and virtual realms via Bitkub Metaverse. Their objective was to rejuvenate the Thai tourism sector by harnessing the potential of Metaverse technology. In collaboration, a dedicated building was established on Bitkub Metaverse to serve as a hub for disseminating information about Thai tourism. Significant Thai tourist landmarks were integrated into Bitkub Metaverse, designed to inspire visitors. Tourists can engage on Bitkub Metaverse using digital vouchers and NFTs, with attractions showcased as pop-up seasonal events. To promote sustainable tourism year-round, activities are designed by blending the virtual realm with 3D images and videos from real-world locations. This allows tourists to explore Thailand's attractions and shop for souvenirs on Bitkub Metaverse. They can then redeem these items using NFTs and have them shipped to their home countries (Chulaphan and Caceres, 2023).

In the subsequent phase, the emphasis will shift to eco-tourism, which prioritizes the value of the environment and stresses the importance of maintaining ecological balance. This includes promoting low-carbon emission activities. For instance, at island and marine attractions, tourists will be encouraged to opt for cycling tours around the island instead of using cars or motorbikes. There will be a push against water-polluting sports activities and campaigns to collect trash during tours. This collected waste can then be repurposed into products like coffee cups or plant pots, generating revenue for the community. Such initiatives also aim to heighten tourists' environmental awareness. Additionally, the use of solar energy for services at accommodations or hotels will be promoted.

METHODOLOGY

This research is a mixed-methods study with the objectives of: 1. Studying the factors influencing the development of Metaverse technology for VR spa glasses that affect the development of Metaverse applications for marketing, and 2. Investigating the development of Metaverse applications for marketing that impact the promotion of health tourism based on the creative economy (BCG) in Thailand. The research will proceed with the following activities.

Population and sample

The researcher organized a Focus Group Discussion with five key executives engaged in elevating medical tourism standards. The participants included:

1.The Chairman of the Tourism Industry Federation of Samut Songkhram Province,
2.The President of the Confederation of Thai SMEs in Samut Songkhram Province,
3.A representative from Tourism and Sports in Samut Songkhram Province
4.The Managing Director of Theewong Family Company, and
5.The company manager of Treetara Riverside Resort & Spa.

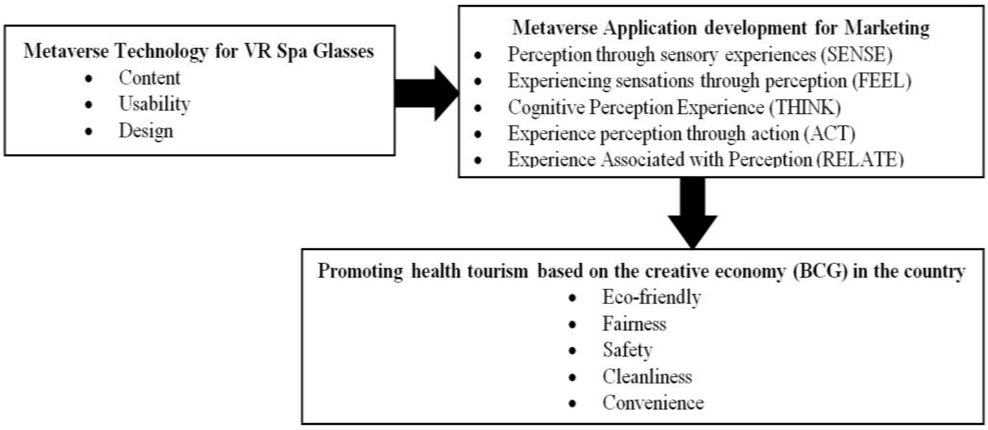


Figure 1. Conceptual framework

Participants were selected based on the purposive sampling criteria outlined by Tongco (2007). Additionally, quantitative research was conducted by identifying the target population and sample, which included tourists who visit Samut Songkhram Province for spa, beauty, and Thai massage services. A stratified random sampling technique was employed, where individuals were randomly selected from diverse subgroups within the population. This approach ensures a comprehensive representation of the varied units within the population. Tourists who utilize spa services were categorized based on the size of the businesses they visited: small, medium, and large. A total of 372 samples were gathered, as detailed in Table 2.

Table 2. Classification of tourist samples based on the size of MSMEs they visit for spa and Thai massage beauty services (Source: Office of Small and Medium Enterprises Promotion, 2022)

Tourists are categorized based on the size of the spa business they visit	Population	Number of samples	Percentage
1.Tourists who come to use the spa service in a small size (Micro)	3,122	198	61.00
2. Tourists who use the service of a small spa (Small)	2,462	156	38.00
3.Tourists who come to use the medium spa service (Medium)	283	18	1.00
Total	5,867	372	100

Table 3. The reliability of the research questions

Concept/Theory	Variable	Number of Questions	Cronbach's Alpha Coefficient
1. Metaverse Technology for VR Spa Glasses	1. Content	5	0.78
	2. Usability	5	0.70
	3. Design	5	0.83
	Total	15	0.77
2. Metaverse Application development for Marketing	1. Perception through sensory experiences (SENSE)	5	0.80
	2. Experiencing sensations through perception (FEEL)	4	0.70
	3. Cognitive Perception Experience (THINK).	4	0.81
	4. Experience perception through action (ACT).	3	0.81
	5. Experience Associated with Perception (RELATE)	3	0.70
	Total	15	0.78
3. Promoting health tourism based on the creative economy (BCG) in the country	1. Eco-friendly	4	0.83
	2.Fairness	4	0.70
	3. Safety	2	0.70
	4. Cleanliness	4	0.76
	5. Convenience	3	0.70
	Total	17	0.78

Research instrument

This study employed a survey questionnaire targeting 372 tourists who visited for spa, beauty, and Thai massage services. The questionnaire covered:1. Basic information about the tourists using the spa and beauty services.2. The role of Metaverse technology in enhancing the value of products and services in the spa industry.3. The application of Metaverse technology for marketing within the spa sector. 4.The promotion of health tourism grounded in the creative economy. To develop the research instrument, the researcher conducted a literature review and examined relevant concepts and theories. This helped define the operational terms and structure of the variables under investigation. Subsequently, the researcher formulated questions based on the operational definitions.

The measurement tools and questionnaires were then developed, tested, and refined to align with the research objectives. The refined questionnaire was presented to an expert in health tourism standardization to validate the content accuracy. Following this, the researcher subjected the draft questionnaire to validity and reliability tests. The quality of the questionnaire, in terms of content validity, coverage, appropriateness, and language clarity, was assessed by five experts. The results indicated that the overall content validity of the questionnaire was 70% or higher, with a concordance range of 0.70–1.00, meeting the established criteria for content validity.

Data Collection

For data collection, the researcher initiated the process with a formal letter requesting assistance in completing the questionnaire. This was accompanied by the researcher's letter of recommendation, the questionnaire itself, and instructions for completing the online questionnaire via Google Forms. The link was sent to a sample group of tourists who utilized spa and Thai massage beauty services. The participants, totaling 372, were categorized by the size of the MSMEs they visited, in alignment with the criteria set by (Vasantha Raju and Harinarayana, 2016).

The research involved hosting a focus group discussion with a panel of entrepreneurs and executives dedicated to elevating health tourism standards. This group comprised five individuals. The discussion utilized a structured form that centered on the development of Metaverse technology to enhance product and service value. Topics covered included content design guidelines for VR glasses, application usability, video design, and the use of 360-degree virtual reality media, as well as the broader application of Metaverse technology in marketing.

Data Analysis

After data collection, the researcher employed statistical methods that aligned with the nature of the data to achieve the research objectives. The multiple regression analysis was used to study the relationships between the independent variables, namely: 1. The evolution of Metaverse technology for VR spa glasses and its impact on the development of Metaverse applications for marketing, and 2. The advancement of Metaverse applications for marketing and its influence on promoting health tourism grounded in the creative economy (BCG) within the country. This analysis aimed to understand the extent of the impact between the primary variables and the dependent variable.

RESULTS

The multiple regression analysis results indicate that the development of Metaverse technology for VR spa glasses (encompassing content, functionality, and design) has a significant impact on the evolution of Metaverse applications for marketing. This is evident when considering all factors (Sensory Experience, Sensational Experience, Thought Experience, Action Experience, Connection Experience). The analysis yielded an F-statistic value of 176.579 and an R2 value of 0. 590.The analysis suggests that the variation in the development of Metaverse applications for comprehensive marketing can be explained by 59.0%. The Adj R2 value of 0.587 further indicates that the combined independent variables account for predicting the development of Metaverse applications for the overall marketing effort by 58.7%.

Table 4. Results of Multiple Regression Analysis on the Impact of Metaverse Technology Development for VR Spa Glasses (covering content, usability, design) on the Overall Development of Metaverse Applications for VR Spa Marketing (encompassing sensory experience, sensation experience, thought experience, action experience, and association experience) **Statistically significant at the .01 level

Metaverse Technology for VR Spa Glasses	b	S.E.	Beta(β)	t	Sig.
Constant (a)	1.085	0.142		7.627	0.000**
Content	0.213	0.039	0.247	5.525	0.000**
Usability	0.191	0.040	0.240	4.792	0.000**
Design	0.342	0.042	0.389	8.058	0.000**
R =0.768	R^2 =0.590	Adj R^2=0.587	SEE =0.247	F =176.579	Sig.F =0.000

Table 5. Data Source on the Impact of Metaverse Applications for VR Spa Marketing

Datasource	Impact of Metaverse Applications for VR Spa Marketing				
	SENSE	FEEL	THINK	ACT	RELATE
Buhalis et al., (2023)	√		√		√
Ioannidis and Kontis, (2023)		√		√	
Novotny et al., (2015)	√		√		√
Szymczak, (2019)		√		√	
Wåhlström and Sun, (2022)	√		√		√

Furthermore, the standard error of the estimate was denoted by the Std. Error of the Estimate, which equaled 0.247. Upon examining each component, the following was observed:

1. The content dimension significantly influenced the comprehensive development of Metaverse marketing applications at a .01 significance level (β=0.247, p < .01), leading to the acceptance of the hypothesis.

2. Usability had a notable impact on the overall development of Metaverse applications for marketing at a .01 significance level (β=0.240, p < .01). Based on this analysis, the hypothesis is accepted.

3. Design played a significant role in the comprehensive development of Metaverse applications for marketing tasks at a .01 significance level (β=0.389, $p < .01$). This analysis confirms the acceptance of the hypothesis.

The predictive equation, when expressed in raw scores, is: Overall = 1.175 + 0.234 (Sensory Experience) + 0.113 (Feeling Experience) + 0.125 (Think Experience) + 0.121 (Action Experience) + 0.144 (Associative Experience).
When expressed in standardized scores, the equation becomes: Overall = 0.264 (Sensory Experience) + 0.138 (Feeling Experience) + 0.148 (Think Experience) + 0.156 (Action Experience) + 0.192 (Associative Perception).

CONCLUSION

Summary of the results from the multiple regression analysis: The development of Metaverse technology for VR spa glasses, encompassing factors such as content, usability, and design, significantly impacts the overall development of Metaverse applications for marketing. This includes dimensions like sensory experience, feeling experience, thought experience, action experience, and associative experience. Given an R2 value of 0.590, developers of Metaverse technology for VR spa glasses should prioritize content. This content should emulate a clear and comprehensive 360-degree virtual reality video, offering a serene visual ambiance. The audio quality should be crisp, aligning seamlessly with the video's visuals and the depicted scenery, ensuring the virtual media remains captivating.

For instance, a significant portion of the sample group was drawn to virtual environments that highlighted natural tourist attractions, such as misty mountains, seas, forests, and islands. Additionally, the perception of experience through the senses was rated at the highest level by the participants. When examining individual elements, it was observed that the ambient sound associated with spa and Thai massage services evoked a sense of relaxation. The Metaverse application left a lasting impression with its content related to products and services in the spa and Thai massage sector. Furthermore, the application enabled users to vividly recall the distinct atmospheres of services offered in the spa and Thai massage industry. In alignment with the findings of (Beták et al., 2023), which explored the use of Virtual Reality technology to shape tourist perspectives consistent with behaviors at health tourism destinations, two main components were identified: 1. The application of Metaverse technology to enhance the value of products and services in the spa, beauty, and traditional Thai massage sectors. 2.The utilization of Metaverse technology for marketing in the spa, beauty, and traditional Thai massage industries. The study highlighted the growing acceptance and widespread use of virtual reality applications in today's tourism marketing, emphasizing the creation of niche images, such as those catering to health enthusiasts. It also emphasized consistent communication with diverse tourist groups. These findings underscore the significance of advancing virtual reality technology for future strategic planning in the tourism domain.

The study also revealed that a multiple regression analysis of the development of Metaverse applications for marketing—encompassing factors such as sensory experience, thought perception, action perception, and connection experience perception—had a significant impact on the overall drive of health tourism based on the creative economy (BCG) in the country. This impact covered aspects like environmental friendliness, fairness, safety, cleanliness, and convenience, with an R^2 value of 0.509. The analysis indicates that the independent variables collectively account for 50.9% of the variance in the drive for health tourism based on the creative economy (BCG) in the country.

This suggests that developers of Metaverse applications for marketing should emphasize ambient sound and atmosphere within spa service content to evoke relaxation in customers. Furthermore, the Metaverse application should enable users to vividly recall the distinct atmospheres of services in the spa and traditional Thai massage sectors. Consequently, entrepreneurs in the spa and beauty service industries should prioritize designing and constructing facilities that harmonize with the environment, adhere to sustainable construction principles, and ensure user convenience and safety. Such designs should also aim to reduce greenhouse gas emissions, manage service usage effectively, and implement action plans to preserve the environmental integrity of the service facility.

This also includes a focus on utilizing local raw materials and products for service provision or as souvenirs for tourists, encompassing items such as food, beverages, and handicrafts made from agricultural produce.

This aligns with the findings of the (Feng et al., 2023); They highlighted that Thailand possesses the potential to emerge as a global hub for medical and wellness tourism. A report from the (Suanpang et al., 2022); emphasized that Thailand's private hospital sector has primarily been propelled by government initiatives, which have been promoting the integration of technology to establish a Medical Hub since 2003. This has led to consistent growth in medical and health tourism. Consequently, Thailand's private hospitals have rapidly adapted and have earned global acclaim as a premier destination for medical tourism. The sector boasts strengths in service quality and treatment efficacy.

Services must prioritize convenience, cleanliness, safety, fairness, and environmental sustainability. Key performance indicators include the percentage of quality and repeat visitors, economic value derived from health tourism, the percentage of secondary cities that see an uptick in health tourism revenue, and the proportion of targeted entrepreneurs experiencing increased income from medical tourism. This is in line with the findings of the Capital Administration and Management Unit for Enhancement of National Competitiveness.

Wang and Yu (2023); explored the use of Virtual Reality in the spa and wellness industry. His research highlighted 'Esqapes Immersive Relaxation,' a virtual experience that emulates a day spa setting without the need for a physical massage table. This innovative concept was developed by Michah Jackson, a former game producer at Disney.

The program and spa environment he designed aim to provide individuals with a respite from their daily routines by "transporting them to another world without leaving their homes." By donning a VR headset powered by this technology, users can momentarily escape to a serene tropical island, feeling the sun's warmth, all while being pampered by a high-end massage chair.

Suggestions

Business owners and those involved in development should consider creating a Content Tows Matrix. This matrix will guide content development tailored to specific customer groups. For instance, it can help determine which content is best suited for specific services, such as spa treatments or Thai massages. Additionally, it's essential to identify the optimal timing for content deployment. Integrating supplementary videos into VR glasses and applications can enhance the user experience. One potential approach is to link to YouTube video clips that can be viewed seamlessly through VR glasses, ensuring clarity and offering avenues for further content enhancement.

A comprehensive guide and information update mechanism should be established for operators. This will empower entrepreneurs to independently update and manage their content. Additionally, the platform should be designed as a hub for future content expansion, aiding in the promotion of tourism across various provinces. This can also serve as a gateway to boost tourism in secondary cities. It's essential to further test the VR glasses and applications with international tourists to gather insights and feedback. This will facilitate the promotion of tourism to overseas markets. Incorporating additional languages, such as Chinese, will enhance the user experience and cater to a broader audience.

In summary, the Metaverse era represents the convergence of virtual world technologies that emulate real-world environments. This fusion is primarily characterized by avatars and is powered by key technologies such as Augmented Reality (AR), Virtual Reality (VR), and Extended Reality (XR). These technologies are pivotal in seamlessly blending real-world activities with virtual experiences. Adopting a Virtual Reality marketing approach for health and beauty businesses can offer customers an immersive experience that feels authentic. This, when integrated with contemporary digital marketing strategies, can enhance search engine performance. The synergy of social media marketing, pay-per-click advertising, and a focus on content marketing ensures a dynamic web presence. Regular website updates, email marketing campaigns, and engaging videos further enhance direct communication with customers. This comprehensive strategy is rounded off with online PR and attraction marketing techniques. Even as COVID-19 transitions to an endemic phase, adaptations by health and beauty entrepreneurs will persist. While there's a shift towards a more normalized way of life, digital marketing will consistently stand as an effective strategy, targeting the most suitable consumer groups. It will remain a potent tool for beauty and health business entrepreneurs both now and in the foreseeable future.

For future research, the following steps should be considered:

1. Comparative Analysis: Investigate and contrast the use of Metaverse technology in the health tourism sectors of various countries to discern emerging trends and notable topics.
2. Opinion Poll: Gather feedback from both travelers and service providers in the health tourism sector about the integration of Metaverse technology.
3. Prototype Creation: Design and evaluate Metaverse world prototypes tailored for health tourism to assess their functionality and user experience.
4. Safety Protocols: Research and establish security protocols for the deployment of Metaverse technology within health tourism.
5. Impact Assessment: Analyze the economic, societal, and environmental repercussions of incorporating Metaverse technology into health tourism.
6. Community Building: Foster connections between service providers, developers, and end-users to encourage ongoing growth and innovation in the field.

Author Contributions: Conceptualization, P.P.; methodology, P.P.; software, P.P.; validation, P.P.; formal analysis, P.P.; investigation, P.P.; data curation, P.P.; writing - original draft preparation, P.P.; writing - review and editing, P.P.; visualization, P.P.; supervision, P.P.; project administration, P.P.; All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Beták, N., Csapó, J., Horváth, Á., & Dávid, L.D. (2023). Virtual tour as a virtual experience of destination management organisations in slovakia. *GeoJournal of Tourism and Geosites*, 47(2), 508-514. https://doi.org/10.30892/gtg.47218-1050

Buhalis, D., Lin, M.S., & Leung, D. (2022). Metaverse as a driver for customer experience and value co-creation: implications for hospitality and tourism management and marketing. *International Journal of Contemporary Hospitality Management*, 35(2), 701-716. https://doi.org/10.1108/IJCHM-05-2022-0631

Buhalis, D., Leung, D., & Lin, M. (2023). Metaverse as a disruptive technology revolutionising tourism management and marketing. *Tourism Management*, 97, 104724. https://doi.org/10.1016/j.tourman.2023.104724

Chatkaewnapanon, Y., & Lee, T.J. (2022). Planning Sustainable Community-Based Tourism in the Context of Thailand: Community, Development, and the Foresight Tools. *Sustainability* 2022, 14, 7413. https://doi.org/10.3390/su14127413

Chulaphan, W., & Caceres, J.F.B. (2023). An empirical analysis of the causal relationship between tourism growth and the service industry in Thailand. *Humanities, Arts and Social Sciences Studies* (Former Name Silpakorn University Journal of Social Sciences, Humanities, And Arts), 297-307. https://doi.org/10.14456/hasss.2023.27

Csobán, K., Szőllős-Tóth, A., Sánta, Á.K., Molnár, C., Pető, K., & Dávid, L.D. (2022). Assessment of The Tourism Sector in a Hungarian Spa Town: A Case-Study of Hajdúszoboszló. *Geo Journal of Tourism and Geosites*, 45, 1543-1551. https://doi.org/10.30892/gtg.454spl02-973

Dwivedi, Y.K., Hughes, L., Baabdullah, A.M., Ribeiro-Navarrete, S., Giannakis, M., Al-Debei, M.M., & Wamba, S.F. (2022). Metaverse beyond the hype: Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 66, 102542. https://doi.org/10.1016/j.ijinfomgt.2022.102542

Feng, Y., Liu, W., & Hsueh, S.L. (2023). Research on Construction of Three Rivers and Six Banks Cultural and Creative Product System in Dongguan from Perspective of Cultural and Tourism integration: DFuzzy Review. In 2023 IEEE 6th Eurasian Conference on Educational Innovation (ECEI), 251-255, IEEE. https://doi.org/10.1109/ECEI57668.2023.10105360

Ioannidis, S., & Kontis, A.P. (2023). Metaverse for tourists and tourism destinations. *Information Technology & Tourism*, 1-24. https://doi.org/10.1007/s40558-023-00271-y

Liu, Y., Li, Y., & Parkpian, P. (2018). Inbound tourism in Thailand: Market form and scale differentiation in ASEAN source countries. *Tourism Management*, 64, 22-36. https://doi.org/10.1016/j.tourman.2017.07.016

Kim, H., Lee, N., & Kim, S.N. (2018). Suburbia in evolution: Exploring polycentricity and suburban typologies in the Seoul metropolitan area, South Korea. Land use policy, 75, 92-101. https://doi.org/10.1016/j.landusepol.2018.03.033

Khasawneh, M.S., Aladwan, K.S., Ababneh, S.F., Al-Makhadmah, I.M., & Alzoubi, M.I. (2023). factors influencing the decision of tourist businesses to adopt digital marketing. *GeoJournal of Tourism And Geosites*, 47(2), 415-423. https://doi.org/10.30892/gtg.47207-1039

Niyom, P., Lertpatcharapong, R., & Intaravorraphat, P. (2022). Knowledge Management of Tourism Element (5a's) For Support Health Tourism in The Eastern Economic Corridor: EEC. *Journal of Positive School Psychology*, 6(8), 4882-4897. https://doi.org/10.1007/978-3-319-49849-2_1

Novotny, Á., Dávid, L., & Csáfor, H. (2015). Applying RFID technology in the retail industry–benefits and concerns from the consumer's perspective. *Amfiteatru Economic Journal*, 17(39), 615-631. https://doi.org/10.5772/intechopen.95787

Rahmani, Z., Mackenzie, S.H., & Carr, A. (2023). How virtual wellness retreat experiences may influence psychological well-being. *Journal of Hospitality and Tourism Management*. https://doi.org/10.1016/j.jhtm.2023.03.007

Szymczak, A. (2019). Will the use of virtual reality lead to a revolution in marketing communication?. Marketing Instytucji Naukowych i Badawczych, (3 (33), 53-70. https://doi.org/10.2478/minib-2019-0043

Suanpang, P., Niamsorn, C., Pothipassa, P., Chunhapataragul, T., Netwong, T., & Jermsittiparsert, K. (2022). Extensible metaverse implication for a smart tourism city. *Sustainability*, 14(21), 14027. https://doi.org/10.3390/su142114027

Tang, I.L., Xu, S.Z., & Chan, E. (2021). *Significance of VR in the spa: A spatial analysis*. University of South Florida (USF) M3 Publishing, 5(2021). https://doi.org/10.5038/9781955833035

Tongco, M. D. C. (2007). Purposive sampling as a tool for informant selection. *EthnobotanyJournal*. org/vol5/i1547-3465-05-147.pdf. https://doi.org/10.17348/era.5.0.147-158

Vasantha Raju, N., & Harinarayana, N.S. (2016). *Online survey tools: A case study of Google Forms.* In National conference on scientific, computational & information research trends in engineering, GSSS-IETW, Mysore. https://doi.org/10.51574/ijrer.v1i1.49

Wongmonta, S. (2021). Post-COVID 19 tourism recovery and resilience: Thailand context. *International Journal of Multidisciplinary in Management and Touris*m, 5(2), 137-148. https://doi.org/10.14456/ijmmt.2021.12

Wang, B., & Yu, T. (2023). Numerical investigation of novel 3D-SPA for gripping analysis in multi-environment. *International Journal of Mechanical Sciences*, 240, 107916. https://doi.org/10.1016/j.ijmecsci.2019.05.041

Wåhlström, D., & Sun, T. (2022). Sensemaking & Decision Making in Uncertainty: A case study on how tech leaders´ navigate the Metaverse. https://doi.org/10.1007/978-3-540-48713-5_3

Article history: Received: 25.07.2023 Revised: 08.09.2023 Accepted: 11.10.2023 Available online: 14.11.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1339-1349
DOI 10.30892/gtg.50414-1132

A COMPREHENSIVE ANALYSIS OF COASTAL AND MARINE TOURISM: EVALUATING THE IMPACT OF ACTIVITIES, INTENTIONS, AND REASON FOR VISITING ON VISITOR SATISFACTION: THE MODERATING INFLUENCE OF VISITOR TYPES

Omar JAWABREH*
Department of Hotel Management, Faculty of Tourism and Hospitality, The University of Jordan, Amman, Jordan, e-mail: o.jawabreh@ju.edu.jo

Emad Al Dein Al FAHMAWEE
Department of Interior Design, Faculty of Art and Design, Applied Science Private University, Amman, Jordan, e-mail: e_fahmawee@asu.edu.jo

Ashraf JAHMANI
Business School, Al-Ahliyya Amman University, Jordan, Amman, Jordan, e-mail: ajahmani@ammanu.edu.jo

Basil J.A. ALI
College of Economics and Management (CoEM), Al Qasimia University, Sharjah, United Arab Emirates, e-mail: basil8011@gmail.com

Safaa S. JAHAMEH
Department of Design and Visual Communication, Faculty of Art and Design,
Applied Science Private University, Amman, Jordan, e-mail: s_jahameh@asu.edu.jo

Citation: Jawabreh, O., Fahmawee, E.A.D.A., Jahmani, A., Ali, B.J.A., & Jahameh, S.S. (2023). A COMPREHENSIVE ANALYSIS OF COASTAL AND MARINE TOURISM: EVALUATING THE IMPACT OF ACTIVITIES, INTENTIONS, AND REASON FOR VISITING ON VISITOR SATISFACTION: THE MODERATING INFLUENCE OF VISITOR TYPES. *GeoJournal of Tourism and Geosites*, 50(4), 1339–1349. https://doi.org/10.30892/gtg.50414-1132

Abstract : The major purpose of this study is to investigate the characteristics that contribute to visitor happiness, with an emphasis on Aqaba, Jordan's one-of-a-kind setting. Rather than selecting volunteers at random, the researchers took into account the entire community of Aqaba tourists. About 237 of the 500 surveys returned were usable for statistical purposes. In order to categorize the responses, a seven-point Likert scale was used. We use of Smart PLS 4 forms the basis of the analytical framework. There is strong statistical support for the findings of the study. Satisfaction (SA) is heavily influenced by the elements of Availability of Activities (AA), Intends to Participate (IP), and Reason for Visiting (RV). The T value for AA is 4.128 (p 0.001), which indicates statistical significance. IP also has a high T value (7.505, p 0.001), indicating a significant impact. The T value of 4.502 for RV (p 0.001) further demonstrates its statistically significant influence. Add the moderating variable TV to the research design to see how it affects the results. With a T-value of 1.971 (p = 0.049), we see that there is an interaction effect between (AA) and (SA), with (TV) serving as a moderator. The moderate influence of (IP) on (SA) results in a T value of 0.822 (p = 0.411), which is not statistically significant. However, the T value of 4.144 (p 0.001) demonstrates the significance of the interaction between RV and SA, indicating that TV has a moderating effect on the relationship between the two variables.

Keywords: Tourist satisfaction, Availability of Activities, Intends Participating, Reason for Visiting, Type of Visitors

* * * * * *

INTRODUCTION

According to Islam and Sarker (2022), coastal and marine tourism (CMT) exhibits significant potential for expansion, which in turn can contribute to employment generation and sustainability. According to the United Nations, the global workforce is heavily reliant on the oceans, with over 350 million jobs associated with various sectors such as fisheries, coastal tourism, and research. This highlights the significant role played by coastal and marine tourism (CMT) in the global economy. Furthermore, it has been predicted by the United Nations World Tourism Organization (UNWTO) that approximately one-third of the total number of international tourists, which amounts to one billion individuals, choose to visit coastal areas. According to Gounden (2020), it has been highlighted that cultural, natural, and mixed heritage sites, commonly referred to as CMT sites, hold great importance within the tourist sector. These sites serve as significant contributors to the overall income and foreign exchange profits of the regions and nations where they are situated. The presence of domestic visitors and local visits to these sites contribute to the overall growth of international tourism statistics (Teklebrhan et al., 2023; Alanazeh et al., 2023; Al Fahmawee and Jawabreh, 2023). The burgeoning economic potential associated with ocean resources has piqued the interest of policymakers in various developing countries. Islam and Shamsuddoha (2018) emphasize the possibility of blue growth within the specific context of Bangladesh, whereas Nelson et al. (2018) draw attention to the potential for coastal tourism in the Gulf of Mexico. According to Quijada (2022), the design of CMT (Coastal and Maritime Tourism) may prioritize recruitment investments and economic expansion over the

* Corresponding author

preservation of maritime resources. Moreover, Arabadzhyan et al., 2021; Jawabreh et al., 2023a; Saleh et al., 2023 argue that the prospects of coastal tourism are at risk due to the escalating issues of coastal congestion, pollution, and vulnerability to extreme weather conditions. According to Gounden (2021), it is imperative to evaluate demand and visitor profiles in order to implement sustainable socioeconomic and environmental conservation measures. This is because community-based tourism (CMT) has significant environmental consequences and places strain on the natural resource foundation. Although there exists a substantial amount of data regarding the demographics of individuals who frequent beaches in general, there is a noticeable dearth of information pertaining to the specific types of individuals who visit CMT sites. Furthermore, scholarly research frequently investigates the impacts of tourism, with a particular emphasis on the economic difficulties associated with this phenomenon (Marin-Pantelescu et al., 2019). This study addresses the existing gaps in information by investigating the subjective perceptions and experiences of individuals who engage with CMT websites.

Finally, in conclusion, some concluding remarks are provided. The establishment of the Aqaba Marine Reserve as a legally recognized entity took place in December 2020. The establishment of a protected area in the Jordanian portion of the Gulf of Aqaba can be traced back to the late 1970s with the establishment of the Marine Science Station (Al-Zibdah, 2013; Issakov et al., 2023; Jahmani et al., 2023; Jawabreh, 2021). The present management strategy has been adopted for a stretch of seven kilometers along the shoreline of Jordan. The establishment of the Aqaba Marine Park occurred in 1997. The formal legal designation of Aqaba Marine Reserve was conferred upon the region in the year 2020. The geographical area exhibits a diverse array of coral reef ecosystems, which are mixed by seagrass meadows and sandy substrates. These locations mostly represent the ingress points of arid valleys that occasionally experience sudden and intense flooding events. The Aqaba Marine Reserve diligently upholds the regulations set forth by the Aqaba Marine Park. Its dedicated staff remains committed to its established responsibilities, which primarily involve consistent training and implementation of the Aqaba Marine Park regulations. Additionally, they actively coordinate public awareness initiatives targeted towards the local communities and visitors of Aqaba. The staff also ensures the proper maintenance and operation of the Tourists Centre facilities, utilizing it as an educational and outreach platform. The projected transition from the Aqaba Marine Park to the Aqaba Marine Reserve necessitates the establishment of a comprehensive set of training requirements that specifically cater to the needs of 15 stakeholder groups (Pashkov et al., 2023; Jawabreh et al., 2023b; Saleh et al., 2023). The entities involved in the Aqaba region include ASEZA (all relevant Directorates), the Royal Navy, Aqaba Development Corporation, Industrial and Container Ports, Rangers "Royal Department for Environmental Protection, Universities and Research Centers in Aqaba, Hotels and Mega Residential and Touristic Developments, and Aqaba Diving Association and Diving Centers (Jawabreh et al., 2023c).

The main aim of this study is to conduct a detailed analysis of the various aspects that impact tourist satisfaction within the unique setting of Aqaba. The focus of this investigation revolves around clarifying the influence of activity availability, intentions to engage, motives for visiting, and the potential moderating influence of visitor types. The initial section of this paper presents a concise overview. The second, third, and fourth sections of this article respectively center on the literature review, methodology, and sources, as well as the findings and debate. The concluding section of this article encompasses the final aspects, namely the conclusion, theoretical implications, practical ramifications, and related research.

LITERATURE REVIEW

The study conducted by Jurowski and Nickerson (2016) investigated the correlation between tourist engagement in various activities and their level of happiness with a particular place. This study examines a theoretical framework positing that individuals who engage in a broader range of tourist activities across four distinct domains are likely to report higher satisfaction levels than those who engage in a narrower range of activities. The results of the study indicate that there is no statistically significant correlation between the level of satisfaction experienced by tourists and either the type or quantity of activities they participate in. In their study Stumpf et al., 2020, investigated the associations between satisfaction and various demographic, motivational, and behavioral factors of visitors, and their intention to revisit the same European Union (EU) country for their primary holiday in the subsequent year. The correlations were examined using the generalized linear model (GLM) with binomial logit link functions in this study. The findings indicate that the level of satisfaction with the quality of accommodation significantly influences the decision-making process of European Union residents when considering revisiting a particular country. The intention to revisit within the European Union is more heavily influenced by tourists' motivation, age, travel distance, and place of origin, rather than the satisfaction criteria (Arifin et al., 2023).

The study conducted by Abbasi et al., 2021, sought to identify the elements that impact tourists' inclination to revisit. The research employed a cross-sectional methodology to gather data. The data were obtained through the administration of a field survey questionnaire to a sample of 330 participants. Subsequently, the acquired data were subjected to analysis using the partial least squares version. The findings of the study indicate that visitors' intention to revisit is highly influenced by factors such as perceived behavioral control, perceived value, destination image, and satisfaction. The relationship between perceived value, perceived service quality, destination image, and satisfaction has been empirically verified. However, it has been shown that contentment plays a crucial role as a mediator in the relationship between perceived service quality, destination image, and perceived value. Dabholkar and Sheng (2012) The strategic significance of online product recommendation agents (RAs) is increasing as they serve as a crucial interface connecting marketers and consumers. However, there has been a lack of research on the extent to which consumer participation is involved in the utilization of RAs. This study demonstrates that increased customer engagement in utilizing a recommendation agent (RA) is associated with enhanced satisfaction, heightened trust, and increased purchase intentions pertaining to the RA and its suggestions. On the contrary, the presence of financial risk pertaining to the product being evaluated has a diminishing impact on satisfaction, trust, and purchase intentions. Additionally, it plays a moderating role in influencing the relationship between customer participation and these mentioned variables. The results of this study contribute to the existing body of literature and provide practical implications for the development and implementation of marketing strategies.

In their study, Alegre and Cladera (2009) conducted an analysis on the factors influencing tourists' intentions to revisit a particular site. Their research specifically focused on the impact of satisfaction levels and the frequency of past trips. One additional aim is to examine the impact of contentment with various elements of a place on overall satisfaction. The study's results indicate that Both customer satisfaction and the frequency of prior visits exhibit a beneficial influence on the propensity to engage in future visits. Nevertheless, satisfaction serves as the primary factor. The impact of overall pleasure is influenced by varying levels of happiness with different components of the location. The primary factors that contribute to overall satisfaction are the characteristics linked to the fundamental sun and sand tourism offering.

According to Hayward (2019), Coastal Mass Tourism (CMT) had its origins in the late 1800s, when affluent individuals from the United States began visiting coastal destinations. Over time, CMT has evolved to become one of the largest and most established sectors within the tourism industry. According to Fennell et al., 2023, marine tourism refers to a specific sector within the broader tourism business, wherein tourists and visitors engage in various recreational and vacation activities or go on travels along coastal waterways, their adjacent shorelines, and the surrounding hinterlands.

Coastal tourism refers to a form of tourism that occurs on land yet necessitates direct engagement with the ocean, encompassing activities such as swimming, surfing, sunbathing, and other recreational pursuits along the coastline. Maritime tourism includes many recreational activities such as boating, yachting, cruising, and nautical sports. Additionally, this form of tourism entails the provision of shoreside infrastructure and services that are essential for facilitating these interests. According to Ali et al., 2023 the cited sources provide relevant information for the current study.

In their study, Saleh et al. (2023) recognized the significant role of the Coastal and Marine Tourism (CMT) sector in fostering the advancement of the ocean economy. The authors assert that this sector holds considerable potential for growth in various domains, including CMT itself, fisheries and aquaculture, renewable marine energy, marine bio-prospecting, and maritime transport. This potential is attributed to the extensive coverage of water, which encompasses two-thirds of the Earth's surface. According to Corral Quijada (2022), there exists a substantial global impact of CMT and leisure activities, encompassing noteworthy economic, social, and recreational advantages. Nobi and Majumder (2019) and Yustika and Goni (2020) have made a distinction between coastal and marine tourist operations. The text mentions coastal wildlife tourism, which encompasses activities such as observing wildlife on land, engaging in beach-related activities (such as bathing, sunbathing, picnicking, fishing, walking, horse riding, sand sculpting, sand dune surfing, beach volleyball, and soccer), exploring coastal heritage and participating in cultural events (including local seafood and cultural tourism), engaging in sightseeing activities (such as visiting lighthouses, cycling, and running), participating in water-based marine wildlife tourism (such as observing seals, dolphins, turtles, and whales from a boat), engaging in recreational and competitive fishing, participating in scuba diving and snorkeling, enjoying water sports (such as surfing, yachting, sailing, and water skiing), experiencing the ocean through activities like cruise tourism, island tourism, and underwater archaeology, and participating in water events. These activities exemplify the range of marine tourism experiences available.

In their study, Ulfy et al., 2021examiand the level of satisfaction among visitors on the quality of maritime tourism services in Malaysia. The study provides evidence that there exists a positive association between assurance, tangibility, empathy, dependability, and responsiveness, and customer satisfaction. Consequently, these attributes effectively represent the concept of customer satisfaction. This study will be beneficial for tourist organizations and policymakers who aim to enhance consumer satisfaction by improving the quality of services provided. Carvache-Franco et al. (2022) identified the constituent elements that constitute the construct of "perceived value" within a coastal urban setting. Furthermore, the authors proceeded to examine the impact of various dimensions of this construct on tourist satisfaction and loyalty in coastal destinations with a marine theme. The results of the study indicate that value perception can be categorized into two distinct levels: economic-functional and emotional-social. The study revealed that the economic-functional aspect of perceived value emerged as the most influential factor in determining tourist satisfaction. Conversely, the emotional-social dimension was identified as the primary determinant of loyalty towards coastal and marine attractions.

Solis-Radilla et al. (2021) conducted a study investigating the elements of loyalty, namely satisfaction, return, and recommendation intentions, in relation to holidays taken at coastal and marine areas. The study revealed that six key aspects, including heritage and nature, learning, sun and beach activities, physical activities, a genuine coastal experience, social contact, and novelty, were identified as the main determinants of interest. In the context of forecasting consumer satisfaction and loyalty, the component that exhibits the greatest influence is "novelty," followed by "social interaction" and "learning." There exists a scarcity of study that specifically examines the characteristics of CMT users in both Jordan and globally. In this study, a screening query was employed to ascertain that only those who visited the designated CMT venues with the explicit intention of participating in CMT events were included in the survey. Consequently, our research enhances our comprehension of individuals who utilize CMT platforms, specifically.

City of Aqaba

The geographical location of Aqaba is situated in the southern region of Jordan, in close proximity to the northeastern tip of the Gulf of Aqaba, which is a body of water connected to the Red Sea (Al-Zibdah, 2013). The overall land area of Aqaba is 6905 square kilometers, while its territorial seas are approximately 94 square kilometers. The Aqaba coastline is very limited in length, spanning approximately 27 kilometers. It serves as Jordan's only gateway to the sea, facilitating activities such as maritime transportation, fishing, tourism, recreation, and a range of industrial ventures. The coral reef ecosystems stand out as the most prominent characteristic of the maritime environment in Aqaba, serving as Jordan's sole gateway to the sea. The Aqaba reefs are located in the Red Sea, which has been recognized as a worldwide 200 Eco-Region by the Worldwide Fund for Nature due to its exceptional marine biodiversity. The Gulf of Aqaba is considered a distinct bio-geographic region inside the Red Sea. It holds global importance due to the presence of reefs at the northernmost latitude in the Western Indo-Pacific. The Red Sea exhibits a notable level of marine endemism, as evidenced by the presence of approximately 25 fish species that are exclusive to this region. These species are primarily concentrated around the Jordanian reefs. The reefs in Jordan hold significant importance as a possible repository of reef species and serve as a natural laboratory for studying the effects of climate change on coral populations. This coastal region sustains coral reef communities that are of small yet significant size. These communities consist of a fragmented belt of bordering coral reefs, characterized by two distinct morphological reef units: the coral reef flat and the outer reef slope. The coral ecosystem under consideration has a remarkable level of biodiversity, making it one of the most diversified reef systems at high latitudes around the globe.

The development of Aqaba tourism movement has been evident since last year, when Time magazine devoted a wide space to talking about the city of Aqaba, the only coastal city in Jordan, as one of the best tourist places in the world. According to what it reported in its online issue, the magazine included 50 tourist places, including Aqaba.

It also touched on the tourist city of Wadi Rum and the scenes that distinguish it with sand dunes, which have become a tourist destination and a target for film production (https://time.com/collection/worlds-greatest-places-2023).

Aqaba achieved the highest occupancy rate in Jordan last year, for many reasons, including its proximity to Petra and Wadi Rum, and the multiplicity of activities in the coastal city. The number of hotels in the city of Aqaba last year reached 88, comprising 5,902 thousand rooms and 11,256 beds, according to the statistics of the Ministry of Tourism. Perhaps the latest statistical figures are the best evidence that the tourism sector of the Golden Triangle constitutes 75% (in the Golden Triangle tourism system: Aqaba / Wadi Rum / Petra.)

Figure.1 The Ayla mega project in Aqaba city: A) Layout of Saray Aqaba;
B) Perspective of Saray Aqaba; C) Saray Aqaba's residential units (Source: https://aseza.jo/)

Aqaba has also achieved several achievements during the past seventeen years in local affairs, as the total investments in the Aqaba Special Region system amounted to about 20 billion dollars, and more than half of these investments were in the tourism sector. Many major tourism projects were attracted, which contributed to the promotion of tourism products, and placed Aqaba among the distinguished cities on the shores of the Red Sea, such as the Ayla project, Saraya al-Aqaba, and Marsa Zayed, as these projects made Aqaba a modern city, in which tradition and history mix with modernity.

Linking the ancient history of the coastal city with digital modernity has made Aqaba a promising tourist model due to the natural and human resources available in it, considering its pace with the rapid technological development in the world in general. The Ayla project, which received full support and partnership from those in charge of the Aqaba Special Economic Authority, is considered the first project of its kind in the Middle East in terms of keeping pace with technological development and the many advantages it brings, in which the tourist finds what he is looking for as shown in figure (1). The Ayla project, or the "luminous pearl" according to the name known among its pioneers, the cost of the project is approximately 1.5 billion dinars, and it includes tourism investment standards in the region, which is in line with the vision for the year 2025 aimed at advancing the tourism sector, making Jordan a center of attraction for tourists and strengthening the position of Aqaba as a destination distinctive on the shore of the Red Sea, as it has hotels and restaurants, a golf course and club, island apartments, a marina village, a water-skiing park with suspended cables, and other facilities.

METHODOLOGY

Utilizing a quantitative methodology and developing a survey instrument grounded in pertinent scholarly investigations might facilitate the achievement of the study's aims and enhance the applicability of the results (Sekaran and Bougie, 2016). In contrast, an exploratory methodology was employed to gain more profound perspectives and closer insights, while also ensuring the development of a comprehensive, pertinent, and elaborate questionnaire that would facilitate more effective responses to the research inquiries. The phenomena examined in this study are of a descriptive nature and were conducted in two distinct phases. The initial stage involves the collecting and analysis of qualitative data to improve comprehension and acquire detailed information regarding the study's characteristics.

This process also assists in the development of the quantitative instrument. The second phase involves the collection and analysis of quantitative data, which is based on the findings of the initial stage in order to examine the recommended solutions of the research, hence enhancing the applicability of the study's findings (Sekaran and Bougie, 2016). Moreover, the utilization of triangulation seeks to generate valid and reliable outcomes, so facilitating a more extensive and profound comprehension of the topic being investigated. Furthermore, it serves to address the potential limitations inherent in each individual technique, so enhancing the overall validity and reliability of the results and inferences. The study population encompasses individuals who visit Aqaba, Jordan. The participants were selected utilizing a rudimentary sampling methodology. A total of 500 questionnaires were disseminated. A total of 237 questions were deemed appropriate for inclusion in the analysis. The replies were categorized using a seven-point Likert scale. Partial Least Squares (PLS) was employed to examine a two-stage approach, as well as for the purposes of measurement and structural model testing.

The literature review encompasses scholarly works pertaining to the researcher's chosen field of study, with the aim of illustrating the many research obstacles encountered. Theoretical overviews serve the purpose of disseminating relevant research findings and identifying areas of research that have not yet been explored. The literature review serves the purpose of situating research ideas within a broader scholarly framework, preventing redundancy in the discussion of previous study findings, addressing conceptual and procedural challenges, and offering assistance in problem-solving. Therefore, it is widely recognized that literature reviews are now regarded as scholarly endeavors that require rigorous research methodologies. A full review has been released. Review studies aim to gain a comprehensive understanding of a contemporary study issue through the critical evaluation of previously published information.

The literature review encompasses scholarly works pertaining to the researcher's chosen field of study, to illustrate the many research obstacles encountered. Theoretical overviews play a crucial role in disseminating relevant research findings and identifying areas of knowledge that have not yet been explored. The literature review serves to provide a contextual framework for research ideas, while also ensuring that earlier study findings are not redundantly reiterated. Additionally, it addresses conceptual and procedural concerns and offers assistance in problem-solving endeavors. Literature reviews are now widely recognized as scholarly endeavors that need rigorous research methodologies. A full review has been released. Review studies aim to gain a comprehensive understanding of a contemporary study issue through the critical evaluation of previously published information.

Framework of the Study

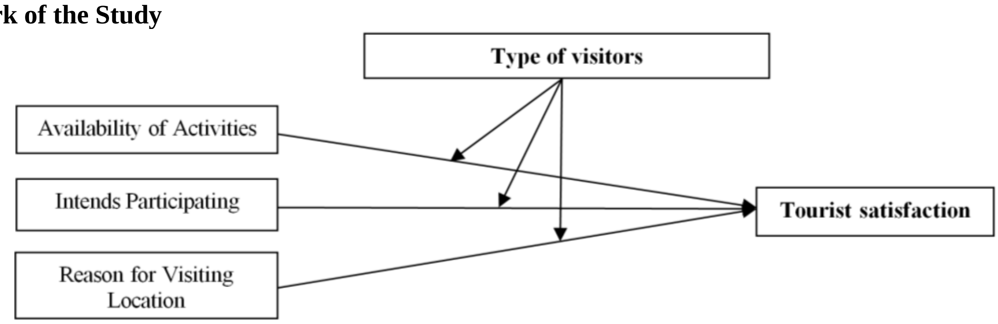


Figure 2. Framework of the Study

ANALYSIS OF THE STUDY

Table 1 presents a concise overview of the descriptive statistics related to the variables under investigation. The characteristics of each variable are presented, so aiding in the comprehension of the major tendencies and variations within the dataset. Regarding the "Availability of Activities," the computed mean of 5.188 and the median of 5.000 indicate a moderate-to-high level of observed availability. The responses exhibit a moderate dispersion around the mean, with values ranging from 1 to 7. The observation is further supported by a standard deviation of 1.384.

The statistical indicators of "Intends Participating" demonstrate a diverse range of intentions, as shown by the equitable mean value of 5.034 and the median value of 5.000. The response range spans from 1 to 7, exhibiting a standard deviation of 1.399, which suggests a moderate degree of variability. The variable "Reason for Visiting" demonstrates a mean value of 5.245 and a median value of 5.000, suggesting a consistent pattern of motivations among the participants. The dataset includes replies that have been quantified on a scale ranging from 1 to 7. Based on the computed standard deviation of 1.248, it can be inferred that the data exhibits a moderate degree of dispersion. The study titled "Satisfaction Coastal and Marine Location" resulted in a mean satisfaction score of 5.096 and a median score of 5.000. These findings indicate that satisfaction levels within this context span from moderate to high. The dataset exhibits a range of responses spanning from 1 to 7, accompanied by a standard deviation of 1.379, which suggests a moderate degree of variability. The variable "Type of Visitors" exhibits a mean value of 5.119 and a median value of 5.000, suggesting a diverse range of visitor categories. The replies encompass a range from 1 to 7, exhibiting a standard deviation of 1.246, indicating a moderate degree of variability.

Table 1. Descriptive

	Mean	Median	Min	Max	Standard Deviation
Availability of Activities	5.188	5.000	1.000	7.000	1.384
Intends Participating	5.034	5.000	1.000	7.000	1.399
Reason for Visiting	5.245	5.000	1.000	7.000	1.248
Satisfaction Coastal and Marine Location	5.096	5.000	1.000	7.000	1.379
Type of visitors	5.119	5.000	1.000	7.000	1.246

Table 2. Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Availability of Activities	0.845	0.864	0.886	0.609
Intends Participating	0.880	0.882	0.913	0.677
Reason for Visiting	0.819	0.819	0.869	0.525
Satisfaction	0.906	0.907	0.924	0.603
Type of visitors	0.822	0.824	0.882	0.652

The PLS Structural Equation

The PLS structural equation can be deconstructed into two constituent pieces, namely the model for measurement and the structure model. The measurement model is responsible for assessing the reliability and validity of the conceptual model, while the structural model elucidates the path coefficients that exist between and among the latent variables. Currently, the research has reached a phase of transition between the preceding two stages. The measurement framework depicted in Figure 2 will be employed for the purpose of this inquiry.

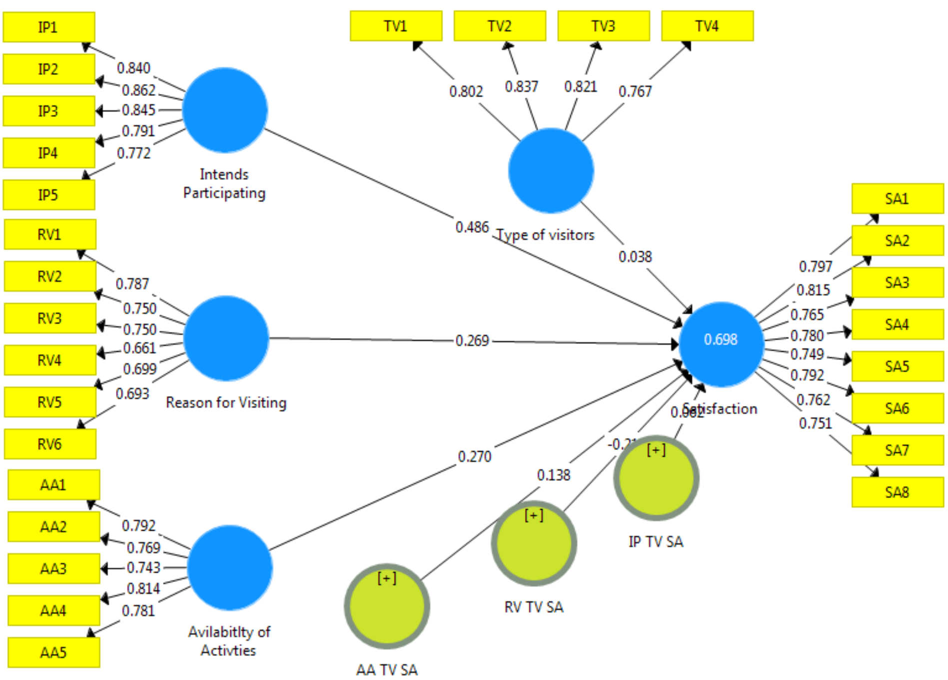


Figure 3. presents the measuring model used

Table 2 presents an evaluation of the validity and reliability of the variables utilizing Cronbach's Alpha, the Composites reliability, and the Average Variance Extracted (AVE). The term "Availability of Activities" exhibits a Cronbach's Alpha coefficient of 0.845, indicating a high level of internal consistency. Additionally, the Composite Reliability coefficient is 0.886, suggesting a strong level of reliability. The Average Validity Estimate (AVE) for this term is 0.609, indicating a moderate level of validity. The Cronbach's Alpha coefficient for the construct "Intends Participating" is 0.880, indicating a high level of internal consistency. The Composite Reliability coefficient, which measures the reliability of the construct, is 0.913, suggesting a strong level of reliability. Additionally, the Average Variance Extracted (AVE) for this construct is 0.677, indicating that 67.7% of the variance in the observed variables can be explained by the construct. The Cronbach's Alpha coefficient for the variable "Reason for Visiting" is calculated to be 0.819, indicating a high level of internal consistency. The Composite Reliability measure is determined to be 0.869, suggesting a reliable and consistent measurement of the construct. Additionally, the Average Validity Expected (AVE) is estimated to be 0.525, indicating a moderate level of convergent validity. The Cronbach's alpha coefficient for the construct "Satisfaction" is determined to be 0.906, indicating a high level of internal consistency. Additionally, the Composite Reliability value is calculated to be 0.924, suggesting a strong reliability of the measurement model. The Average Validity Estimate (AVE) for the construct is determined to be 0.603, indicating a moderate level of validity. The scale measuring the "Type of Visitors" exhibits a Cronbach's Alpha of 0.822, Composite Reliability of 0.882, and an Average Variance Extracted (AVE) of 0.652.

In summary, the collective magnitude of these indicators enhances the trustworthiness of our research outcomes by showcasing the resilience and authenticity of our variable assessments. The relationship between a latent concept and its observable indicators is represented by outer loadings in PLS-SEM, as stated by Hair, Risher, Sarstedt, and Ringle (2019). The utilization of SmartPLS software enables the depiction of path diagrams, which visually represent the factor loadings of individual indicators on their respective constructs. Ideally, the outer loading value of each indicator, which represents the strength of the relationship between the indicator and its construct, should exceed 0.7. By employing bootstrapping techniques, it is possible to estimate the standard error and conduct significance tests on the outer loadings. A p-value below 0.05 indicates a robust relationship between the indicator and its underlying concept. According to Hair et al. (2019), the utilization of SmartPLS and the examination of external loadings can yield indicators that are both valid and dependable. All the options are deemed acceptable as their respective table scores exceed 0.6.

Table 3. Outer Loadings

	Avilabitlty of Activties	**Intends Participating**	**Reason for Visiting**	**Satisfaction**	**Type of visitors**
AA1	**0.792**				
AA2	**0.769**				
AA3	**0.743**				
AA4	**0.814**				
AA5	**0.781**				
IP1		**0.840**			
IP2		**0.862**			
IP3		**0.845**			
IP4		**0.791**			
IP5		**0.772**			
RV1			**0.787**		
RV2			**0.750**		
RV3			**0.750**		
RV4			**0.661**		
RV5			**0.699**		
RV6			**0.693**		
SA1				**0.797**	
SA2				**0.815**	
SA3				**0.765**	
SA4				**0.780**	
SA5				**0.749**	
SA6				**0.792**	
SA7				**0.762**	
SA8				**0.751**	
TV1					**0.802**
TV2					**0.837**
TV3					**0.821**
TV4					**0.767**

Discriminant Validity

Table 4 exhibits an examination of the discriminant validity among the variables, elucidating the correlation coefficients and offering an explication of their interpretation. Consistent with the anticipated trend, the diagonal elements exhibit a correlation coefficient of 1.000, indicating a perfect positive relationship between each variable and itself. The user's text does not provide any information to rewrite in an academic manner. The coefficient of -0.435 indicates that the variables "Availability of Activities" (AA) and "Intends Participating" (IP) possess distinct and independent constructs.

The correlation coefficient of 0.912 between "Intends Participating" (IP) and "Availability of Activities" (AA) suggests a strong positive relationship between these variables. Despite this association, it is evident that IP and AA remain distinct from each other. The observed correlation coefficient between the variables "Reason for Visiting" (RV) and "Availability of Activities" (AA) is 0.632, suggesting a moderate positive relationship between the two variables.

This value implies a substantial degree of association between RV and AA, while also suggesting that they are not entirely redundant or completely overlapping constructs. The negative correlation coefficient of -0.345 between the "Reason for Visiting" (RV) variable and the "Satisfaction" variable indicates that these variables possess individual characteristics, albeit sharing some degree of variation. A comparable pattern is seen in the correlation coefficient of -0.375 observed between the variables "Reason for Visiting" (RV) and "Type of Visitors." The correlation coefficient of 0.777 between "Satisfaction" and "Type of Visitors" indicates a significant association between the two variables, even though they do not overlap. In summary, Table 4 demonstrates the discriminant validity across variables by showcasing their distinctiveness while acknowledging certain correlations that do not impede their specific conceptual boundaries.

The table illustrates that the variables possess distinguishable characteristics.

Table 4. Discriminant Validity

	AA TV SA	Avilabitlty of Activties	IP TV SA	Intends Participating	RV TV SA	Reason for Visiting	Satisfaction	Type of visitors
AA TV SA	1.000							
Avilabitlty of Activties	-0.435	0.780						
IP TV SA	0.912	-0.403	1.000					
Intends Participating	-0.316	0.410	-0.319	0.823				
RV TV SA	0.632	-0.343	0.656	-0.052	1.000			
Reason for Visiting	-0.416	0.768	-0.451	0.369	-0.351	0.725		
Satisfaction	-0.279	0.671	-0.301	0.618	-0.345	0.655	0.777	
Type of visitors	-0.380	0.661	-0.402	0.318	-0.375	0.702	0.554	0.807

4.3 Structural Model

The utilization of a structural equation model (SEM) is a statistical approach employed by researchers to examine complex relationships among several variables. This methodology represents these relationships as a series of interrelated constructs and pathways (Hair et al., 2020). The research employed a structural equation model to investigate the interrelationships among Tourist satisfaction, Availability of Activities, Intends Participating, Reason for Visiting, Type of Visitors. In their study, Jahmani et al. (2023) employed a theoretical framework that conceived the variables as latent constructs and investigated both the direct and indirect correlations existing among them.

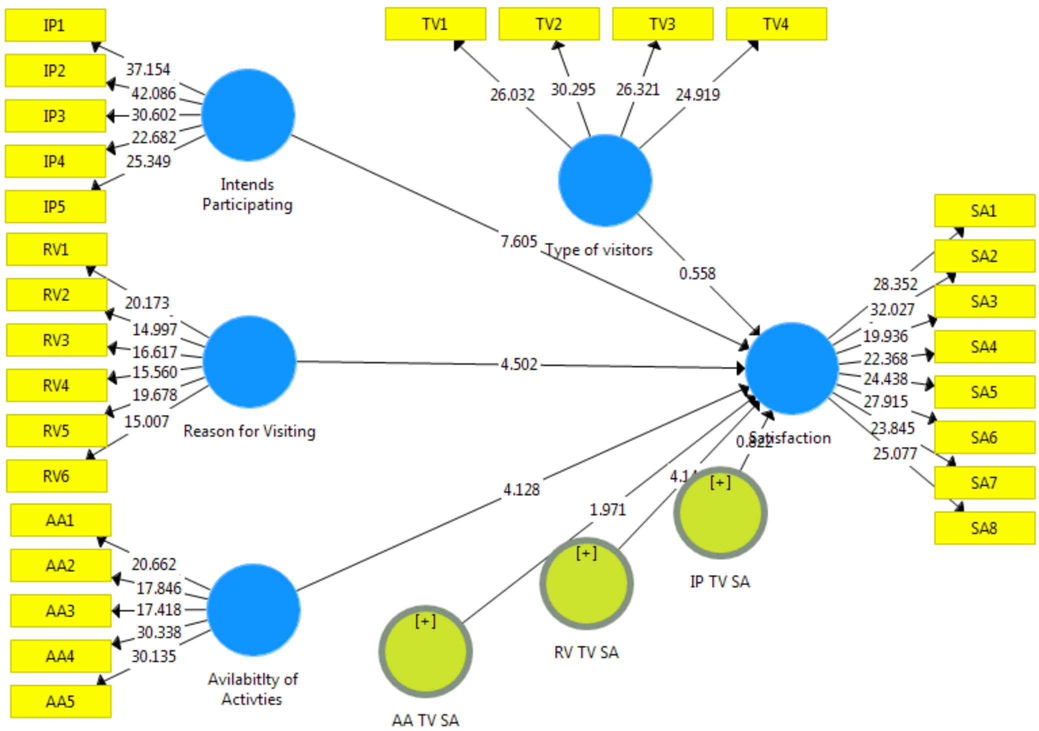


Figure 4. Presents the structural equation model

4.5 Path Coefficients

Table 5 displays the outcomes of the coefficients test, which assesses the relationships between variables and their alignment with the proposed hypotheses. To ascertain the significance of these linkages, the table uses T statistics and p-values. Statistical data supports the premise that the "Availability of Activities" significantly impacts "Satisfaction," as indicated by a T statistic of 4.128. This observation suggests a robust positive link between the availability of activities and levels of happiness. The observed p-value of 0.000 indicates a high level of statistical significance, providing support for the mentioned idea. The user's text does not contain any information to rewrite. The T statistic value of 7.605 offers substantial evidence in favor of the hypothesis that there is a significant relationship between the variable "Intends Participating" and the variable "Satisfaction." The high T value provides evidence for the considerable positive association observed between involvement intentions and satisfaction. The observed p-value of 0.000 indicates a high level of statistical significance. Similarly, there is a valid connection between the concept of "Reason for Visiting" and "Satisfaction." The obtained T-statistic value of 4.502 suggests a statistically significant positive association between visitors' motivations for visiting and their overall experience. The statistical significance of this association is demonstrated by the p-value of 0.000.

Hypotheses and Analysis of the Moderator Variable:

There is some support for the hypothesis that the relationship between "Availability of Activities" and "Satisfaction" is influenced by the moderator variable "Type of Visitors (TV)" when this variable is taken into account. The presence of the attenuation effect is indicated by a T statistic of 1.971. The obtained p-value of 0.049 indicates statistical significance, as it falls below the conventional threshold of 0.05. The user's text does not contain any information to rewrite. The T statistic of 0.822 was computed to test the hypothesis that the variable "Type of Visitors (TV)" acts as a modifier in the association between "Intends Participating" and "Satisfaction." The p-value of 0.411 suggests the presence of a moderate effect, although it does not reach the threshold of statistical significance. The user's text does not provide any information to be rewritten in an academic manner. There is substantial evidence supporting the idea that the relationship between "Reason for Visiting" and "Satisfaction" is influenced by the moderating factor of "Type of Visitors (TV)." The value of T, which is equal to 4.144, indicates a significant moderating effect. A p-value of 0.000 suggests a high level of statistical significance for this reduction.

In summary, the findings shown in Table 5 align with the stated hypotheses, as they offer substantiation for the anticipated relationships and the presence of moderating influences. The research is supported by the theoretical foundations and further strengthened by the empirical verification offered by the utilization of T statistics and p-values.

Table 5. Coefficients test

	Path coefficient	**Sample Mean (M)**	**STDEV**	**T Value**	**P Values**
Availability of Activities > Satisfaction	0.270	0.261	0.065	4.128	0.000
Intends Participating > Satisfaction	0.486	0.496	0.064	7.605	0.000
Reason for Visiting > Satisfaction	0.269	0.267	0.060	4.502	0.000
Moderating effect of TV between Availability of Activities > Satisfaction	0.138	0.132	0.070	1.971	0.049
Moderating effect of TV between Intends Participating > Satisfaction	0.062	0.063	0.075	0.822	0.411
Moderating effect of TV between Reason for Visiting > Satisfaction	-0.217	-0.213	0.052	4.144	0.000

R Square

Table 6 presents the R-squared statistic, which serves as an indicator of the regression model's ability to explain variations in the dependent variable. The R-squared value and the adjusted R-squared value are displayed. The coefficient of determination (R2) in this instance is 0.698. These external influences can be attributed to around 69.8 percent of the variability in satisfaction. The model effectively captures this variation. The updated R-squared score of 0.689 incorporated the inclusion of predictors' complexity and number. An objective evaluation of the model's precision is presented. Table 6 presents a summary of the model's ability to explain the variation in satisfaction. The analysis provides a comprehensive explanation for a substantial amount of variation in the data, as evidenced by the high R-squared value of 0.698. The adjusted R-squared value of 0.689 incorporates the consideration of complexity to offer a comprehensive assessment.

Table 6. R Square

	R Square	**R Square Adjusted**
Satisfaction	0.698	0.689

DISCUSSION AND CONCLUSION

The study's findings provide insight into the complex interconnections among several variables and the level of satisfaction experienced by tourists in the distinct setting of Aqaba, Jordan. The unique maritime and coastal features of Aqaba enhance its appeal as a popular tourist spot, rendering it a suitable environment for investigating the factors that influence visitor pleasure. The relationship between the availability of activities (AA) and tourist satisfaction (SA) is an important topic in the field of tourism research. The findings highlight the notable influence of activity availability on tourist satisfaction. The obtained T value of 4.128, with a significance level of $p < 0.001$, suggests a robust statistical association between the presence of varied activities and the overall contentment experienced by those visiting the location. This highlights the need of providing a variety of captivating activities in order to enrich the experience of visitors.

The study examines the relationship between Intends Participating (IP) and Tourist Satisfaction (SA). The significant impact of individuals' intentions to engage in activities (T value: 7.605, $p < 0.001$) underscores the significance of human motives in influencing visitor pleasure. Individuals that possess a strong motivation and enthusiasm for participating in various activities are more inclined to express greater degrees of enjoyment. The study also highlights the importance of the reasons for visiting Aqaba in shaping tourist satisfaction. The statistically significant T value (4.502, $p < 0.001$) suggests that the fundamental aim of visitors' visits significantly influences their overall satisfaction. Ensuring that the offerings of the destination are in line with the motivations of visitors can lead to increased levels of satisfaction. The moderating effect of the type of visitors (TV): The incorporation of the moderating variable "Type of Visitors" (TV) introduces a level of complexity to the results. The results indicate that there is a significant interaction between the type of visitors (AA and SA) and the availability of activities. This interaction suggests that the link between the availability of activities and visitor satisfaction is influenced by the kind of visitors. The T value for this interaction is 1.971, with a p-value of 0.049. This underscores the significance of customizing activities to cater to various visitor categories.

Despite the lack of statistical significance (T value: 0.822, $p = 0.411$) in the moderating effect between (IP) and (SA), the significant moderating impact of (TV) between (RV) and (SA) (T value: 4.144, $p < 0.001$) emphasizes the influence of visitor types on their levels of satisfaction. This highlights the need of taking into account a wide range of visitor profiles when building experiences and services.

In summary, this research offers significant contributions by shedding light on the determinants that impact tourist happiness within the distinct coastal and marine setting of Aqaba, Jordan. The findings validate the significant impact of activity availability, participation intentions, and visitation motivations on visitor satisfaction. Additionally, the impact of visitor types on moderating these interactions further emphasizes the intricate nature of these dynamics.

The research findings have significant significance for the development and implementation of destination management and marketing strategies in the context of Aqaba. Customizing activities and services to correspond with the intentions and motivations of visitors has the potential to result in increased satisfaction and favorable word-of-mouth. In addition, acknowledging the diverse tastes among different groups of visitors facilitates the creation of tailored experiences. Nevertheless, it is imperative to recognize the inherent constraints of the study, including the size of the sample and the possibility of response bias. Subsequent investigations may delve into supplementary factors and scrutinize the enduring effects of pleasure on recurrent visits and destination loyalty.

In general, this research adds to the existing knowledge on tourism satisfaction and offers practical implications for stakeholders seeking to enhance the visitor experience in Aqaba's fascinating coastal and marine setting.

Author Contributions: Conceptualization, O.J and E.F; methodology, O.J and A.J; software, B.A and O.J; validation, A.J and S.J.; formal analysis, B.A and A.J.; investigation, E.F. and O.J.; data curation, B.A. and S.J; writing - original draft preparation, O.J. and E.F.; writing - review and editing, A.J. and S.J.; visualization, E.F and S.J.; supervision, O.J; project administration, O.J. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Abbasi, G.A., Kumaravelu, J., Goh, Y.N., & Singh, K.S.D. (2021). Understanding the intention to revisit a destination by expanding the theory of planned behavior (TPB). *Spanish Journal of Marketing-ESIC*, 25(2), 282-311. https://doi.org/10.1108/SJME-12-2019-0109

Al Fahmawee, E., & Jawabreh, O. (2022b). Narrative Architectural Interior Design As A New Trend To Enhance The Occupancy Rate Of Low-Class Heritage Hotels. *New Design Ideas*, 6(2), 2022, 207-228.

Al Fahmawee, E.A.D., & Jawabreh, O. (2023). Sustainability of green tourism by international tourists and its impact on green environmental achievement: Petra Heritage, Jordan. *GeoJournal of Tourism and Geosites*, 46(1), 27–36. https://doi.org/10.30892/gtg.46103-997

Ali, M.A., Halim, M.H.A., Masnan, S.S.K., Saidin, M., & Narayanen, S. (2023). Geoarchaeosites for heritage tourism products of Kuala Muda district, Kedah, Malaysia. *GeoJournal of Tourism and Geosites*, 46(1), 63–69. https://doi.org/10.30892/gtg.46107-1001.

Al-Zibdah, M.K. (2013). The Aqaba Marine Protected Area--Integration of Marine Science and Resource Management in the Gulf of Aqaba-Red Sea. *International Journal of Marine Science*, 3, (44). https://doi.org/10.5376/ijms.2013.03.0044

Alananzeh, O., Almuhaisen, F., Jawabreh, O., Fahmawee, E., Ali, B., & Ali, A. (2023). The Impact of Job Stability, Work Environment, Administration, Salary and Incentives, Functional Justice, and Employee Expectation on the Security Staff's Desire to Continue Working at the Hotel, *J. Stat. Appl. Pro.* 12, (2), 425-439. http://dx.doi.org/10.18576/jsap/120209

Alegre, J., & Cladera, M. (2009). "Analysing the effect of satisfaction and previous visits on tourist intentions to return", *European Journal of Marketing*, 43 (6), 670-685. https://doi.org/10.1108/03090560910946990

Arabadzhyan, A., Figini, P., García, C., González, M.M., Lam-González, Y.E., & León, C.J. (2021). Climate change, coastal tourism, and impact chains–a literature review. *Current Issues in Tourism*, 24(16), 2233-2268. https://doi.org/10.1080/13683500.2020.1825351

Arifin, Y.I., Pattiro, W.M., Manyoe, I.N., Napu, S.S.S., & Sugawara, H. (2023 Analysis and Quantitative Assessment of Geodiversity At Karya Murni, Gorontalo, Indonesia.. *GeoJournal of Tourism and Geosites*,48(2spl), 763–773. https://doi.org/10.30892/gtg.482spl10-1076

Carvache-Franco, M., Alvarez-Risco, A., Carvache-Franco, O., Carvache-Franco, W., Estrada-Merino, A., & Villalobos-Alvarez, D. (2022). Perceived value and its influence on satisfaction and loyalty in a coastal city: a study from Lima, Peru. *Journal of Policy Research in Tourism, Leisure and Events*, 14(2), 115-130. https://doi.org/10.1080/19407963.2021.1883634

Corral Quijada, K. (2022). Coastal and Marine Tourism in the Blue Economy: An Assessment of Strategies in Latin America and the Caribbean. *Dalhousie University*. http://hdl.handle.net/10222/81743

Dabholkar, P.A., & Sheng, X. (2012). Consumer participation in using online recommendation agents: effects on satisfaction, trust, and purchase intentions. *The Service Industries Journal*, 32(9), 1433-1449. https://doi.org/10.1080/02642069.2011.624596

Fennell, S.R., Copeland, K., Thomsen, B., Copeland, S., & Duggan, M. (2023). Toward an era of multispecies livelihoods in coastal and marine community-based tourism The Routledge *Handbook of Nature Based Tourism Development*, 555-565, Routledge. https://doi.org/10.4324/9781003230748-15

Gounden, D. (2021). An assessment of visitor profiles, consumption patterns and perceptions as well as the state of coastal and marine tourism (specifically beach) sites in KwaZulu-Natal Province, South Africa. https://researchspace.ukzn.ac.za/handle/10413/19471

Gounden, R. (2020). A comparative provincial analysis of coastal and marine tourism (CMT) visitor profiles and perceptions in South Africa. University of KwaZulu-Natal.

Hair, J.F., Risher, J.J., Sarstedt, M., & Ringle, C.M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hair, Jr, J.F., Howard, M.C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, 109, 101-110. https://doi.org/10.1016/j.jbusres.2019.11.069

Hayward, P. (2019). Elaborating the aqua pelagic imaginary: Catalina Island, tourism and mermaid iconography. J*ournal of Marine and Island Cultures*.8(2), 89 – 102. http://hdl.handle.net/10453/139184

Islam, M. & Sarker, T. (2022). Chapter 24 Financing sustainable coastal and maritime tourism in the blue economy of the Asia-Pacific. In T. Cadman & T. Sarker (Ed.), *De Gruyter Handbook of Sustainable Development and Finance 543-566. Berlin, Boston: De Gruyter*. https://doi.org/10.1515/9783110733488-024

Islam, M.M., & Shamsuddoha, M. (2018). Coastal and marine conservation strategy for Bangladesh in the context of achieving blue growth and sustainable development goals (SDGs). *Environmental Science & Policy*. 8(10). https://doi.org/10.3390/jmse8100815

Issakov, Y., Imanbekova, B., Beisembinova, A., Moldgaliyeva, A., Abisheva, Z., Ussenov, N., & Dávid, L. (2023). Study of the Effectiveness of Tourism and Local Lore Activities of Geography Teachers in Kazakhstan. *GeoJournal of Tourism and Geosites*, 48(2spl), 741–750. https://doi.org/10.30892/gtg.482spl08-1074

Jahmani, A., Jawabreh, O., Fahmawee, E., Almasarweh, M., & Ali, B.J. (2023). The Impact of Employee Management on Organizational Performance in Dubai's Five-Star Hotel Sector. *Journal of Statistics Applications & Probability*, 12(2), 395-404. http://dx.doi.org/10.18576/jsap/120206

Jawabreh, O.A.A. (2021). Tourists and local community of the case study Aqaba Special Economic Zone Authority (ASEZA). *GeoJournal of Tourism and Geosites*, 35(2), 490–498. https://doi.org/10.30892/gtg.35229-676

Jawabreh, O., Al Fahmawee, E, Alshatnawi, E., Jahmani, A., Obeidat, G., & Ali, B. (2023b). Environmental Sustainability and Tourism: Parameters of Tourist Satisfaction at Petra Heritage Site in Jordan, *ISVS e-journal*, 10(8), 345-359. https://doi.org/10.61275/ISVSej.2023-10-08-23

Jawabreh, O., Al Fahmawee, A., Ali, B., & Alshatnawi, E. (2023c). Heritage Lodgings and Customer Satisfaction: An Examination of Internet Evaluations of the Tourist Facilities at the Petra Heritage Site, Jordan, *ISVS e-journal*, Vol. 10, Issue 7,41-57.

Jawabreh, O., Masa'deh, R., Al Fahmawee, E., & Mahmoud, R. (2023a). Understanding the Dimensions of Customer Relationships in the Heritage Hotels in Amman, Jordan, *ISVS e-journal*, 10(8), 401-412. https://doi.org/10.61275/ISVSej-2023-10-08-27

Jurowski, Dr. Claudia and Nickerson, Dr. Norma, "The Impact of Activity Participation on Satisfaction"(2016). Travel and Tourism Research Association: *Advancing Tourism Research Globally*. 52. https://scholarworks.umass.edu/ttra/2011/Visual/52

Marin-Pantelescu, A., Tăchiciu, L., Căpușneanu, S., & Topor, D.I. (2019). Role of tour operators and travel agencies in promoting sustainable tourism. *Amfiteatru Economic*, 21(52), 654-669. https://doi.org/10.24818/EA/2019/52/654

Nelson, J.R., Grubesic, A., Sim, L., & Rose, K. (2018). A geospatial evaluation of oil spill impact potential on coastal tourism in the Gulf of Mexico. *Computers, Environment and Urban Systems*, 68, 26-36. https://doi.org/10.1016/j.compenvurbsys.2017.10.001

Nobi, M.N., & Majumder, M. (2019). Coastal and marine tourism in the future. *Journal of Ocean and Coastal Economics*, 6(2), 12. https://doi.org/10.15351/2373-8456.1101

Pashkov, S., Mazhitova, G., Sedelnikov, I., Ospan, G., & Sagatbayev, Y. (2023). Assessment of tourism and climate potential of territories of Northern Kazakhstan. *GeoJournal of Tourism and Geosites*, 48(2spl), 725–732. https://doi.org/10.30892/gtg.482spl06-1072

Saleh, M.H., Jawabreh, O., Emad Al Dein, A., & Ali, B.J. (2023). The Competitiveness of Jordanian Tourism Activity in Enhancement Economic Growth. *Applied Mathematics & Information Sciences (AMIS)*, 17(1), 161-174. https://doi.org/10.18576/amis/170117

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*: John Wiley & sons.

Solis-Radilla, M.M., Carvache-Franco, M., Carvache-Franco, O., & Carvache-Franco, W. (2021). Motivations as predictive variables of satisfaction and loyalty in coastal and marine destinations: a study in Acapulco, Mexico. *International Journal of Tourism Cities*, 7(3), 767-782. https://doi.org/10.3390/su132413903

Stumpf, P., Vojtko, V., & Janecek, P. (2020). Do European tourists intend to revisit the same countries? Effect of satisfaction in European Union destinations. *Scandinavian Journal of Hospitality and Tourism*, 20(4), 398-417. https://doi.org/10.1080/15022250.2020.1807405

Teklebrhan, L.G., Zelealem, H., & Daniel, A.G. (2023). Geotourism of Axum and Yeha monuments, Northern Ethiopia. *GeoJournal of Tourism and Geosites*, 48(2spl), 685–695. https://doi.org/10.30892/gtg.482spl02-1068

Ulfy, M.A., Hossin, M.S., Karim, M.W., & Suib, F.H.B. (2021). Customer perception on service quality towards tourism customer satisfaction in Malaysian marine tourism sector. *GeoJournal of Tourism and Geosites*, 37(3), 792–799. https://doi.org/10.30892/gtg.37308-710

Yustika, B.P., & Goni, J.I. (2020). Network structure in coastal and marine tourism: diving into the three clusters. *Tourism Planning & Development*, 17(5), 515-536. https://doi.org/10.1080/21568316.2019.1673809

Article history: Received: 27.07.2023 Revised: 09.09.2023 Accepted: 11.10.2023 Available online: 14.11.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1350-1355
DOI 10.30892/gtg.50415-1133

THE INFLUENCE OF RECREATION ON THE PROCESSES OF SOIL EROSION IN THE FORESTS OF THE WEST KAZAKHSTAN REGION

Nurgul RAMAZANOVA[*]
L.N. Gumilyev Eurasian National University, Department of Physical and Economical Geography, Astana, Kazakhstan, e-mail: nurgulram@gmail.com

Zhanar OZGELDINOVA
L.N. Gumilyev Eurasian National University, Department of Physical and Economical Geography, Astana, Kazakhstan, e-mail: ozgeldinova@mail.ru

Elvira TURYSPEKOVA
L.N. Gumilyev Eurasian National University, Department of Physical and Economical Geography, Astana, Kazakhstan, e-mail: elvira.turyspekova@mail.ru

Anzhela AKHMEDOVA
L.N. Gumilyev Eurasian National University, Department of Physical and Economical Geography, Astana, Kazakhstan, e-mail: aangela89@mail.ru

Tangal TURSYNOVA
L.N. Gumilyev Eurasian National University, Department of Physical and Economical Geography, Astana, Kazakhstan, e-mail: tangaltt@mail.ru

Sabina TOKSANBAEVA
L.N. Gumilyev Eurasian National University, Department of Physical and Economical Geography, Astana, Kazakhstan, e-mail: sabina.toksanbaeva@mail.ru

Arman DEMEUOV
L.N. Gumilyev Eurasian National University, Department of Physical and Economical Geography, Astana, Kazakhstan, e-mail: arman_demeuov@mail.ru

Aliya AYAPBEKOVA
L.N. Gumilyev Eurasian National University, Department of Physical and Economical Geography, Astana, Kazakhstan, e-mail: alya1960@list.ru

Citation: Ramazanova, N., Ozgeldinova, Z., Turyspekova, E., Akhmedova, A., Tursynova, T., Toksanbaeva, S., Demeuov, A., & Ayapbekova, A. (2023). THE INFLUENCE OF RECREATION ON THE PROCESSES OF SOIL EROSION IN THE FORESTS OF THE WEST KAZAKHSTAN REGION. *GeoJournal of Tourism and Geosites*, 50(4), 1350–1355. https://doi.org/10.30892/gtg.50415-1133

Abstract: The relevance of the topic is determined by the increasing demand for forest recreational resources of the West Kazakhstan region. The forests of the West Kazakhstan region are under the influence of recreational activity, which is growing every year and leads to the transformation of the natural environment. The purpose of the study is to determine the influence of recreation on the processes of soil erosion in the forests of the West Kazakhstan region. An increase in the recreational load and the steepness of the slopes leads to degradation of the forest floor and grassy cover. The remnants of these materials move downhill under the influence of visitors, and the soil surface is compacted. The porosity coefficient of the upper soil layer decreases as recreational loads increase. This leads to a decrease in soil water permeability and an increase in surface water runoff. The study showed that the runoff coefficient, the air-dry mass of the forest floor and the porosity coefficient are closely related. These relationships characterize an increase in the water runoff coefficient with a decrease in the air-dry mass of the forest litter and the porosity coefficient. In the field in 2023, based on the morphological description of the profiles, the degree of soil erosion in the selected woodlands was determined.

Key words: West Kazakhstan, natural resource state, river basin, soil, erosion, RUSLE, GIS

* * * * * *

INTRODUCTION

Classification of water erosion taking into account genetic, spatial and other features was proposed by V.N. Petrov in 1980. The landscape-genetic classification of water erosion was improved by L.F. Litvin in 2002, who identified the types of natural-anthropogenic erosion with various economic uses of land: agricultural, pasture, forestry, construction,

[*] Corresponding author

recreational, etc. During recreational digression of forest ecosystems, the destruction of forest litter and soils occurs. Recreational use of these forests can lead to landscape changes, especially due to deterioration of the quality of forest litter, reduction of organic matter and compaction of forest soils. This in turn leads to the formation of water runoff on the surface and activation of soil erosion during heavy rains (Ivonin et al., 2000; Dragovich, 2015; Salesa and Cerdà, 2020).

Recreational digression is the process of negative changes in ecosystems under the influence of recreational loads. In the process of such a change, the ecosystem successively passes through five stages. According to OST 56-84-85 (Industry Standard, 1995), the stage of recreational digression is the stage of changing the biogeocenosis (ecosystem) as a result of exposure to recreational loads. Recreational use of forests can lead to negative changes in the entire forest ecosystem. Under the influence of such use, the destruction and degradation of forest litter occurs, and with it the properties of soils change. As a result, the soil layer is compacted and its porosity is reduced, which prevents the normal penetration of moisture and nutrients. Degradation of the litter also negatively affects soil microorganisms, which play an important role in its fertility. In addition, during the recreational use of forests, bonfires are formed, which leads to the burning of humus and an additional deterioration in the quality of the soil. All these processes eventually have a negative impact on the growth and development of plants, animals and other organisms that make up the forest ecosystem. Recreational use of forests can cause adverse changes in soils, forest structure, vegetation, young growth, undergrowth and wildlife (Lynn and Brown, 2003; Cassios, 1987; Wang and Watanabe, 2022; Evju et al., 2021; Telyuk et al., 2022; Jeffrey, 2023).

The primary cause of soil degradation is the deterioration of the forest floor, which occurs as a result of its compaction, crushing, thinning, fragmentation and complete destruction until the mineral horizon is exposed. Deterioration of the litter leads to simultaneous deterioration of soil properties, such as compaction and reduction of porosity. In addition, degradation of the litter leads to the suppression of soil microflora and humus formation processes under fire pits (Douglass et al., 1999). Increased recreational loads cause the oppression of trees (decrease in growth; the appearance of foci of diseases and the spread of pests; reduction in size and discoloration of needles, shoots; suppression of photosynthesis, respiration, transpiration and vital activity of roots). Trees are also susceptible to typical mechanical damage, such as pinching, splitting of trunks, trampling of roots, breaking of tops and skeletal branches. Individual trees can be cut down when equipping places for recreation and firewood harvesting. In addition, the bark of trees can get burned near bonfires.

Recreation leads to degradation of undergrowth, primarily small (height less than 0.5 m) and medium (0.5–1.0 m), as well as to a decrease in the density of shrubby undergrowth. In the initial period of loads, the undergrowth of different ages turns into the undergrowth of the same age, then the undergrowth and undergrowth are preserved by kurtins, and their viability decreases. It is also possible to change the collection of young trees, which indicates the danger of a future transition to another type of forest. It is obvious that at a certain stage of changes in forest ecosystems, erosion is observed, caused mainly by soil degradation under the influence of recreation. The relationship of soil erosion, runoff coefficient and slope steepness control the erosion process. The permissible limits of recreational loads that do not cause soil erosion are determined: the steepness of slopes up to 15° – 4.9 people. /ha; steepness from 15 to 20° – 2.1 people. /ha; steepness from 20 to 23 ° – 0.1 people / ha. Such a recreational load can minimize erosion processes. On slopes steeper than 23°, even a minimal recreational load activates the erosion process (Ivonin and Voskoboinikova, 2014; Shcheglo and Gorbunova, 2011).

The relevance of the topic is determined by the increasing demand for forest recreational resources of the West Kazakhstan region. As a result of long-term research (1981-2019), it was revealed that 630 species of vascular plants belonging to 72 families and 309 genera grow in the floodplain forests of the Ural River within the West Kazakhstan region (Ramazanova et al., 2022; Ramazanova et al., 2020). The largest families are *Poaceae* – 72 species (11.4%), *Asteracae* – 65 species (10.3%), *Fabaceae* – 38 species (6.0%), *Rosaceae* – 37 species (5.9), *Lamiaceae* – 36 species (5.7%), *Caryophyllaceae* – 35 species (5.6%), *Brassicaceae* – 29 species (4.6%), *Chenopodiaceae* – 25 species (4.0%), *Apiaceae* – 24 species (3.8%), *Liliaceae* – 24 species (3.8%), etc. (Darbayeva et al., 2021; Darbayeva et al., 2020). Thus, in the floodplain forests, the presence of widely distributed families, such as *Poaceae, Suregaceae, Scrophulariacae, Polygonaceae*, which are distributed throughout the floodplain of the Urals, can be traced. The presence of local subendemic families *Fagaceae*, *Betulaceae, Tiliaceae*, *Gentianaceae*, *Ulmaceae*, *Dryopteridaceae, Trapaceae, Thelypteridaceae* indicates the preservation of non-moral broad-leaved species in floodplain forests.

MATERIALS AND METHODS

In the course of field research, soil erosion survey is carried out, during which the contours of soils are distinguished by the degree of erosion and the degree of resistance to erosion. The detail of the survey is determined depending on the complexity of the soil cover, the intensity of erosion and the nature of the use of land for recreational purposes.

Soil erosion survey is carried out with the predominant laying of the profile. The total number of profiles, their frequency and the number of samples taken are determined by the nature of the manifestation of erosion: the number of digs increases when it is difficult to determine the degree of erosion (Shcheglov and Gorbunova, 2011).

Based on the morphological description of the profile, the degree of soil erosion is determined – weak, medium, strong. According to Sobolev's classification, eroded soils are divided into slightly washed, medium washed, strongly washed and very strongly washed soils. Slightly washed soils. These include soils that have no more than ½ horizon A washed away. The color of the surface layer of the soil does not differ from the unwashed one. Medium-washed soils. These include soils in which the horizon A is partially (more than half) or completely washed away; the soil surface has a brownish tint. Strongly washed soils. These include soils in which the AB horizon has been washed away, the surface has a brown color. Very much washed away soils. These include soils in which the sun horizon has been completely washed away, the surface layer of brown color is characterized by a lumpy structure. According to the degree of soapiness, there are weakly washed (up to 20 cm), medium-washed (20-40 cm) and strongly washed (more than 40 cm). The resistance of soils to water erosion in the absence of plants or crop residues on them depends on the lumpiness of the upper layer. Lumpiness is the weight content of fractions larger than 1 mm in diameter in a layer of 0-5 cm, expressed as a percentage of the weight taken from this layer. The lower the lumpiness, the less resistant the soil is to erosion, all other things being equal (Table 1). The destruction of lumps to erosively dangerous sizes (less than 1 mm in diameter) depends on their connectivity, which, in turn, is due to the physico-chemical properties of the soil: granulometric composition, carbonate content, salinity, and others.

Table 1. Classification of soils by degree of resistance to erosion (Shcheglov and Gorbunova, 2011) Degree of stability

Degree of stability	The content of physical clay in %
Strong	Over 20
Average	20–10
Weak	less than 10

Determination of the percentage of clumping of the soil is carried out as follows: the average sample is taken from at least 5 points for each layer. The weight of the sample is 1.5–2 kg. Sieving is carried out in the field through a closed sieve with holes of 1 mm after bringing the sample to an air-dry state. The basis for the grouping of soils of various granulometric composition in terms of resistance to erosion is the percentage of physical clay.

Assessment of the recreational load of the territory on a landscape-dynamic basis consists of the following stages:

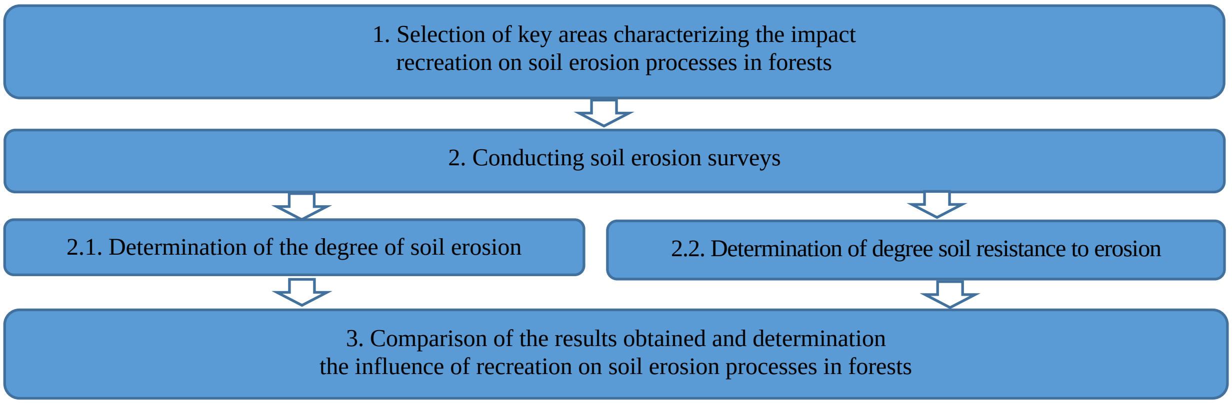


Figure 1. Flowchart «Determination of the influence of recreation on the processes of soil erosion in forests» (Source: Authors)

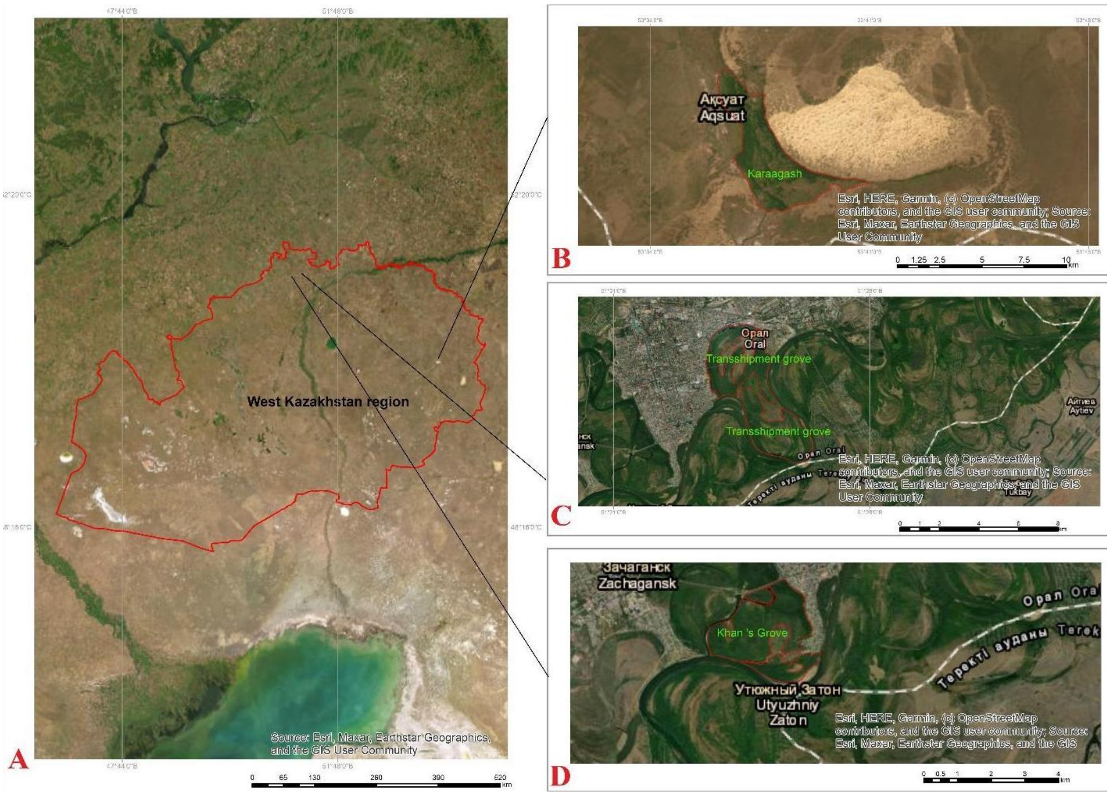


Figure 2. Forests of the West Kazakhstan region (Source: Author, created in the ArcGIS 10.8 program using the National Geographic World Map, Maxar, 2023) A) West Kazakhstan region; B) Karaagash Forest; C) Transshipment Grove forest; D) Khan Grove Forest

RESULTS DISCUSSIONS

The following woodlands were selected as objects of studying the influence of recreation on the processes of soil erosion in the forests of the study region: Karaagash, Transshipment grove and Khan's grove (Figure 2).

Khan's grove is a pine forest located at the junction of the Ural and Shagan rivers. In total, it occupies 256 hectares. The transshipment grove, with the old Ural riverbed (686.5 hectares), 40% of the forest area of which was lost due to private forest fires, lack of proper care and sanitation. Karaagash-a forest area of about 7 thousand hectares, located in the upper reaches of the Buldurta River, is a refuge for northern forest species. Various types of birch and aspen trees have been developed here. The main characteristics of the studied woodlands are presented in Table 2.

Table 2. Characteristics of research objects

Woodlands	Coordinates	Number of observation points	Slope steepness, in degrees	Breed	Mother breed	Age, years	Number of barrels, pcs. / ha
Karaagash	50.319041, 53.634890	3	1,9	*Ulmus*	Fine - grained sandstones	78	81
Transshipment grove	51.207332, 51.409667	4	3,21	*Betula, Populus tremula*	Clay shales and sandstones	120	215
Khan 's Grove	51.179611, 51.365102	3	3,18	*Pinus*	Fine-grained sandstones and shales	130	205

Based on the morphological features of the profiles of the selected woodlands, the degrees of soil erosion were determined according to the method described above. There are 3 profiles laid in the Karaagash forest, the location of the profiles is determined depending on the intensity of recreational development. The study showed that the soil of two out of three of them belongs to the category of slightly washed soils, where no more than ½ horizon A has been washed away. The color of the surface layer of these soils does not differ from the unwashed one.

Figure 3. Forest «Khan 's Grove» (Source: the research was conducted by the authors in «Khan 's Grove», summer, 2023)

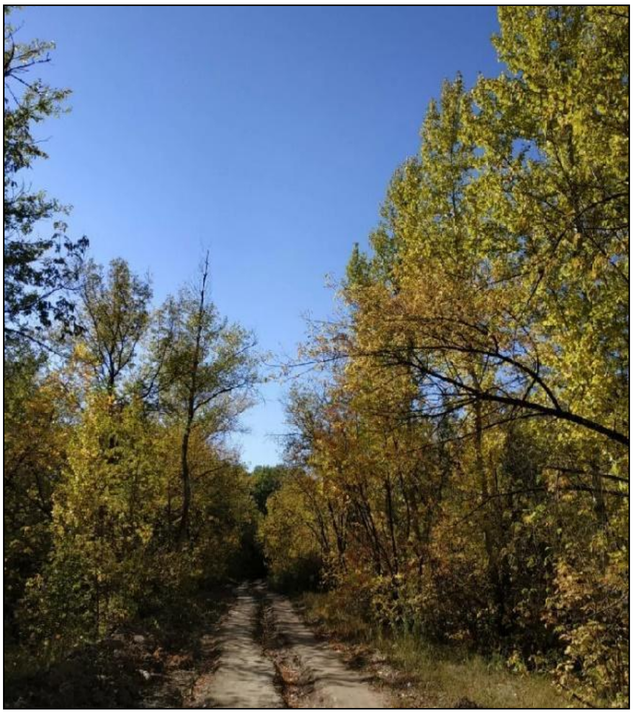


Figure 4. Forest «Transshipment grove»(Source: the research was conducted by the authors in «Transshipment grove», summer, 2023)

Soil control at one point belongs to the category of medium-washed soils, where the horizon A is completely washed away, and the soil surface has a brownish tint. Studies show that the average content of physical clay in the soils of the Karaagash forest is 3.2% and have a low degree of resistance to erosion processes. There are four profiles in the Transshipment Grove forest area, which are located depending on the intensity of recreational development. The results of the study showed that the soil in two of these profiles belongs to the category of slightly washed soils, in which flushing occurs no more than half the depth of horizon A. The surface layer of slightly washed soils does not differ in color from non-flushed soils. The remaining two profiles belong to medium-washed soils, where more than half of the horizon A has been washed away and the surface has a brownish color. The average content of physical clay in the soils of the Transshipment Grove forest is 11.3%, and the soils have an average resistance to erosion processes.

Three soil profiles were studied in the Khan's Grove forest, which were established depending on the degree of recreational use. From the study it became clear that two of these profiles belong to the category of soils with a strong degree of flushing, where the horizon AB is washed away, and the surface has a brown color. In one of the points of the Khan's Grove forest, the soil belongs to the category of medium-washed soils, where the horizon A is partially washed away, and the soil surface has a brownish color. Studies show that the average content of physical clay in the soils of this forest area is 3.9%, which indicates their low resistance to erosion processes.

Depending on the physical and geographical features in all the forests selected for the study, the slope steepness is up to 15 degrees and in relation to the permissible limits of recreational loads that do not cause soil erosion should not exceed 4.9 people/ ha, can reach 15-18 people/ha. Khan's Grove attracts a large number of visitors and has an extensive network of paths, making it a popular holiday destination. However, due to the intensive use of this forest area for recreational purposes, significant changes are occurring in the natural soil cover. In addition, woodland components such as low-density sandstones and shales are not resistant to erosion. But this indicator in the Khan's grove in the summer period exceeds 2-3 times. In the rest of the studied woodlands does not exceed the established norm.

CONCLUSION

Based on the above, we can say that the forest landscapes of the West Kazakhstan region are affected by recreational activities, which are growing and leading to a change in the natural environment. Studies conducted in 2023 showed that heavily washed soils are the soils of the Khan's Grove forest, where the AB horizon is washed away, the surface has a brown color. Khan's grove, which is located in the vicinity of the city of Uralsk, is a popular place for recreation with a large number of visitors and an extensive network of paths. The influence of recreational load on this forest area leads to significant changes in the natural mosaic of living ground cover. In addition, the components of the forest, such as fine-grained sandstones and shales, are not resistant to erosion processes. Studies show that the total area of paths and trampled areas in pine plantations directly depends on the attendance of these arrays.

The fine-grained sandy soils of the Karaagash forest are slightly washed. The vegetation cover consists of various grass groupings, including many types of weeds. Currently, the Karaagash forests are less susceptible to recreational load compared to the Khan Grove and the Transshipment Grove. However, the array is used as a place for the removal of household and construction waste. The soils of the Karaagash forest have low resistance to erosion processes.

Forest landscapes are becoming susceptible to the negative impact of recreational activities, which can have serious consequences for green areas, especially those located near reservoirs. An increase in the recreational load and the steepness of the slopes leads to degradation of the forest floor and grassy cover. The remnants of these materials move downhill under the influence of visitors, and the soil surface becomes denser. As a result, the porosity coefficient of the topsoil is reduced, which leads to a deterioration of its water permeability and an increase in surface runoff. Studies show that the runoff coefficient, the air-dry mass of the forest litter and the porosity coefficient are interrelated. An increase in the runoff coefficient correlates with a decrease in the air-dry mass of the forest litter and the porosity coefficient.

Author Contributions: Conceptualization, R.N. and Zh.O.; methodology, Zh.O., T.E. and A.A.; software, T.T. and D.A.; validation, D.A. and A.A.; formal analysis, T.S. and A.A.; investigation, R.N. and Zh.O.; data curation, R.N. and Zh.O.; writing - original draft preparation, T.E. and T.S.; writing - review and editing, Zh.O. and T.S.; visualization, T.E. and R.N.; supervision, R.N.; project administration, R.N. All authors have read and agreed to the published version of the manuscript.

Funding: of scientists for scientific and (or) scientific and technical projects for 2021-2023 by the Ministry of Science and Higher Education of the Republic of Kazakhstan (IRN No. AP09260232).

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: This study was conducted within the framework of grant funding of scientists for scientific and (or) scientific and technical projects for 2021-2023 by the Ministry of Science and Higher Education of the Republic of Kazakhstan (IRN No. AP09260232).

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Cassios, C.A. (1987). *Impact of Recreational and Tourist Activities on the Soil Environment.* Scientific Basis for Soil Protection in the European Community, 343–354.

Darbayeva, T., Ramazanova, N., Chashina, B., Berdenov, Z.G., Mendybayev, E., Wendt, J., & Atasoy, E. (2020). Modeling soil erosion in the Chagan River basin of the west Kazakhstan with using RUSLE and GIS tools. *Journal of Environmental Biology,* 41, 396-404. https://doi.org/10.22438/jeb/41/2/(SI)/JEB-18

Darbayeva, T.E., Alzhanova, B.S., & Ramazanova, N.E. (2021). *Tsenoticheskoye i vidovoye raznoobraziye poymennykh lesov reki ural v predelakh Zapadno-kazakhstanskoy oblasti [Cenotic and species diversity of floodplain forests of the Ural River within the West Kazakhstan region]*. Steppes of Northern Eurasia: Proceedings of the IX International Symposium, 237-242 (in Russian).

Douglass, K.S., Hamann, J., & Joslin, G. (1999). *Vegetation, Soils, and Water. Effects of recreation on Rocky Mountain wildlife: A Review for Montana. Committee on Effects of Recreation on Wildlife,* Montana Chapter of The Wildlife Society. 306-307.

Dragovich, D. (2015). Soil erosion and conservation in two geomorphic and recreational environments. *Soil Water Journal, Special Issue*, 67-73. https://dergipark.org.tr/tr/download/article-file/199950

Ivonin, V.M., Avdonin, V.E., & Penkovsky, N.D. (2000). *Rekreatsionnaya ekologiya gornykh lesov rossiyskogo Prichernomor'ya [Recreational ecology of mountain forests of the Russian Black Sea region].* Publishing House of the Higher School of Economics, 271, ISBN 5-872-053-1 (in Russian).

Ivonin, V.M., & Voskoboynikova, I.V. (2014). *Vliyaniye turizma na protsessy erozii pochv v lesakh nizkogoriy severo-zapadnogo Kavkaza [The influence of tourism on the processes of soil erosion in the forests of the low mountains of the north-western Caucasus]*. Scientific Journal of the Russian Research Institute of Land Reclamation Problems, 4(16), 87-104 (in Russian).

Litvin, L.F. (2002). *Geografiya erozii pochv sel'skokhozyaystvennykh zemel' Rossii [Geography of soil erosion of agricultural lands of Russia]*. ICC "Akademkniga", Russia.

Lynn, N.A., & Brown, R.D. (2003). Effects of recreational use impacts on hiking experiences in natural areas. *Landscape and Urban Planning,* 64, 77. Science B.V. All rights reserved. https://doi.org/10.1016/S0169-2046(02)00202-5

Petrov, V.N. (1980). *O sovershenstvovanii klassifikatsii erozii pochv i ponyatiynogo apparata eroziovedeniya. Sovremennyye aspekty izucheniya erozionnykh protsessov [On improving the classification of soil erosion and the conceptual apparatus of erosion studies. Modern aspects of the study of erosion processes].* Novosibirsk: Nauka, Russia.

Ramazanova, N., Ozgeldinova, Z., Tursynova, T., Asylbekov, K., Turyspekova, E., Toksanbaeva, S., & Zhanabayev, D. (2022). Analysis of the impact of soil erosion in the Embulatovka river basin on the development of recreational conditions of the natural resource state of the West Kazakhstan region. *GeoJournal of Tourism and Geosites,* 43(3), 850–860. https://doi.org/10.30892/gtg.43301-8xx

Salesa, D., & Cerdà, A. (2020). Soil erosion on mountain trails as a consequence of recreational activities. A comprehensive review of the scientific literature. *Journal of Environmental Management,* 271. https://doi.org/10.1016/j.jenvman.2020.110990

Shcheglov, D.I., & Gorbunova, N.S. (2011). *Eroziya i okhrana pochv [Erosion and soil conservation],* Publishing and Printing Center of Voronezh State University, Educational and methodological manual, Russia.

Wang, T., & Watanabe, T. (2022). Monitoring Campsite Soil Erosion by Structure-from-Motion Photogrammetry: A Case Study of Kuro-dake Campsites in Daisetsuzan National Park, Japan. *Journal of Environmental Management,* 314. https://doi.org/ 10.1016/j.jenvman.2022.115106

Evju, M., Hagen, D., Jokerud, M., Olsen, S.L., Selvaag, S.K., & Vistad, O.I.J. (2021). Effects of mountain biking versus hiking on trails under different environmental conditions. *Environ Manage,* 278 (2). https://doi.org/10.1016/j.jenvman.2020.111554

Telyuk, P.M., Malenko, Ya.V., & Pozdniy, Ye.V. (2022). Effect of recreation on the spatial variation of soil physical properties. *Earth and Environmental Science*, 1049. https://doi.org/10.1088/1755-1315/1049/1/012066

Jeffrey, L.M. (2023). Trail sustainability: A state-of-knowledge review of trail impacts, influential factors, sustainability ratings, and planning and management guidance. *Journal of Environmental Management,* 340. https://doi.org/10.13140/RG.2.2.23996.31364

Article history: Received: 24.07.2023 Revised: 10.09.2023 Accepted: 12.10.2023 Available online: 14.11.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1356-1363
DOI 10.30892/gtg.50416-1134

THE ROLE OF ASTRONOMY TOURISM IN PROMOTING EGYPT

Merna TAREK*
Helwan University, Tourism Studies Department, Faculty of Tourism
and Hotel Management, Cairo, Egypt, e-mail: merna.tarek.post@fth.helwan.edu.eg

Nahla OSAMA
Helwan University, Tourism Studies Department, Faculty of Tourism
and Hotel Management, Cairo, Egypt, e-mail: Nahla.nassar@fth.helwan.edu.eg

Jermien ABDELKAFY
Helwan University, Tourism Studies Department, Faculty of Tourism
and Hotel Management, Cairo, Egypt, e-mail: Jermaine.hussein@fth.helwan.edu.eg

Citation: Tarek, M., Osama, N., & Abdelkafy, J. (2023). THE ROLE OF ASTRONOMY TOURISM IN PROMOTING EGYPT. *GeoJournal of Tourism and Geosites*, 50(4), 1356–1363. https://doi.org/10.30892/gtg.50416-1134

Abstract: This study aims to increase the awareness about the astronomy tourism in Egypt which can be considered as a new and niche branch of tourism, as well as highlighting the potential resources of astronomy tourism in Egypt. The research used mixed methodology technique quantitative and qualitative methods, upon 535 questionnaire forms was distributed along with in-depth interviews with astronomy tourism participants' then primary data was collected and analyze. The results confirmed that astronomy can be considered as a new type of tourism that have a positive and significant effect on promoting Egypt around the world, in addition results confirm that Egypt is one of the best destinations to go stargazing. This study investigates the importance of taking astronomy tourism into consideration by the ministries and companies and increase awareness about this special interest tourism.

Key words: Astronomy Tourism, Stargazing, Astro Destinations, Dark Sky, Light Pollution

* * * * * *

INTRODUCTION

The "Astronomy" is the science of studying all extraterrestrial objects and phenomena (Encyclopedia Britannica). It is considered one of the oldest sciences in the world which has influenced many civilizations, and still influences our lives as it studied the phenomena of evolution of the Universe and the predictions of the future. It also effects many branches of science because of development of technology. Tourism as a vast activity effecting our lives has expanded beyond the planet's surface and now trying to reach the stars in a variety of ways, such as "Astro tourism" which is terrestrial space travel, "atmospheric space travel," (Van Wyk-Jacobs, 2018; Petrevska et al., 2021). In both theory and practice, Tourism become an important tool which linking the two domains of earth and sky that allow travellers to experience the richness of life on Earth while also literally exploring the stars above (Rodrigues et al., 2015).

Astronomy tourism is completely off the beaten path, it is a less-studied field in tourism literature (Junjie, 2017), although demand on such practice is increasing. Therefore, the goal of the Research is to increase awareness about this new emerging market and promote Egypt through applying this form of tourism in Egypt. Astronomy tourism can also be categorised as adventure tourism applied under the concept of sustainability as well as being engaged in cultural and educational tourism (Văduva et al., 2021). Astronomy tourism is regarded as one of the best ways to attract visitors to nature and rural areas providing socioeconomic benefits (Bjelajac et al., 2021). According to Li (2021) stargazing recently gained more academic attention. Hence, this current study contributes to how to implement astronomy tourism as a new trend of tourism which can contribute in promoting tourism and enhancing tourist demand in Egypt.

Tourists are looking for different, unique, and extraordinary experiences, they are always seeking out of astronomical sites; if they visit anyplace they might look for the Jaipur site, so astronomy tourism fulfils and satisfies their desires to view stars and planets either use their naked eyes or with optical devices such as optical telescopes (Matos, 2017). Those people are called "Astro-Tourist" who is the person that appreciate the uniqueness of such events because it provides them with satisfaction, freedom and peaceful, Astro-tourists have a feeling of belonging to the universe rather than just to the world, they include scientists, amateur, expert astronomers, and members of the general public (Matos, 2017; Michael, 2021; Pásková et al., 2021). Astronomy tourism is based upon special interest of tourist to participate in astronomy-related activity which is category into three types first observing celestial objects or astronomical events such as solar and lunar eclipse and plant opposition, second type is interactions with the local community, such as star parties, astrophotography, workshops for astronomical education, and watching space shuttle launches and finally astronomy related to historical sites and visiting scientific facilities like observatories, planetariums, museums, and labs (Junjie, 2017; Ma et al., 2020; Bjelajac et al., 2021). One of the best and most valuable characteristics of Astro tourism is that the sky is consider the primary

* Corresponding author

resource which never needs to be repaired or developed; it is always available and has its unique features, as a result Astro tourism is consider a type of sustainable tourism, which does not harm the environment in addition that focused on the observation of the dark sky which is free of light pollution (Metodijeski et al., 2018; Kanianska et al., 2020; Escario-Sierra et al., 2022). The relationship of human beings with natural phenomena is as old as human history as evidenced by the planets and moon which are mention in ancient texts that date back more than 3,200 years.

These texts demonstrate human curiosity about astronomical objects and events (Joseph et al., 2022). Ancient cultures used astronomy to determine and understand time for the purposes of their concerns (Metodijeski et al., 2018). The night sky in the past was a precious asset which has a significant resource for measuring time, measure seasons, tell stories, decide the time of plant and harvest and periodic weather occurrences like floods and droughts. (Collison and Poe, 2013; Farmanyan and Mickaelian, 2018; Gretzel and Stankov, 2021). This research is addressed the following gab is that no one in Egypt talk about this topic academically i consider the first one in Egypt who is linking between astronomy and tourism, as it will reflect with many benefits to Egypt whether in attracting more tourist to experience the beauty of clear dark sky which consequently effect in positive way to the economics of the country, also raise awareness about the preservation of the night sky. The hypotheses of the research are developing the infrastructure for astronomy tourism in Egypt will enhance its touristic demand and promotes Egypt as a market for Astronomy tourism.

LITERATURE REVIEW

The dimension of astronomy tourism

Astro tourism or terrestrial space tourism is regarded as a type of space tourism since it falls into one of two categories, orbital space tourism, suborbital space tourism (Junjie, 2017). Unlike astronomy tourism, which is based on the Earth's surface, watching solar eclipses, rocket launches, aurora viewing, and even stargazing. Space tourism occurs above the surface of the Earth in outer or atmosphere space. over the past few years, the world perception about space tourism has significantly changed from being considered "science fiction" for a significant new goal for the space industry (Collins, 2000; Petrevska et al., 2021). Space travel is uncommon, and it differs from the type of travel that is classified as heritage, it is characterized by massive costs, a limited resident population, a lack of infrastructure, participant responsibility for their own safety, and unknown destinations (Ao, 2018; Weibel, 2020). Kanianska et al. (2020) highlight that astronomy tourism can be consider as a new form of ecotourism, which is identical with rural tourism, green tourism, adventure tourism, it's categorized as a rural tourism industry due to urban growth and light, so it is typically practiced in rural, semi-urban, or non-industrialized places that are remote from major cities. The most well-known astronomy tourism destinations are also in deserts, high mountains, or low population density areas. As a result, inhabited areas which are far from urban areas are ideal for expanding astronomical tourism. There are additional advantages for rural areas because when tourists arrive, these areas must have the infrastructure and services required to meet their needs as well as to improve those that already exist, which benefits the local economy (Bjelajac et al., 2021; Escario-Sierra et al., 2022). Consequently, let's spot the light about the benefits gain from astronomy tourism.

The benefits of astronomy tourism

Astronomy tourism offers many benefits in different ways, the destination uses dark and clear skies to attract tourists to enjoy nature and science, gain knowledge in a simple and exciting way, to create a unique experience that last for years. The destination should clarify its skies from pollution. According to the declaration of Starlight which states that Astronomy tourism has opportunities for increased collaboration among tourism stakeholders, local communities, and scientific organizations and as any industry, Astronomy tourism depends on individual business owners (small projects) to supply essential tourism services including housing, transportation, tour packages (Fayos Solá et al., 2014; Rodrigues et al., 2015; Joseph et al., 2022). Along with the economic benefits, Astronomy tourism has emerged as an effective way of bringing deeper issues to the public's attention and educate the public important values like the preservation of the night sky, the dangers of light pollution, and the need to safeguard cultural and historical landmarks and landscapes (Matos, 2017). It is a type of tourism linked to cultural activities, interacting with local residence to achieve their services. It has been categorized as sustainable tourism in which its greatest assets never need maintenance or development. It is always available, completely unique in its features and, whether it be day or night, the sky is considered as one of the highest sustainable fascinations (Najafabadi, 2012) after discussed the importance of applying astronomy tourism in Egypt it is important to know how to engage astronomy as type of tourism which is not less important than others types of tourism as well ways of promoting astronomy tourism in Egypt.

Promoting astronomy tourism

Several significant astronomical events had quietly occurred and passed without any activity intended to attract tourists, whether by domestic and foreign tourists, over the previous four decades (Kunjaya et al., 2019). So, a starry sky alone isn't enough. promotion and the implementation of a number of measures to facilitate are needed, these include training tourism staff, preparing the necessary infrastructure for sky observations, educating people about the protection of the black sky, and taking steps to keep the environment in its natural condition (Mitura et al., 2017). Consequently, to promote stargazing tourism, there is a need for planning and development of essential terrestrial resources and infrastructures that offer services to tourists by facilitating and improving the observing experience (Fernández-Hernández et al., 2022).

Therefore, it's essential to address the light pollution problem before focusing on the development of astronomy tourism (Vrdoljak Raguž et al., 2022). As Ingle (2010) identified that the ideal place for stargazing is the area with the least amount of artificial light. Mizon (2016) described light Pollution as a thief of the stars. According to the Starlight declaration for the growth of astronomy tourism, astronomy tourism must add in educational activities because children are naturally curious about astronomy, so the Ministry of Education should incorporate astronomy teaching for basic education to exploring the world and organized trips for school-age and pre-school children to planetarium shows, observatories tours, and meteor exhibits, this will encourage children the abilities, attitudes and knowledge that allow them to understand, appreciate and care for their natural environment. Astronomy is very interesting to children because day and night, the sun, moon, and stars are all part of their daily experiences they are in their surroundings. Consequently, it will have favorable impact on their future interests and their ability to learn about the environment (Mitura et al., 2017; Pérez-Lisboa et al., 2020; Vrdoljak Raguž et al., 2022). One of the most essential way to promote astronomy tourism in Egypt is to obtain an international dark sky certification as Egypt meets the requirements that the organization placed, by obtaining these kind of certifications for sky quality as it connects to the image of quality and professionalism in the development of this type of tourism in the country, therefore Egypt will gains recognition from astronomers around the world.

International sky quality certifications

So many international organizations have paid attention to the preservation of night skies. Among them, the International Dark Sky Association (IDA) (Li, 2021). Its primary goal is to identify international Dark-Sky Places where people can participate in astronomical activities (Isono and Itoh, 2021). To be accredited as a destination suitable for astronomy tourism. The destination must meet certain requirements such as high elevation, vast amounts of space, the observer's position, the percentage of clear skies, weather conditions in the form of wind and temperature, Sky transparency, laws and regulations regulating such activity, infrastructure accessibility, risk factors, and suitable costs, providing sky darkness which is characterized by no light pollution and suitable atmospheric conditions, including average annual cloud coverage, so that celestial objects can be seen (Li, 2021; Butar-Butar et al., 2022).

Based on a published IDA guideline from 2018, there are many requirements and standards that must be met to obtain a Dark-Sky Certificate, by obtaining a Dark-Sky certification is a part of the attempt to successfully achieve two key strategic objectives: the reduction of light pollution and the growth of astronomy tourism (Vrdoljak Raguž et al., 2022). Getting certificates for the night sky's quality is one of the ways to promote astronomy tourism so it will attracting travelers interested in astronomy who value the guarantee of starry skies that these international certifications provide (Escario-Sierra et al., 2022: 14). Egypt was one of the earliest destinations to recognize science of astronomy.

Its greatest evidence is shown through the different structures like the Pyramids of Giza (4th Dynasty), Abu Simbel Temple (21st Dynasty). As well as many prominent stars and astronomical terms, like Aldebaran, Betelgeuse, Altair, and Algol, which are still known by their Arabic names. All these facts demonstrate how obsessed the Egyptians were with monitoring the heavenly bodies and their motion (Al-Naimiy, 2009; UNESCO, N.D). In addition, that the science of astronomical observatory was an Arab invention presenting the greatest contributions to human civilization (Al-Naimiy, 2009). Egypt has long been a prime destination for stargazers from ancient time, as Egypt is truly a unique place to experience the night skies, Egypt provides a unique chance to observe the stars and constellations in all their beauty, the brightest star, to witness the milky way, the mysterious planets and the meteor shower, all you need to do is to travel to Egypt and enjoy stargazing vibes, so here are some of the famous astronomy destinations in Egypt.

The best stargazing locations in Egypt

In the early morning, people go to see the magnificent Pyramids of Giza and the Sphinx, but what if they visit this area at night? The pyramids have cosmic significance and were constructed with mastery of the sky. It's a destination that offers astronomy tourism, culture, and recreation. It is in Giza, the third largest city in Egypt and the fourth largest city in Africa. Although the city is big but the area of the pyramids plateau is vast. El-Fayoum is another ideal location, to enjoy Astronomy tourism in the Egyptian desert linked with eco-tourism activities and enjoy the Egyptian culture. There are a lot of activities participated in Fayoum along with stargazing, tourists can enjoy sand sailing, horse riding, discovering ancient monuments, and more. It is a wonderful location to observe the constellations overlooking its magnificent magic lake in the central of the desert. Tourists can camp in the white desert, between Rocky Mountains, count the stars as you fall off to sleep while enjoying the sound of nature's calmness and water springs. Located 100 kilometers southwest of Cairo.

Saint Catherine is one of the highest mountains in Sinai. Most visitors often enjoy watching the sunrise from a great height. However, they can choose to have a completely different experience and see the starry dark sky, as the sky is clear away from pollution. Also stargazing in the desert of Sharm El-Sheikh to escape the city lights and travel to the desert for a romantic night of star gazing and Bedouin feasting. You can see more than 2500 stars with your eyes, the Milky Way and our galaxy also can be seen in the sky in a dark place. You can experience a several kinds of stargazing in Nuweiba while enjoying nature, peace, and tranquilly as well as the beach and its white sand. Far away from the noise and rush of the city, there is an Egyptian oasis which is Siwa Oasis unlike any other with a lot of activities like riding a bike, climbing mountains, camping in the desert, or gazing at the stars at night (EPICtravelTV, 2019; Betz, 2021; Abdelhakim et al., 2022).

Specialized authorities in astronomical observation and planetariums in Egypt

The Astronomical Society of Mostafa Mahmoud (ASMM) is a private scientific organisation in Egypt that promotes astronomy and space sciences and aims to support, encourage, and educate astronomy enthusiasts both inside and outside Egypt. National Research Institute of Astronomy and Geophysics (NRIAG) it is the oldest research institute in North Africa, its main goals are conduct scientific research on celestial objects (such as stars, planets, meteors, comets, galaxies, etc.) as well as to investigates the evolution of celestial bodies, physical and chemical qualities, and evolution of the universe. The Egyptian Society for Astronomy (ESA) is a non-profit organization that aims to raising scientific awareness of the public in astronomy and space, additionally, the website of the organization shares latest astronomy news and newest astronomical discoveries. Al-Kottamia Astronomical Observatory (KAO) is the largest telescope in the Middle East, North Africa, and the Arab world and one of the most important observatories in Egypt used by scientists and researchers. The Egyptian Space Agency (EGSA) is a public economic authority in Egypt, its objective is to strengthen the understanding of space technology, and the capacity for leading and managing space technology projects, enhancing the space industry for a sustainable future and encourage a peaceful use of the space. Helwan observatory (HO) provided a lot of international services through it like observe the New Crescent and determine the start of Hijra months, Ramadan prayers, fasting, and defining of the direction of Mecca from any location in the world.

One of the most amazing features of astronomy is its ability to teach us about the universe in ways that no other science can. The term "planetarium" is used to refer the structure where a mechanical device displays stars and planets. The planetarium has always been the perfect setting for simulating the night sky and carrying us to worlds we would otherwise never have the chance to explore. Planetariums serve as a vital link between astronomers and the public as it has a major role in the astronomical information (Petersen and Petersen, 2000). There are two planetariums in Egypt Children's Civilization and Creativity Centre. They adopt a program includes a variety of scientific workshops in the field of astronomy and space to show the children the basics of space exploration, and illustrate the scientific information such as the movement, and the location of stars, planets, the sun and the moon. The second is The Planetarium Science Centre (PSC), Bibliotheca Alexandrina which launch the Amateur Astronomy Club (AAC) where amateur astronomers can engage in astronomical activity for leisure and interest (El-Mitaky, 2009).

MATERIALS AND METHODS

This study aims to increase the awareness about the astronomy tourism in Egypt. In order to do so, research aims and questions were first identified, followed by the literature review; a questionnaire was then distributed in order to collect primary data from the sample in addition to semi-structured interviews; both primary and secondary data were analyzed and results were discussed, and finally, a conclusion was made (Figure 1).

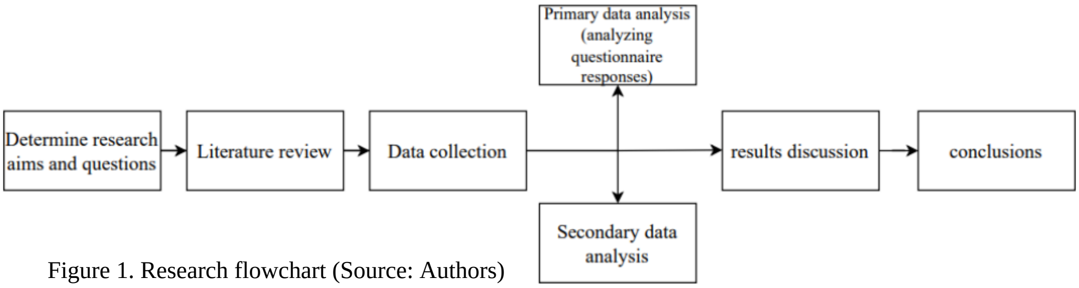


Figure 1. Research flowchart (Source: Authors)

The current study uses mixed methodology quantitative and qualitative methods, primary data was collected from semi-structured interviews and questionnaire form, involving systematic inquiries into quantitative data that enable analyzing, interpreting, and presenting results in numerical form. The criteria for selecting participants in the quantitative method are first the populations are the people whose interested in the field of astronomy and whose are not interested in order to know their opinion about this new type of tourism if it will attract them or not, second i was distributed my questionnaire domestic and internationally as i want to collect data from people around the world. About the criteria for selecting participants in the qualitative method, in total, 6 participants from different tourism companies and communities who experience positive experiences with astronomy trips, one of them is owner of Egyptian society of astronomy Sciences in Egypt and member of the Arab Union for space sciences, other is owner of travel company which made a domestic trips to astronomy destinations. Astronomy Participants were asked to provide answers with fewer constraints the participants were fully informed about the research objectives to ensure transparency when participating.

During the months of January and February of 2023, a total of five hundred and thirty-five 535 online questionnaire form was distributed on various social media platforms using Google Form, such as Facebook and WhatsApp groups relating to tourism and astronomy in Egypt. The questionnaire included five parts with a total of 17 questions: the first include 4 questions which identify the demographic information. The second part to measure the status of astronomy tourism in Egypt, as in knowledge of Astronomy tourism and the areas affording stargazing which include 8 questions. The third part include 3 questions and identifying how well is it marketed, the fourth part to recognize which areas attract the Egyptian market to participate in such phenomena. The questionnaire ended by two open-ended questions to collect suggestions or recommendations that could contribute to develop, market, and raise awareness of astronomy tourism in Egypt. The measurement of the questionnaire was adapted from Wen (2017); Gerasimova (2021) and Soleimani (2019). As well as the difficulties facing participants. The data was processed with the Statistical Package for the Social Sciences (SPSS) for windows v.28. In addition, the study used semi-structured interviews with six pioneers in the field of astronomy, that allow for more inductive rationalizing, as participants were asked to provide answers with fewer constraints (Yıldırım, 2021). The interview questions recordings were partially transcribed by 'fits' with the aforementioned research scope, reducing the data. Afterward, the study suggested 4 themes: (1) Astronomy tourism is a special interest tourism; (2) Astronomy tourism activities; (3) Marketing astronomy tourism in Egypt; (4) Obstacles that faces astronomy tourism in Egypt. All interviewees' comments were recorded and passed through thematic and inductive approach (Stoffelen, 2019) to examine their most significant key themes patterns (Priyatikanto et al., 2019).

RESULTS AND DISCUSSION

As shown in Figure 2, indicates that out of 535 respondents, 345 (64.7 %) were female and 190 (35.3%) were male. Regarding the age of respondents, the age segments from 26 to 40 years had the greatest number of respondents by 48% (257 respondents), followed by the age segments from 10 to 25 years by 36.6% (196 respondents), then the age segments from 41 to 60 years by 14.3% (76 respondents) and finally, the age segments over 60 years by 1.1% (6 respondents). Additionally, the majority of respondents are post graduate 55.6% (296 respondents) followed by the bachelor's degree segments 36.3% (197 respondents) and finally the school segment 8.1% (42 respondents).

The majority of respondents (221 respondents) prefer traveling with their family, accounting for 41.4% of total responses. followed by traveling with friends (142 respondents), accounting for 26.6%, and (70 respondents) stating that they prefer couples travel, making up for 12.7%, then (52 respondents) prefer traveling individual accounting for 9.9%, and finally, (50 respondents) stating that they prefer travel with groups making up for the last 9.4%.

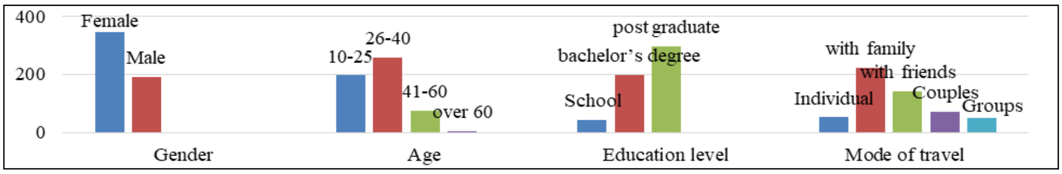


Figure 2. The profile sample (Source: Authors)

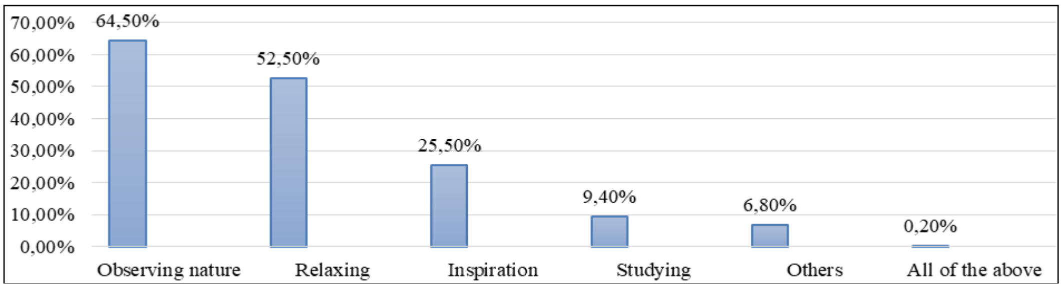


Figure 3. Reasons of observing the sky (Source: Authors)

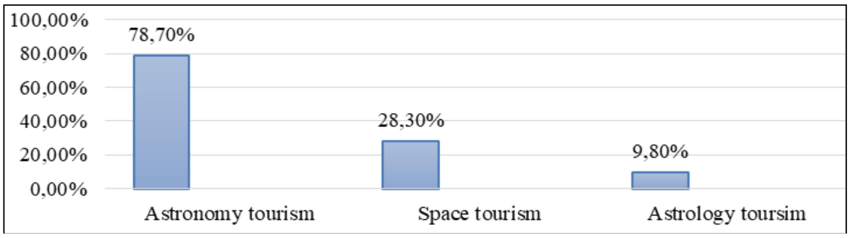


Figure 4. Preferences of tourists (Source: Authors)

Accordding to Figure 3 more than half of the participants by 64% observing the sky for the purpose of observe nature, while 52.5% chose relaxation, 25.5% answered inspiration, while 9.4% observed the sky for studying purposes. As 0.2% chose all of the above answers, and 6.8% chose other as they observe for other purposes. As shown in Figure 4 most of the participants representing 78.7% percentage prefer "Astronomy tourism" while 28.3% preferred "Space tourism", and 9.8% answered "Astrology tourism". These findings agreed with Malville (2008) who proved that space tourism unlike astronomy tourism nor exclusive nor adventurous/extreme form of tourism, it is open to all tourists, not a risk to health and life-threatening. Astronomy tourism creates new opportunities for bridging science and tourism, motivating alliances for starry nights, science, culture, and nature.

The evaluation of astronomy tourism in Egypt

Table 1 revealed the Descriptive Analysis of the Evaluation of astronomy tourism in Egypt. Regarding the statement "Have you heard about astronomical tourism in Egypt" The mean value was 2.01. This means that approximately more than half of the respondents knew about astronomy tourism in Egypt and the others had no knowledge. Regarding the statement "Egypt is one of the best places to go stargazing as it has ideal locations for stargazing which considers Astro destinations" The mean value was 1.42. This means that the respondents agreed to the statement. This finding agrees with Abdelhakim et al. (2022) who stated that Egypt's sky is unique due to the presence of many places far from the light pollution of the large cities, which are main attraction areas. Also, according to Najafabadi (2012) and Kunjaya et al. (2019) Egypt has the potential to attract the care of tourism participants as it has terrestrial astronomy locations includes ancient Egyptian Archeoastronomy locations, besides the various astronomical Observatories. Regarding the statement "Astronomy tourism is well marketed in Egypt", the mean value was 2.64. This mean that astronomy tourism is not marketed well in Egypt. It needs marketing efforts and facilities to be provided in such areas. This finding agreed with Abdelhakim et al. (2022) who stated that, astronomy tourism is active in Egypt, but yet it should gain more attention from stakeholders to be promoted and developed as a new trend in Egypt. Regarding the statement "Did you want to travel to another country to observe such a phenomenon in the sky" The mean value was 1.56. This means that the respondents agreed to the statement. This finding is vital with Najafabadi (2012) who showed that Location is a key to looking deeper into space by means of a clear dark night sky free from artificial light, so people whose interested in astronomy have the keen to travel to places even, so it is not in their own country in order to enjoy such type of activity.

Table 1. Descriptive Analysis of the Evaluation of astronomy tourism in Egypt

N	Item		Yes	Maybe	No	Total	Mean
1	Have you heard about astronomical tourism in Egypt	Frequency	207	116	212	535	2.01
		Percentage	38.5	21.7	39.6	99.8	
2	Egypt is one of the best places to go stargazing as it has ideal locations for stargazing which considers Astro destinations	Frequency	316	212	7	535	1.42
		Percentage	59.1	39.6	1.3	100.0	
3	Astronomy tourism is well marketed in Egypt	Frequency	28	134	373	535	2.64
		Percentage	5.2	25.0	69.7	100.0	
4	Did you want to travel toanother country to observe such a phenomenon in the sky	Frequency	320	129	86	535	1.56
		Percentage	59.8	24.1	16.1	100.0	
5	The feeling of visiting astrodestinations is different from other places and other types of tourism	**Frequency**	404	123	8	535	1.26
		Percentage	75.1	23.0	1.5	99.6	
6	Are you interested in engaging in astronomy tourism activities which is “astrophotography or visits scientific facilities like observatories, planetariums”	**Frequency**	312	123	100	535	1.60
		Percentage	58.1	23.0	18.7	99.8	

Regarding the statement "practicing Astronomy tourism achieves stress relief. The mean value was 1.26. This means that the respondents agreed to the statement. These results agreed with Tadič (2016) who stated that the majority of tourists began to search for niche trends in tourism away from the traditional ones, especially after the Covid-19 Pandemic, they are selecting destinations and products that offer them unique experiences, and astronomy tourism offers great option as it creates an experience effecting the mind and body. Regarding the statement "Are you interested in engaging in astronomy tourism activities which is “astrophotography visits scientific facilities like observatories, planetariums” " The mean value was 1.60. This means that the respondents agreed to the statement. This finding agrees with Griffiths (2012) who highlighted that it is essential to understand what motivates tourists to be engaged in Astro-activities, and what are the positive factors that contributes to their experience. Also, Beggs and Elkins (2010) illustrated that people seek to travel to be engaged in certain activities to reach their self-esteem, achieve satisfaction and fulfil their internal motives.

The importance of astronomy tourism

Regarding the statement "Astronomy tourism has economic impacts to the country" The mean value was 4.14. This means that the respondents agreed with the statement. As Kunjaya et al. (2019) mentioned. As, the results showed that Astronomy-tourism increase the national income, increase employment, and elevates the standard of living for residence participating in tourism. Regarding the statement "It is important to teach astronomy to school students and universities in order to expand their vision and creates their expectations for exploring the world beyond, the mean value was 4.35.

This means that the respondents agreed to the statement. This finding agrees with Abdelhakim et al. (2022), who’s recommendations enhanced the need to increase the awareness about astronomy tourism in Egypt. by, the collaboration of the astronomical organizations in Egypt with the community in schools, colleges, residential areas, and public places to give talks, conduct solar observation sessions, stargazing sessions and planetarium shows. Regarding the statement".

It is important to Increase awareness about reduction of light pollution for the ideal observing and being committed to sustainability development goals. The mean value was 4.59. Which means that the respondents agreed to the statement, this finding agreed with Najafabadi (2012) who identified that astronomy tourism is a form of ecotourism which protects the environment and maintain the SDG. As well as, Longcore and Rich (2004) who illustrated that light pollution is one of the main obstacles that effect the clarity of the night sky, the human experience, influence animal behaviour and ecology. All variables presented in Table 2.

Table 2. Descriptive Analysis of the importance of astronomy tourism

N	Items		strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Mean
1	Astronomy tourism has economic benefits for the country	**Frequency**	1	8	104	225	197	535	4.14
		Percentage	.2	1.5	19.4	42.1	36.8	100.0	
2	It is important to teach astronomy in schools and university in order to expanding students' horizons	**Frequency**	0	12	62	190	271	535	4.35
		Percentage	0	2.2	11.6	35.5	50.7	100.0	
3	It is important to Increase awareness about reduce light pollution for the ideal observing and it will sequently have positive impacts on human and environment	**Frequency**	1	3	26	154	351	535	4.59
		Percentage	.2	.6	4.9	28.8	65.6	100.0	

CONCLUSION AND IMPLICATIONS

This article discussed astronomy tourism as a unique and niche type of tourism which attract tourists and enhance the demand for the destination. As Egypt was differentiated throughout the world in the field of astronomy by its clear skies, deserts, and rich history. Astronomy tourism can enhance tourist demand and help the destination follow the sustainable development goals to protect the environment and increase the economic and social benefits. The findings shed light on the importance of taking the science of astronomy into consideration by the ministries and authorities in Egypt as well the promotion of astronomy tourism in Egypt should be done through various marketing tools such as: the internet and social media which has great influence on a large number of tourists; organization of international astronomy events that attract professional and amateur astronomers from all over the world; astronomers should be segmented and categorized according to their motivations and preferences in order to attract a large number of astronomy tourists and provide them with suitable offers. Astronomy tourism has numerous positive economic, social, environmental and cultural impacts on astro-tourism destinations. Egypt has great potential to develop astronomy tourism with its beautiful dark sky; many of destinations spots; temperate climate; affordable prices; variety of accommodation; friendly local people and good safety and security.

Limitation and future research

There have been no previous studies on astronomy tourism in Egypt. This study can serve as a reference point for future researchers. Future research may study developing astronomy tourism in a specific region. Furthermore, future studies can depend on assessments and observations for collecting data. Finally, researcher can focus deeply on astronomy tourist's motivations and preferences according to their age, gender, income and nationalities also focus in details about Egyptian astronomy destinations and ways of promoting and raising awareness about astronomy tourism in Egypt.

Author Contributions: Conceptualization, M.T. and N.O.; methodology, M.T. and N.O.; software, M.T. and J.A.; validation, M.T. and N.O.; formal analysis, M.T. and J.A.; investigation, M.T. and N.O..; data curation, M.T. and J.A.; writing - original draft preparation, M.T. and J.A.; writing - review and editing, M.T. and N.O.; visualization, M.T. and N.O; supervision, N.O.; project administration, M.T. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: I would like to express gratitude to the journal for accepting my research, i am very proud and it is my immense pleasure to be one of the authors of GeoJournal of Tourism and Geosites. Also i would like to thank Reviewers for taking the time and effort necessary to review the manuscript. I sincerely appreciate all valuable comments and suggestions, which helped me to improve the quality of the manuscript.

Conflicts of Interest: The authors decla re no conflict of interest.

REFERENCES

Abdelhakim, W., Abouelazm, N., & Zaki, F. (2022). Astronomy Tourism in Egypt: A New Trend-Ancient Origin. *Magazine of faculty of tourism and hotels, Mansoura University,* 11(4), 1-10. https://doi.org/10.21608/mkaf.2022.257859

Al-Naimiy, H.M. (2009). The role of astronomy and space sciences in Arab societies and cultures. *Proceedings of the International Astronomical Union, Sharjah University, United Arab Emirates*, 5(S260), 429-437. https://doi.org/10.1017/S1743921311002626

Ao, J. (2018). *Ride of a lifetime: a netnographic research to unveil the leisure experience attached to orbital space tourism*. Doctoral dissertation, Middle Tennessee State University.

Beggs, B.A., & Elkins, D.J. (2010). The Influence of Leisure Motivation on Leisure Satisfaction, LARNet- The Cyber *Journal of Applied Leisure and Recreation Research*. http://larnet.org/2010-02.html

Betz, E. (2021). *Are the Egyptian pyramids aligned with the stars*? accessed on: 28/5/2023. https://astronomy.com/ news/2021/02/are-the-egyptian-pyramids-aligned-with-the-stars

Bjelajac, D., Đerčan, B., & Kovačić, S. (2021). Dark skies and dark screens as a precondition for astronomy tourism and general well-being. *Information Technology & Tourism*, 23(1), 19-43. https://doi.org/10.1007/s40558-020-00189-9

Butar-Butar, A.J.R., Putra, S.P., Hidayat, M., & Putraga, H. (2022). The feasibility study of Barus city as the new astrotourism destination from astronomical and meteorological aspect. *In Journal of Physics: Conference Series*, 2214(1), 012026. IOP Publishing. https://doi.org/10.1088/1742-6596/2214/1/012026

Collison, F.M., & Poe, K. (2013). Astronomical tourism: The astronomy and dark sky program at Bryce Canyon National park. *Tourism Management Perspectives*, 7, 1-15. https://doi.org/10.1016/j.tmp.2013.01.002

Collins, P. (2000). The space tourism industry in 2030. *In Space* 2000, 594-603. https://doi.org/10.1061/40479(204)72

El-Mitaky, H.S. (2009). The rôle of planetaria: The Library of Alexandria Planetarium Science Center. *Proceedings of th International Astronomical Union*, 5(S260). https://doi.org/10.1017/S1743921311003280

EPICtravelTV. (2019). *The Best Places to Go Stargazing in Egypt*. "Video" YouTube. https://www.youtube.com/watch?v=64hPrpmpyGo

Escario-Sierra, F., Álvarez-Alonso, C., Moseñe-Fierro, J.A., & Sanagustín- Fons, V. (2020). Sustainable tourism, social and institutional innovation. *International Journal of the Paradox of Dark Sky in Astrotourism. Sustainability,* 14(11),6419. https://doi.org/10.3390/su14116419

Farmanyan, S., & Mickaelian, A. (2018). Promotion of Science Communication through Regional Office of Astronomy for Development. *Communications of the Byurakan Astrophysical Observatory*, 65(1), 155-159. https://doi.org/10.52526/25792776-2018.2.1-155

Fayos Solá, E., Marín, C., & Jafari, J. (2014). Astrotourism: No requiem for meaningful travel. *Journal of Tourism and Cultural Heritage.*

Fernández-Hernández, C., Araña, J.E., León, J., & León, C.J. (2022). Tourists' Preferences for Stargazing Land Resources. *Land*, 11(2), 198. https://doi.org/10.3390/land11020198

Gerasimova, D. (2021). Astro Tourism-A Possible Path to Sustainable Development through Narratives and Stories.

Gretzel, U., & Stankov, U. (2021). ICTs and well-being: challenges and opportunities for tourism. *Information Technology & Tourism*, 23(1), 1-4. https://doi.org/10.1007/s40558-021-00198-2

Griffiths, C. (2012). Tag Archives: Leisure Motivation Scale. Retrieved Feb 20, 2022, from WordPress.com: https://cag2611. wordpress.com/tag/leisuremotiv ation-scale/.

Ingle, M. (2010). Making the most of'nothing': astro-tourism, the Sublime, and the Karoo as a'space destination". *Transformation: Critical Perspectives on Southern Africa*, 74(1), 87-111.

Isono, T., & Itoh, N. (2021). Potential for the Development of Astronomical Tourism in Kumano City, Mie Prefecture, Japan. In Hidden *Geographies*, 171-189, Springer, Cham. https://doi.org/10.1007/978-3-030-74590-5_8

Joseph, S., Ulahannan, J.P., & Piramanayagam, S. (2022). Importance- Performance Analysis of Destination Attributes of an Emerging Astrotourism Destination in Kerala, India. *New Space*, 10(1), 101-111. https://doi.org/10.1089/space.2021.0032

Junjie, W. (2017). *Astronomy tourism: Exploring an emerging market: group culture, individual experience, and industry future*. PhD thesis, James cook university. https://doi.org/10.4225/28/5afa63c5b90f9

Kanianska, R., Škvareninová, J., & Kaniansky, S. (2020). Landscape potential and light pollution as key factors for astrotourism development: a case study of a Slovak upland region. *Land*, 9(10), 374. https://doi.org/10.3390/land9100374

Kunjaya, C., Sukmaraga, A.A., & Arsono, T. (2019). Possibility of astronomical phenomena to be used to support tourism industry. *In Journal of Physics: Conference Series*, 231(1), 012025. IOP Publishing. https://doi.org/10.1088/1742-6596/1231/1/012025

Li, T. (2021). Universal therapy: A two-stage mediation model of the effects of stargazing tourism on tourists' behavioral intentions, *Journal of Destination Marketing & Management*, 20,100572. https://doi.org/10.1016/j.jdmm.2021.100572

Longcore, T., & Rich, C. (2004). Ecological light pollution. *Frontiers in Ecology and the Environment*, 2(4), 191-198. https://doi.org/10.1890/1540-9295(2004)002 [0191: ELP]2.0.CO;2

Ma, S.D., Kirilenko, A.P., & Stepchenkova, S. (2020). Special interest tourism is not so special after all: big data evidence from the 2017 Great American Solar Eclipse. *Tourism Management*, 77, 104021. https://doi.org/10.1016/j.tourman.2019.104021

Malville, J.M. (2008). *A guide to Prehistoric Astronomy in the Southwest*. Johnson Books.

Matos, A.L. (2017). *Terrestrial astrotourism–motivation and satisfaction of travelling to watch the night sky*. Aalborg University: Aalborg, Denmark.

Metodijeski, D., Taskov, N., Filiposki, O., & Mitreva, E. (2018). *Perspectives for Development of Cultural Tourism in Kokino. In Giving gift to God: evidences of votive offerings in the sanctuaries, temples and churches: proceedings of the 1 st & 2nd International archaeological conference "Kokino"*. held in Skopje & Kumanovo, 2016-2017, 237-244, National Institution Museum of Kumanovo.

Michael, M. (2021). Astrotourism: Star Gazers, Eclipse Chasers, and the Dark Sky Movement, Business Expert Pres. ProQuest Ebook Central.

Mitura, T., Bury, R., Begeni, P., & Kudzej, I. (2017). Astro-tourism in the area of the Polish- Slovak borderland as an innovative form of rural tourism. *European Journal of Service Management*, 23, 45-51.

Mizon, B. (2016). Light pollution: thief of the stars and mother of dark sky tourism. *In Finding a Million-Star Hotel*, 267-281. Springer, Cham. https://doi.org/10.1007/978-3-319-33855-2_8

Najafabadi, S.S. (2012). *Astronomical Tourism (Astro Tourism) in Cebu, Philippines: Essential Features in Selected Destinations and Its Complementing Visitor Attractions*. Proceedings of International Conference on Trade, Tourism and Management, Bangkok, Thailand.

Pásková, M., Budinská, N., & Zelenka, J. (2021). Astrotourism–Exceeding Limits of the Earth and Tourism Definitions? *Sustainability*, 13(1). https://doi.org/10.3390/su13010373

Pérez-Lisboa, S., Ríos-Binimelis, C.G., & Allaria, J.C. (2020). Augmented reality and stellarium: Astronomy for children of five years. *Alteridad*, 15, 25-35. https://doi.org/10.17163/alt.v15n1.2020.02

Petersen, C.C., & Petersen, M.C. (2000). The role of the planetarium. In Information Handling in Astronomy. *Springer*, 195-204, Dordrech.

Petrevska, B., Bjelajac, D., & Djercan, B. (2021). Dark sky tourism: Prospects and challenges for North Macedonia. *Challenges of Tourism and Business Logistics in the 21st Century*, 4(1), 245-252. https://doi.org/10.46763/YFNTS2141245p

Rodrigues, A.L., Rodrigues, A., & Peroff, D.M. (2015). The sky and sustainable tourism development: A case study of a dark sky reserve implementation in Alqueva. *International Journal of Tourism Research*, 17(3), 292-302. https://doi.org/10.1002/jtr.1987

Priyatikanto, R., Admiranto, A.G., Putri, G.P., Elyyani, E., Maryam, S., & Suryana, N. (2019). Map of Sky Brightness over Greater Bandung and the Prospect of Astro-Tourism. *Indonesian Journal of Geography*, 51(2), 190-198.

Soleimani, S., Bruwer, J., Gross, M.J., & Lee, R. (2019). Astro-tourism conceptualisation as special-interest tourism (SIT) field: A phenomonological approach. *Current Issues in Tourism*, 22(18), 2299-2314. https://doi.org/10.1080/13683500.2018.1444021

Stoffelen, A. (2019). Disentangling the tourism sector's fragmentation: a hands-on coding/post-coding guide for interview and policy document analysis in tourism. *Current Issues in Tourism*, 22(18), 2197–2210. https://doi.org/10.1080/13683500.2018.1441268

Tadić, M. (2016). Naked-eye astronomy in mass tourism. *Glasnik Srpskog geografskog društva*, 96(1), 127-144. https://doi.org/ 10.2298/GSGD1601127T

Văduva, L., Sava, C., Petroman, C., Marin, D., & Petroman, I. (2021). Astrotourism - modern form of tourism. *Lucrări Științifice Management Agricol*, 23(1), 265.

Van Wyk-Jacobs, L. (2018). *Astro-tourism as a catalyst for rural route development* (Doctoral dissertation, University of Pretoria).

Vrdoljak Raguž, I., Krajnović, A., & Hordov, M. (2022). Strategic Development of Astroturismin the Republic of Croatia - Comparative Analysis". In DIEM: Dubrovnik: International Economic Meeting, University of Dubrovnik, 7(1), 114-129. https://doi.org/10.17818/DIEM/2022/1.12

Weibel, D.L. (2020). Following the path that heroes carved into history: Space tourism, heritage, and faith in the future. *Religions*, 11(1), 23. https://doi.org/10.3390/rel11010023

Wen, J. (2017). *Astronomy tourism: exploring an emerging market: group culture, individual experience, and industry future* (Doctoral dissertation, James Cook University). https://doi.org/10.4225/28/5afa63c5b90f9

Yıldırım, M. (2021). Tracing the consent, adaptation and resistance practices of an 'unsustainable' workforce: the governmentality of workplaces in tourism industry, *Tourism Management*, June, 84,104260. https://doi.org/10.1016/j.tourman.2020.104260

*** Encyclopedia Britanica. access June 2023. https://www.britannica.com.science

*** UNESCO, (N.D.). Available at: https://whc.unesco.org/en/tentativelists/5574/ accessed on: 28/5/2023.

Article history: Received: 23.07.2023 Revised: 10.09.2023 Accepted: 17.10.2023 Available online: 21.11.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1364-1372
DOI 10.30892/gtg.50417-1135

UTILIZING GIS AND REMOTE SENSING FOR MODELING THE SPATIAL DISTRIBUTION OF WILD ORCHID SPECIES IN PHU FAEK FOREST PARK

Narueset PRASERTSRI
Department of Geoinformatics, Faculty of Informatics, Mahasarakham University, Maha Sarakham, Thailand, e-mail : naruset.p@msu.ac.th

Satith SANGPRADID*
Department of Geoinformatics, Faculty of Informatics, Mahasarakham University, Maha Sarakham, Thailand, e-mail: satith.s@msu.ac.th

Citation: Prasertsri, N., & Sangpradid, S. (2023). UTILIZING GIS AND REMOTE SENSING FOR MODELING THE SPATIAL DISTRIBUTION OF WILD ORCHID SPECIES IN PHU FAEK FOREST PARK. *GeoJournal of Tourism and Geosites*, 50(4), 1364–1372. https://doi.org/10.30892/gtg.50417-1135

Abstract: Thailand's wild orchids, cherished for their beauty, face threats from habitat loss and over-collection. Urgent conservation is needed, with efforts including protected areas and sustainable practices. This study aims to model the distribution of wild orchids through the utilization of remote sensing and GIS techniques. The methodology involves comprehensive surveys of wild orchid species within Phu Faek forest park. Spatial regression analysis explores intricate relationships between wild orchid density and environmental factors such as NDWI, forest type, elevation, basin density, and aspect. The results of field surveys identified 28 orchid species with diverse distribution patterns, including dominant species like *Aerides falcata Lindl. & Paxton*, *Aerides falcata Lindl.*, and *Cleisostoma fuerstenbergianum F.Kranzl*. The spatial regression model revealed distribution patterns, with higher density in central and north regions. The NDWI indicator, which reflects moisture content, provided additional insights into the distribution of orchids

Key words: Wild orchids, Geographic Information System (GIS), Spatial Regression, Conservation, Environmental Factors, Habitat Preferences.

* * * * * *

INTRODUCTION

Wild orchids are one of the largest and most diverse groups of flowering plants, with over 25,000 species found in almost every region of the world (Pridgeon et al., 2014). These striking plants are known for their intricate and often beautiful flowers, which come in a wide range of shapes, sizes, and colors Wild orchids are one of the largest and most diverse groups of flowering plants, with over 25,000 species found in almost every region of the world (Pridgeon et al., 2014). These striking plants are known for their intricate and often beautiful flowers, which come in a wide range of shapes, sizes, and colors. Orchids, as a diverse group of plants, hold significant importance in the realm of plant conservation due to their extensive species count and the numerous challenges presented by their complex life histories, which often involve various obligate or facultative biotic interactions (Liu et al., 2020).

Thailand is home to a rich diversity of wild orchids, with over 1300 species and 180-190 genera found throughout the country (Thammasiri, 2016). These orchids can be found in a range of habitats, from lowland rainforests to high-altitude mountain forests. While Thailand serves as a natural habitat for a wide range of orchid species, there is a growing interest in cultivating orchid cultivars due to their economic value (Thammasiri, 2016). Thailand's wild orchids are particularly known for their beauty and diversity, with many species prized for their ornamental value. Unfortunately, like many wild orchids around the world, Thailand's orchids face numerous threats, including habitat loss and over-collection (Thammasiri, 2015). Efforts to protect and conserve Thailand's wild orchids have included the establishment of protected areas, the promotion of sustainable harvesting practices, and the development of ex-situ conservation programs (Prasongsom et al., 2020).

Geographic information system (GIS) is a powerful tool for mapping and analyzing the distribution and habitats of wild orchids. GIS technology can help conservationists to identify key areas for conservation, monitor habitat changes, and assess the effectiveness of conservation measures. In addition to mapping and analyzing the distribution and habitats of wild orchids, remote sensing and GIS can also be used to estimate the density and richness of wild orchid (Zhan et al., 2022). Remote sensing data, such as satellite images and aerial photographs, can provide information on vegetation cover and topography, which can be used to predict suitable habitats for orchids. This information can then be combined with ground surveys to estimate the density and abundance of wild orchids in a given area. The examination of orchid richness and density in conjunction with various environmental factors extended to an analysis of these relationships across multiple nature reserves. Notably, environmental variables encompassing soil quality, climate conditions, vegetation types, and topographical characteristics emerged as closely intertwined with the levels of orchid richness and density (Zhan et al., 2022; Smallwood and Trapnell, 2022; Akbulut et al., 2021). To estimate the distribution and identification of suitable habitats for wild orchids, researchers employed remote sensing techniques, leveraging indicators such as the normalized

* Corresponding author

difference vegetation index (NDVI). This approach facilitated the creation of a robust model for illustrating the distribution of suitable orchid habitats. The model's foundation lies in the association between wild orchid density and NDVI values, effectively delineating areas conducive to wild orchid growth and habitation (Rahayu and Yusri, 2022).

Regression models are widely used in the field of remote sensing to estimate various vegetation parameters such as biomass, leaf area index, and vegetation cover using satellite imagery data (Aroonsri and Sangpradid, 2021). These models can help to provide valuable information for forest and orchid conservation by allowing the accurate estimation of key parameters. The spatial regression model has gained considerable popularity in recent years. This model enables the detection of spatially diverse relationships between the dependent and independent variables, contributing to enhanced precision within the regression framework (Sangpradid et al., 2022). By considering spatial autocorrelation within the data, the spatial regression model accommodates intricate spatial arrangements and facilitates the representation of intricate spatial structures (Sangpradid, 2023). A spatial regression model, specifically geographically weighted regression (GWR), was then applied to evaluate the potential influence of different environmental factors on the spatial distribution of orchid flora (Ye et al., 2022). This analysis illuminated the complex relationships between environmental factors, spatial variables, and the patterns of orchid distribution. It underscored the pivotal role of spatial variables in shaping the distribution of wild orchid species richness.

A spatial regression model should be applied, taking into account the results of statistical tests (Aristizábal, 2023), to effectively analyze and estimate the relationship between wild orchid distribution and various environmental factors. The objective of this study aimed to investigate the distribution of orchids species within Phu Faek forest park and employ a spatial regression model to estimate the distribution of wild orchid based on remote sensing data and GIS analysis.

MATERIALS AND METHODS

Study Area

Phu Faek forest park situated within the geographic coordinates of 16.690695 N latitude and 103.939065 E longitude. Phu Faek forest park is characterized by its alternating mountainous and hilly topography. The park is adorned with a captivating deciduous dipterocarp forest, showcasing a rich variety of flora including the majestic Makha Mong *(Afzelia xylocarpa)*, Teng (*Shorea optusa*), Rang (*Shorea siamensis*), and rosewood species. This lush forest provides a picturesque backdrop for the park's diverse ecosystem. The study area as shown in Figure 1.

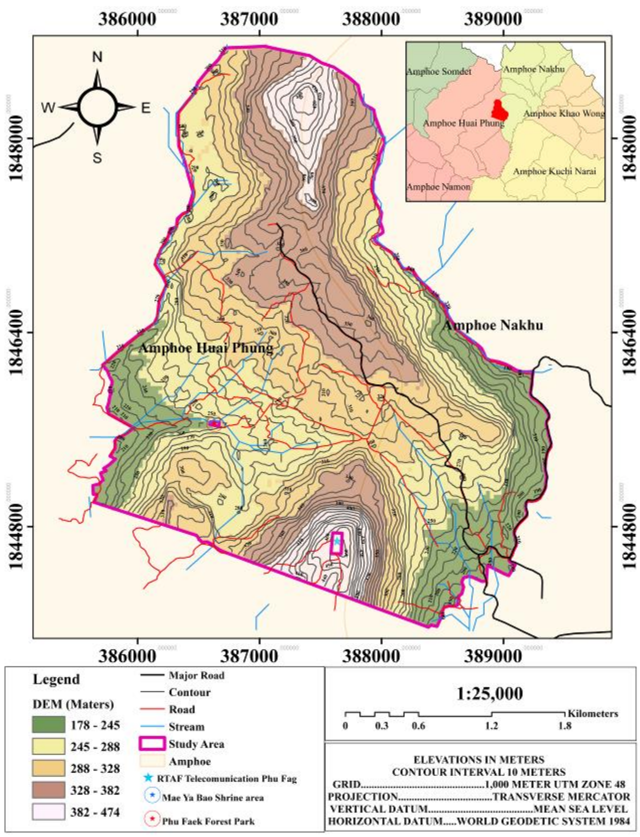


Figure 1. Map of the study area location in Phu Faek forest park, Kalasin province, Thailand (Source: authors)

Data collection

Data collection efforts were meticulously undertaken to comprehensively document the diverse array of wild orchids species encountered during extensive field surveys. Noteworthy locations, including the esteemed Mae Ya Bao Shrine area, captivating nature study trails, footpaths frequently traversed by local communities to access the forest, and the enchanting waterways, served as the primary sites for data collection. An extensive set of data collection tools were adroitly employed to ensure precision and accuracy, including Global Positioning System (GPS) devices for precise location identification, meticulously designed data recording forms, high-resolution cameras to visually document the captivating findings, satellite imagery maps, and topographic maps for detailed spatial representation. Sophisticated data analysis tools played a pivotal role in the meticulous examination of the collected information. These cutting-edge tools encompassed computers, printers, and state-of-the-art geographical information system (GIS) software. Moreover, data recording programs proved instrumental in seamlessly importing the recorded data into spreadsheets for further comprehensive analysis. The data sets compiled essential parameters, such as precise X and Y coordinates, distinct species names, quantities, heights, and distinctive visual characteristics, offering profound insights into the unique traits of each observed wild orchids species. Moreover, during the analysis, crucial factors such as forest type, humidity levels, height distribution, and water flow density were taken into account. This multi-dimensional approach enriched the assessment of the present status and extraordinary biodiversity of wild orchids species within the breathtaking confines of Phu Faek forest park.

The data utilized for this research focused on examining the physical factors that correlate with the growth of wild orchids. These key factors included the elevation, the moisture difference as indicated by the Normalized Difference Water Index (NDWI), basin density, forest type, elevation, and the slope direction (Aspect). Through meticulous data analysis and correlation studies, this research sought to unravel the intricate relationships between these physical variables and the flourishing growth of wild orchids species within the study area. By understanding these correlations, valuable insights were gained, contributing to a deeper comprehension of the ecological requirements and habitat preferences that influence the growth and distribution of wild orchid in their natural environment.

METHODOLOGY

The methodology proposed for conducting this study is outlined in Figure 2, with a detailed description of each stage provided below. This study utilized the following methods: (1) Conducted field surveys to gather information on the presence and locations of various wild orchid species within the study area. Recorded species names and corresponding geographical coordinates (X, Y) of observed wild orchid occurrences. (2) Utilized the collected data to analyze and visualize the spatial distribution of wild orchid species across the study area. Created a preliminary map or representation showcasing the general occurrence and abundance patterns of different orchid species. (3) Obtained satellite imagery, specifically Sentinel imagery, to derive spectral information. Calculated the Normalized Difference Water Index (NDWI) using Near-Infrared (NIR) and Short Wave Infrared (SWIR) bands of the imagery. NDWI values were used to infer the moisture content and water availability in the vegetation canopies, aiding in understanding the environmental conditions relevant to wild orchid growth. (4) Employed remote sensing data and GIS techniques to classify and map basin density, forest type, elevation, and the slope direction (Aspect) within the study area. (5) Conducted a spatial regression analysis to explore the relationships between orchid density and the variables derived from previous steps: NDWI, basin density, forest type, and aspect.

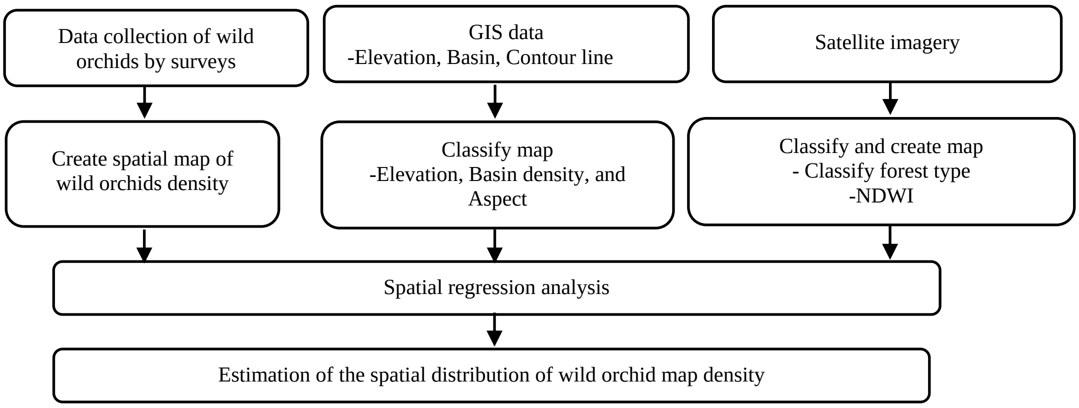


Figure 2. Methodology proposed (Source: authors)

Spatial distribution of wild orchids species

The spatial distribution map, also known as a density map or spatial pattern map, is a graphical representation that illustrates the arrangement and abundance of a specific geographic phenomenon or variable across a study area. It provides valuable insights into the spatial pattern, concentration, and dispersion of the phenomenon of interest. In the context of ecological studies or biodiversity research, a spatial distribution map visually depicts the occurrence, density, or abundance of species, habitats, or other natural features within a given geographic region. Spatial distribution maps are created using geographic information systems (GIS) and spatial interpolation techniques, which estimate values at unmeasured locations based on known data points. These techniques allow researchers to visualize how the phenomenon is distributed across the study area and identify potential hotspots or areas of high concentration.

Normalized Difference Water Index (NDWI)

The NDWI is a satellite-derived metric obtained from the Near-Infrared (NIR) and Short Wave Infrared (SWIR) channels. The SWIR reflectance captures changes in both vegetation water content and the spongy mesophyll structure within vegetation canopies. In contrast, the NIR reflectance is influenced by leaf internal structure and leaf dry matter content but remains unaffected by water content. The combination of NIR and SWIR in the NDWI effectively mitigates variations induced by leaf internal structure and dry matter content, resulting in improved accuracy when quantifying and retrieving vegetation water content. The NDWI assumes a paramount significance in elucidating the moisture status of vegetation, particularly for wild orchids species (Theobald et al., 2015). Its diverse applications span across ecological studies, agricultural practices, and environmental monitoring, with a pronounced focus on wild orchid growth and well-being (Marusig et al., 2020). By furnishing invaluable insights into vegetation water content, NDWI plays a pivotal role in evaluating the health and vigor of wild orchid populations. Additionally, it proves instrumental in identifying areas vulnerable to drought stress or excessive moisture, thereby aiding in targeted conservation and management efforts.

Spatial regression analysis

Spatial analysis is a fundamental technique used to predict or estimate values of a geographic variable at locations where the variable is known, in order to infer values at unknown locations. Spatial techniques play a pivotal role in modeling and decision-making processes, enabling the determination of unknown values both at local and global scales. Among these techniques, statistical regression models stand out as a powerful tool for estimating proposed values using variables from the parameters (Sangpradid et al., 2022). A general specification for a spatial regression model is given by equation (Moscone and Tosetti, 2014).

$$Y=\beta_0+\beta_1X_1+\beta_2X_2+...+\beta_kX_k$$

Where Y represents the estimated value of wild orchid density; β_0 is the intercept; β_k is the coefficient of independent variable; X_k is independent variable.

Spatial regression analysis was conducted to explore the relationships between wild orchids distribution and various key parameters, including elevation, NDWI, basin density, forest type, and aspect. The objective was to gain a comprehensive understanding of how these environmental factors influenced the occurrence and abundance of wild orchids populations within the study area (Ye et al., 2022; Martinis et al., 2018). In the analysis, spatial regression analysis was accounted for to capture the inherent spatial dependencies among the wild orchids data points (Aroonsri and Sangpradid, 2021).

Assessment of Spatial Regression Model

The predictive accuracy of the wild orchid density spatial regression model was evaluated using statistical comparison metrics, including Mean Absolute Error (MAE), and Root Mean Square Error (RMSE), which are presented as follows: (Sahragard et al., 2019).

$$RMSE = \sqrt{\frac{1}{n}\sum_{i=1}^{n}(y_i - p_i)^2}$$

$$MAE = \frac{1}{n}\sum_{i=1}^{n}|y_i - p_i|$$

Where $\mathbf{y_i}$ **is** the estimated value of wild orchid density of the i value; $\boldsymbol{p_i}$ is the observed wild orchid density value of the i value.

RESULTS AND DISCUSSION

Wild orchid results

The results of the data collection for wild orchid species, which encompass a total of 28 different orchid species, are summarized in the following Table 1. The table provides a comprehensive overview of the different wild orchid species observed during data collection, along with the corresponding number of recordings for each species. These recordings represent the instances of observing the particular orchid species within the study area. The total number of recordings across all species is 3,399. Table 1 illustrates the presence of a diverse spectrum of observations across distinct orchid species, indicating notable variability in recorded occurrences. Notably, certain species, such as *Aerides falcata Lindl. & Paxton* exhibit a significantly higher frequency (605 times), while others, including *Calanthe rosea (Lindl.) Benth.* and *Vandopsis lissochiloides (Gaudich.) Pfitzer* manifest fewer instances (1 or 2 times).

In Table 1, it is evident that orchid species such as *Aerides falcata Lindl. & Paxton*, *Aerides falcata Lindl.*, and *Cleisostoma fuerstenbergianum F. Kranzl.*, demonstrate relatively elevated recording numbers, indicative of their potential dominance or wide distribution within the study area. Table 1 further reveals that orchid species characterized by fewer recorded instances (e.g., *Calanthe rosea* with 1 recording) signify their infrequent presence within the study area. Notably, species such as *Vandopsis lissochiloides*, and *Bulbophyllum lasiochilum* were observed on only a limited number of occasions.

The results of the wild orchid survey in Phu Faek forest park were presented using a counting method to determine the number of orchids found at each survey point. Figure 3 illustrates the spatial

Table 1. The presence of wild orchid species in Phu Faek forest park

no	Orchid species	number of recordings
1	*Cymbidium aloifolium* (L.) Sw.	48
2	*Nervilia aragoana* Gaudich	97
3	*Nervilia aragoana* Gaudich	73
4	*Dendrobium bilobulatum* Seidenf	75
5	*Cleisostoma fuerstenbergianum* F.Kranzl.	139
6	*Aerides falcata* Lindl.	570
7	*Aerides falcata* Lindl. & Paxton	605
8	*Aerides multiflora* Roxb.	102
9	*Aerides houlettiana* Rchb. f	293
10	*Calanthe rosea* (Lindl.) Benth.	1
11	*Vanda lilacina* Teijsm. & Binn	197
12	*Rhynchostylis coelestsis* Rchb.f.	104
13	*Vandopsis lissochiloides* (Gaudich.) Pfitzer	2
14	*Cleisostoma arietinum* (Rchb.f.) Garay	270
15	*Dendrobium cariniferum* Rchb.f.	3
16	*Dendrobium pulchellum* Roxb. ex Lindl.	40
17	*Pholidota imbricata* Hook	3
18	*Dendrobium delacourii* Guillaumin	423
19	*Coelogyne trinervis* Lindl	22
20	*Pinalia bractescens* (Lindl.) Kuntze.	15
21	*Doritis pulcherrima* Lindl.	61
22	*Luisia thailandica* Seidenf.	34
23	*Habenaria rhodocheila* Hance	27
24	*Vanda denisoniana*.	13
25	*Vanda bensonii* Batem	76
26	*Bulbophyllum lasiochilum* C.S.P.Parish & Rchb.f.	3
27	*Bulbophyllum morphologorum* F.Kranzl.	96
28	*Bulbophyllum blepharistes* Rchb.f.	7
Total		3,399

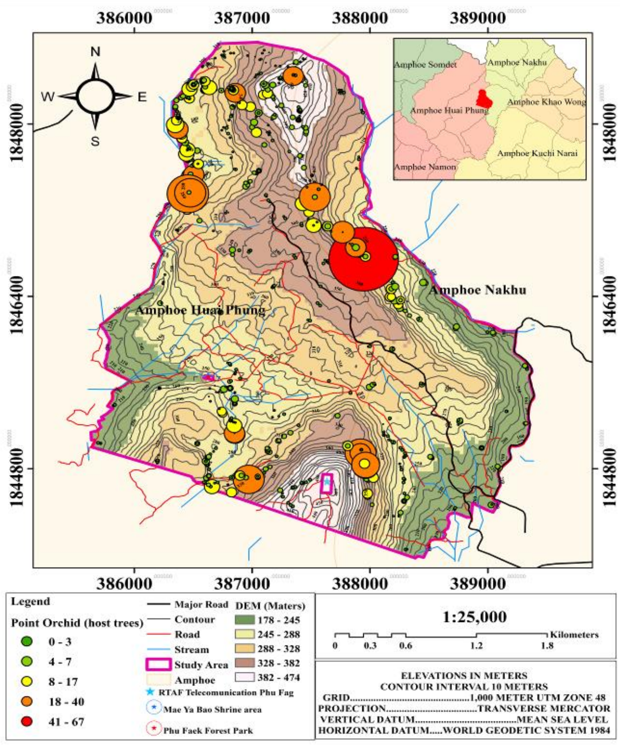


Figure 3. The distribution of wild orchids density map from data collection

distribution of wild orchids by displaying their positions on the map. The size of each circle in the figure represents the quantity of orchids observed at each location. By comparing the sizes of the circles among survey points, we were able to visualize the distribution and density of orchids in the park. In the figure, larger circles indicate higher orchid density, while smaller circles represent lower orchid density. The use of different colors for the circles could further highlight variations in orchid density across the area. This visualization of the orchid survey results in Figure 3 provides valuable insights into the distribution and density patterns of orchids within Phu Faek forest park.

Spatial map results

The map depicting the spatial distribution of wild orchid density has been generated with a spatial resolution of 10 by 10 meters, showcasing the relative occurrences of these orchid densities, as illustrated in Figure 4(a). The outcomes from the spatial orchid density map, illustrated in Figure 4(a), indicate that areas marked by the color red represent high plant density, predominantly concentrated in the central region of the study area.

Conversely, the southern area, represented by the dark green color on the map, exhibits the lowest orchid density. The variable maps for NDWI, forest type, basin density, elevation, and aspect have been generated using advanced GIS techniques. Each map depicts the distribution and attributes of its corresponding variable across the study area, while maintaining a uniform cell size of 10 by 10 meters. These maps are visualized in Figure 4(b), 5, and 6.

The distribution of wild orchid species in relation to NDWI, forest type, basin density, elevation, and aspect is depicted in Tables 2 through 6. Table 2 illustrates the dispersion of wild orchid species across distinct Normalized Difference Water Index (NDWI) values. Notably, both the "Moderate" and "High" NDWI ranges unveil a heightened presence of recorded orchid species, with 25 species each. This implies that locales characterized by moderate to high NDWI values, indicative of flourishing vegetation and ample water content, likely foster a conducive environment for a diverse array of orchids. In Table 3, the findings underscore the variable levels of orchid species diversity exhibited across different forest types within the study region. The Dry Deciduous Dipterocarp and Mixed Deciduous Forests emerge as hosts to a richer assortment of orchid species compared to the Stone Platform, suggesting a more favorable habitat for orchid proliferation.

Table 2. Wild orchid species distribution across NDWI

NDWI	number of species found
Very low	16
Low	6
Moderate	25
High	25
Very High	19

Table 3. Wild orchid species distribution across forest types

Forest Type	number of species found
Stone Platform	8
Dry deciduous dipterocarp forest	24
Mixed Deciduous Forest	25

Table 4. Wild orchid species distribution across basin density

Basin density	number of species found
Very low	22
Low	8
Moderate	18
High	22
Very High	20

Table 5. Wild orchid species distribution across elevation

Elevation	number of species found
175 - 237	7
237 - 287	18
287 - 328	18
328 - 378	25
378 - 474	18

Table 6. Wild orchid species distribution across aspect

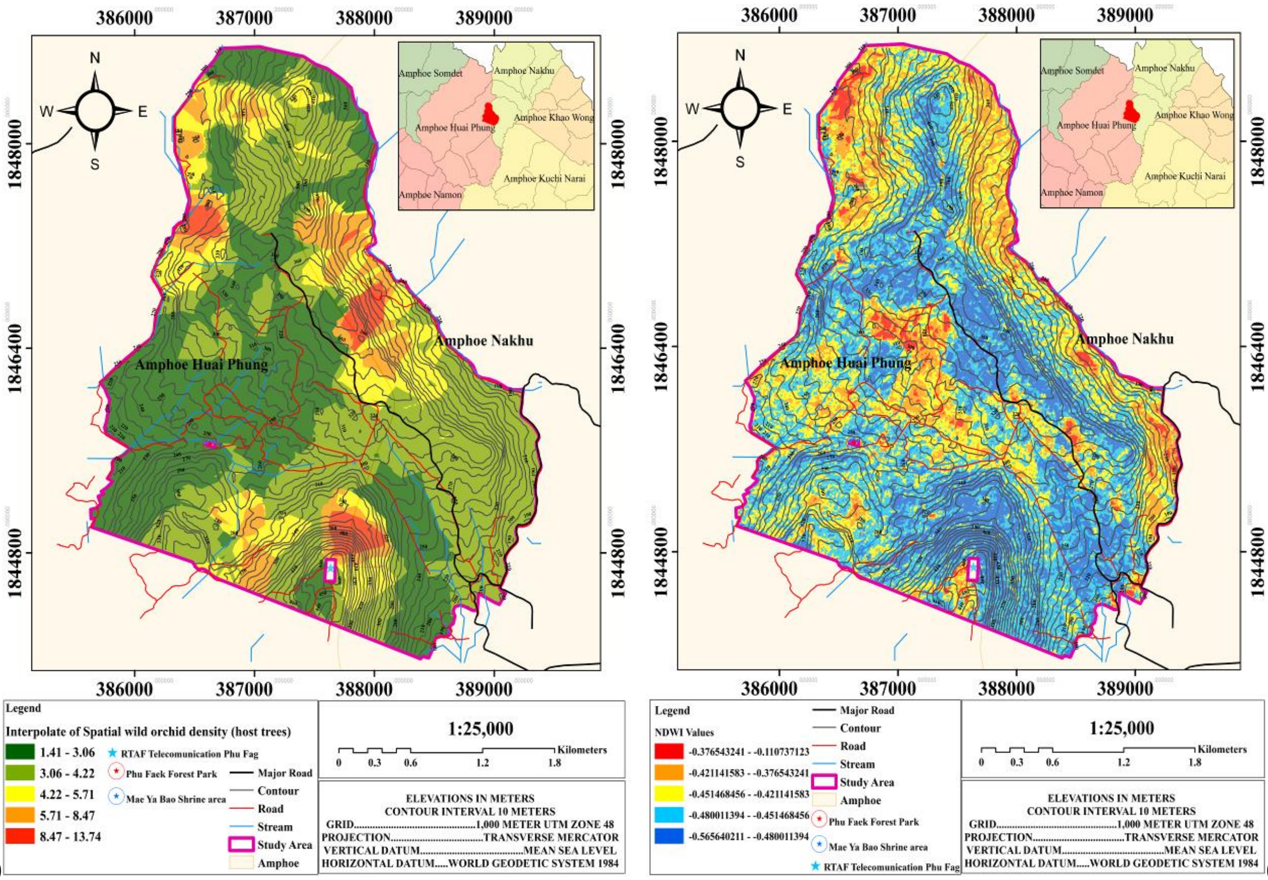
Aspect	number of species found
East	23
North	20
South	21
West	21

Table 4 provides valuable insights into the correlation between basin density variations and the distribution of wild orchid species. Notably, higher Basin Density Categories, indicative of areas with intensified basin density, display a comparable number of orchid species (22 and 20 species, respectively). This observation suggests that the presence of more extensive basins or watersheds may indeed influence the distribution and diversity of orchid species.

The data presented in Table 5 reveals intriguing trends in orchid species diversity concerning different elevation ranges. Elevation within the range of 175 to 237 meters demonstrates a lesser variety of orchid species, with 7 distinct species documented. On the contrary, elevations surpassing 237 meters reveal an elevated count of orchid species, with 25 and 18 species recorded, respectively. This implies that higher elevations potentially provide more conducive conditions for a diverse range of orchids to flourish. Lastly, Table 6 delves into the spatial distribution of wild orchid species in relation to varying cardinal directions within the study area. The "North," "South," and "West" aspects present a similar number of recorded orchid species, each featuring 20 or 21 species. Remarkably, the "East" aspect emerges as a hotspot of orchid diversity, boasting the highest count of recorded species at 23. This observation intimates that areas facing eastward may offer a hospitable environment conducive to the thriving presence of diverse orchid species.

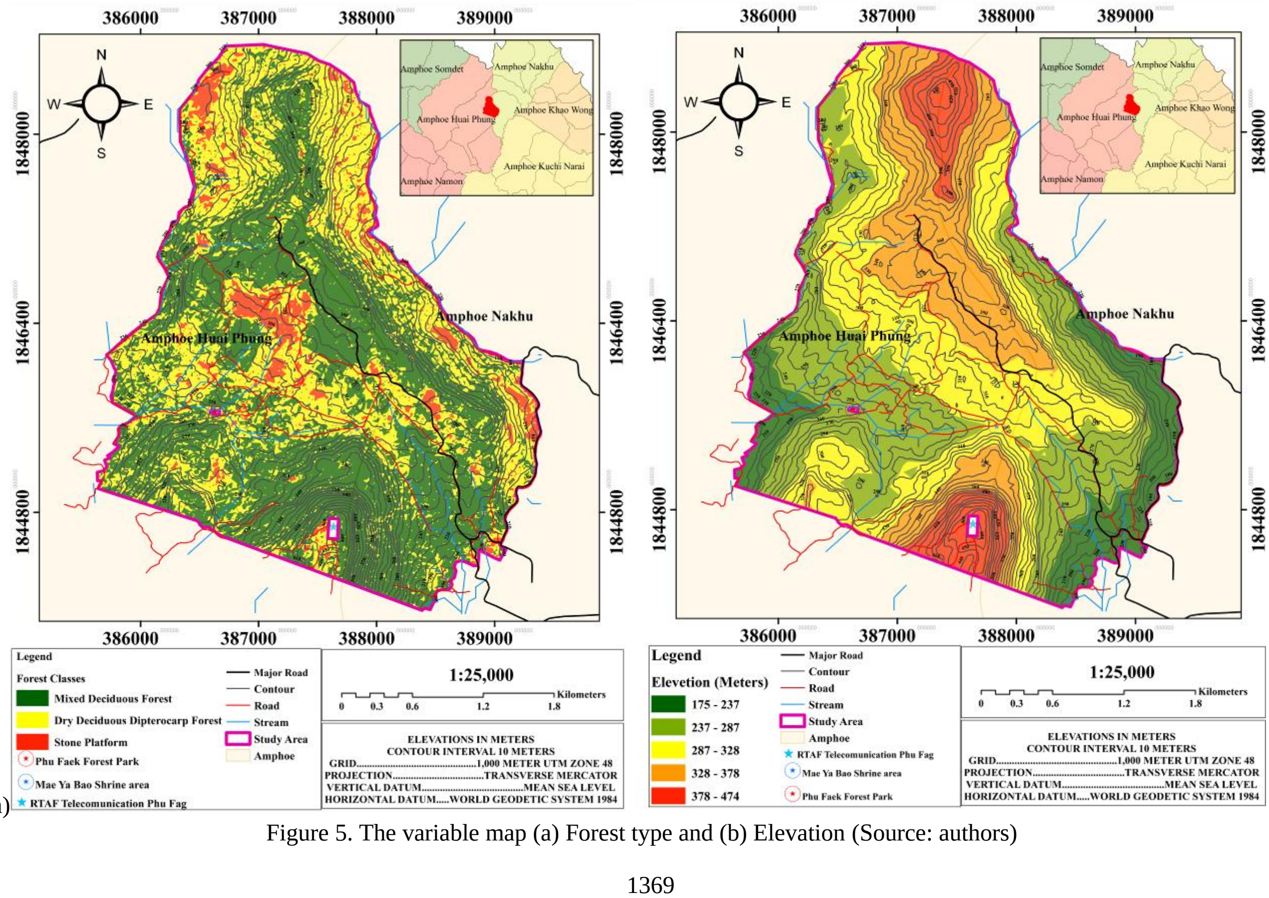
Spatial regression analysis result

The spatial regression model results, as depicted in Figure 7, offer valuable insights into the distribution patterns of wild orchid species within Phu Faek forest park. The model, which incorporates factors such as NDWI, forest type, elevation, basin density, and aspect, contributes to a comprehensive understanding of the factors influencing orchid density across the landscape. Figure 7 illustrates the spatial distribution of predicted wild orchid density values across the study area. The color gradient represents varying levels of orchid density, with warmer colors indicating higher predicted density and cooler colors indicating lower predicted density. The model's predictions highlight distinct spatial patterns, showcasing areas of both higher and lower orchid density. Areas with elevated orchid density are prominently visible in the central and north region of the study area, depicted by the red color tones. This central and north zone exhibits a concentration of high predicted orchid density, suggesting favorable ecological conditions for the proliferation of these species. Conversely, the southern area reveals lower predicted orchid density, represented by green color tones, indicating relatively fewer occurrences of orchid species.

(a)


(**b**)

Figure 4. (a) Spatial distribution of wild orchid density map and (b) NDWI map (Source: authors).

(a)


(b)

Figure 5. The variable map (a) Forest type and (b) Elevation (Source: authors)

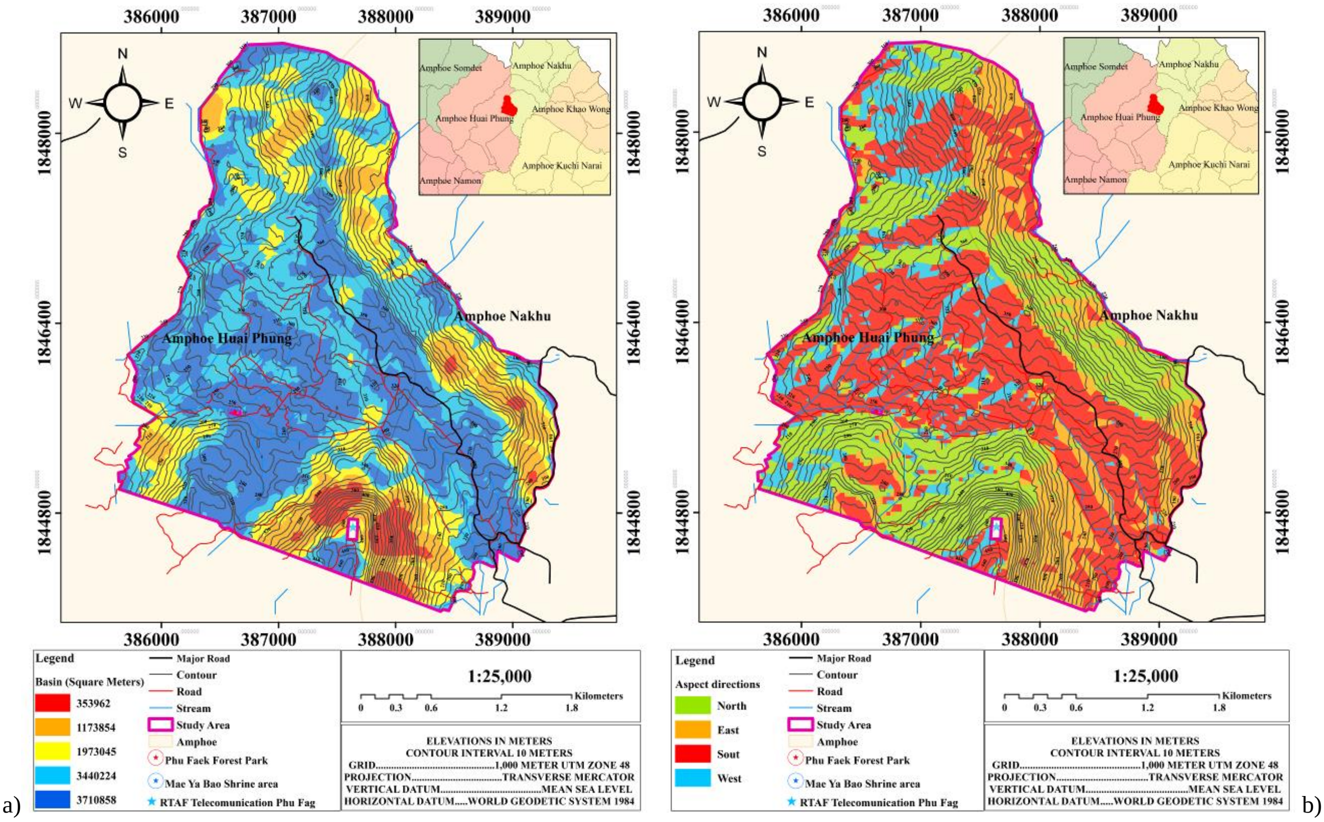


Figure 6. The variable map (a) Basin density, and (b) Aspect (Source: authors)

Table 7 presents the coefficients obtained from the spatial regression model, along with their corresponding standard errors and p-values. The coefficients represent the estimated effects of the predictor variables on the wild orchid density in the study area. The intercept coefficient is 5.217, with a standard error of 2.700. The *p*-value associated with the intercept is 0.054. The intercept represents the estimated wild orchid density when all other predictor variables in the model are zero.

Table 7. The coefficients result of spatial regression model

	Coefficients	Standard Error	P-value
Intercept	5.217	2.700	0.054
NDWI	14.550	21.925	0.507
Forest type	8.122	17.257	0.638
Elevation	0.002	0.003	0.476
Basin	0.000	0.000	0.085
Aspect	-0.002	0.002	0.378

The *p*-value indicates that the intercept's effect on wild orchid density is borderline statistically significant. The p-value for NDWI, forest type, elevation and aspect were 0.507, 0.638, 0.476 and 0.378, respectively. The p-value suggests that the effect of these variable on orchid density is not statistically significant. The *p*-value associated with basin density is 0.085. This coefficient suggests the expected change in wild orchid density for a one-unit change in basin density. The *p*-value indicates that the effect of basin density on orchid density is borderline statistically significant.

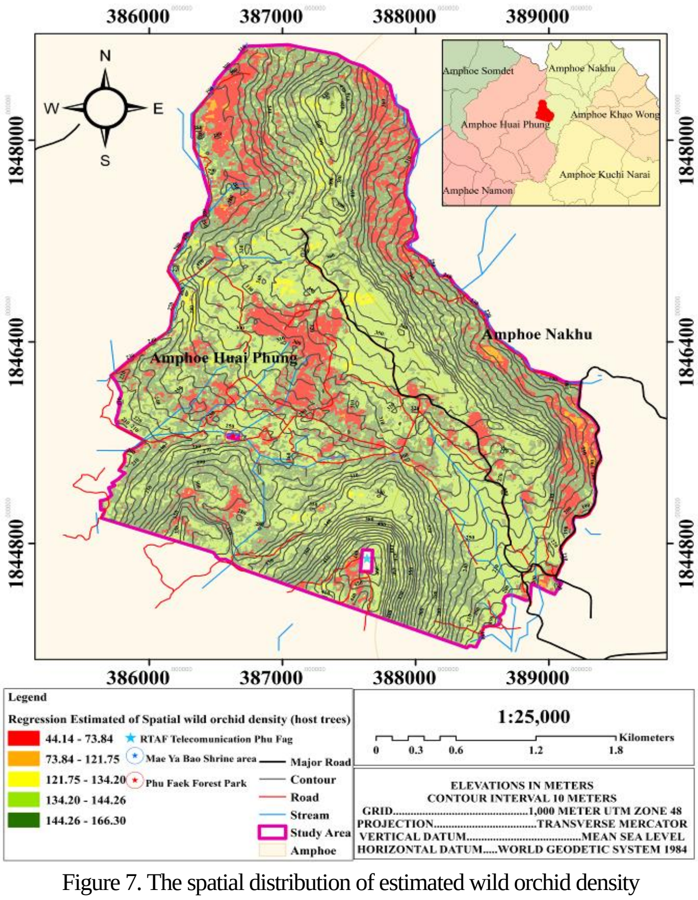


Figure 7. The spatial distribution of estimated wild orchid density resulting from the spatial regression model (Source: authors)

Table 8 provides a comprehensive overview of the comparative error statistics associated with the wild orchid density spatial regression model. These statistics play a critical role in evaluating the precision and appropriateness of the model's forecasts. The RMSE value, shown as 4.686, plays a pivotal role in assessing the spatial regression model's effectiveness.

RMSE is the square root of the mean of the squared disparities between predicted and observed values. Conversely, the MAE value, indicated as 2.502, provides an additional insightful measure of the spatial regression model's precision. Both RMSE and MAE values serve as indicators of predictive performance, reflecting the model's ability to closely approximate actual observed orchid density values. Importantly, these values are within an acceptable range, indicating satisfactory model performance for meaningful interpretation.

Table 8. Comparative error statistics of the wild orchid density spatial regression model

Model	statistics	
	RMSE	**MAE**
Spatial regression model	4.686	2.502

CONCLUSION

In conclusion, this study employed a comprehensive approach that integrated remote sensing data, GIS techniques, and spatial regression analysis to investigate the spatial distribution and factors influencing the density of wild orchid species within Phu Faek forest park. A total of 28 different orchid species were recorded during the field surveys, highlighting the area's significance as a habitat for these enchanting plants. The variability in observations of wild orchid species, as evidenced by the frequency of recordings, portrays a mosaic of distribution patterns across the study area. Dominant species such as *Aerides falcata Lindl. & Paxton*, *Aerides falcata Lindl.*, and *Cleisostoma fuerstenbergianum F.Kranzl.*, emerge with higher recording numbers, suggesting their potential dominance or wide distribution within Phu Faek forest park. Conversely, rarer and unique species, represented by lower numbers of recordings, provide crucial information about their rarity and conservation significance. Orchid species like *Calanthe rosea (Lindl.) Benth*., *Vandopsis lissochiloides (Gaudich.) Pfitzer*, and *Bulbophyllum lasiochilum C.S.P.Parish & Rchb.f.*, were observed only a few times, underscoring the importance of preserving these delicate and less common flora.

The data collection efforts yielded a diverse set of orchid species, with varying levels of occurrence across different forest types, elevations, aspects, and basin densities. This diversity underscores the importance of maintaining heterogeneous habitats to support the coexistence of numerous orchid species within the park. The analysis of NDWI, a key indicator of vegetation health and moisture content, provided further context for orchid distribution, highlighting the significance of suitable water availability for their growth. The spatial regression model proved to be a robust tool in elucidating the relationships between orchid density and environmental variables. The model's coefficients shed light on the specific influence of each factor, such as NDWI, forest type, elevation, basin density, and aspect, on orchid density.

The evaluation of the model's performance through error statistics demonstrated its ability to predict orchid density with reasonable accuracy. This study's results collectively emphasize the intricate interplay between environmental factors and the distribution of wild orchid species. The spatial distribution maps, along with the regression analysis, contribute to a more comprehensive understanding of the ecological dynamics within Phu Faek forest park.

These findings can serve as a foundation for informed conservation efforts, land management strategies, and future research endeavors aimed at preserving the rich biodiversity and unique ecosystems within the park. In essence, this study underscores the importance of employing advanced spatial analysis techniques to unravel the complex relationships between species distribution and environmental variables. By merging scientific knowledge with cutting-edge technology, we can enhance our ability to conserve and protect fragile ecosystems, such as those harboring the diverse and captivating world of wild orchids**.**

Author Contributions: Conceptualization, N.P. and S.S.; methodology, N.P. and S.S.; software, N.P. and S.S.; validation, N.P. and S.S.; formal analysis, N.P. and S.S.; investigation, N.P. and S.S.; data curation, N.P. and S.S.; writing - original draft preparation, N.P. and S.S.; writing - review and editing, S.S.; visualization, N.P. and S.S.; supervision, S.S.; project administration, N.P. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: This research project was financially supported by Mahasarakham University.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Akbulut, M.K., Süngü Şeker, Ş., Everest, T., & Senel, G. (2021). Suitable habitat modelling using GIS for orchids in the Black Sea Region (North of Turkey). *Environmental Monitoring and Assessment*, 193, 853. https://doi.org/10.1007/s10661-021-09648-0

Aristizábal, J.E., Sarache, W., & Escobar, D.A. (2023). Spatial regression model of urban walkability under 15-minute city approch. *GeoJournal of Tourism and Geosites*, 49(3), 1037–1045. https://doi.org/10.30892/gtg.49319-1103

Aroonsri, I., & Sangpradid, S. (2021). Orchard classification from satellite image data using fuzzy k-mean to estimate of carbon sequestration. *Ecology, Environment and Conservation*, 27(3), 1432-1438. http://www.envirobiotechjournals.com/article_abstract.php?aid=11796&iid=337&jid=3

Liu, H., Liu, Z., Jin, X., Gao, J., Chen, Y., Liu, Q., & Zhang, D. (2020). Assessing conservation efforts against threats to wild orchids in China. *Biological Conservation*, 243, 108484. https://doi.org/10.1016/j.biocon.2020.108484.

Martinis, S., Chaideftou, E., Minotou, C., & Poiazidis, K. (2018). Spatial analysis of orchids diversity unveils hot-spots: The case of Zante Island, Greece. *Journal of Agricultural Informatics*. 9(1), 26-40. https://doi.org/10.17700/jai.2018.9.1.430

Marusig, D., Petruzzellis, F., Tomasella, M., Napolitano, R., Altobelli, A., & Nardini, A. (2020). Correlation of field-measured and remotely sensed plant water status as a tool to monitor the risk of drought-induced forest decline. *Forests*, 11, 77. https://doi.org/10.3390/f11010077

Moscone, F., & Tosetti, E. (2014). Spatial econometrics: theory and applications in health economics. *Encyclopedia of Health Economics*, 3, 329-334. https://doi.org/10.1016/B978-0-12-375678-7.00719-7

Prasongsom, S., Thammasiri, K., Chuenboonngarm, N., Panvisavas, N., Narangajavana, J., & Thitamadee, S. (2020). Conservation of dendrobium cruentum Rchb. f. *Acta Horticulturae*, 1298, 187-194. https://doi.org/10.17660/ActaHortic.2020.1298.27

Pridgeon, A.M., Cribb, P.J., Chase, M.W., & Rasmussen, F.N. (2014). Genera orchid acearum, Vol. 6, Epidendroideae (3), Oxford University Press.

Rahayu, E.M.D., & Yusri, S. (2022). Habitat preferences of wild orchids in Bantimurung Bulusaraung national park to model their suitable habitat in South Sulawesi, Indonesia. *Biodiversitas*. 23(1), 43-54. https://doi.org/10.13057/biodiv/d230106

Sahragard, H.P., Keshtegar, B., Chahouki, M.A.Z., & Yaseen, Z.M. (2019). Modeling spatial distribution of plant species using autoregressive logistic regression method-based conjugate search direction. *Plant Ecology*, 220, 267–278. https://doi.org/10.1007/s11258-019-00911-6

Sangpradid, S. (2023). Application of a multi-layer perceptron neural network to simulate spatial-temporal land use and land cover change analysis based on cellular automata in Buriram province, Thailand. *Environmental Engineering and Management Journal*, 22(5), 917-931. http://doi.org/10.30638/eemj.2023.074

Sangpradid, S., Prasertsri, N., & Aroonsri, I. (2022). Geographically weighted regression modelling for above-ground biomass assessment from satellite imagery in Tad Sung Waterfall park forest, Thailand. *International Journal of Conservation Science*, 13(2), 695-704. https://ijcs.ro/public/IJCS-22-49_Sangpradid.pdf

Smallwood, P.A., & Trapnell, D.W. (2022). Species distribution modeling reveals recent shifts in suitable habitat for six north American *Cypripedium spp*. (Orchidaceae). *Diversity*,14, 694. https://doi.org/10.3390/d14090694

Thammasiri, K. (2015). Current status of orchid production in Thailand. *Horticulturae*, 1078, 25-33. https://doi.org/10.17660/ActaHortic.2015.1078.2

Thammasiri, K. (2016). Thai orchid genetic resources and their improvement. *Horticulturae*, 2(3), 9. https://doi.org/10.3390/horticulturae2030009

Theobald, D.M., Harrison-Atlas, D., Monahan, W.B., & Albano, C.M. (2015). Ecologically-relevant maps of landforms and physiographic diversity for climate adaptation planning. *PLoS ONE*, 10(12), e0143619. https://doi.org/10.1371/journal.pone.0143619

Ye, C., An, M., Shi, J., Liu, F., & Zhang, Y. (2022). Spatial distribution and its limiting environmental factors of native orchid species diversity in the Beipan river basin of Guizhou province, China. *Ecology and Evolution*, 12(11), 1-13. https://doi.org/10.1002/ece3.9470

Zhan, Q., Liang, Y., Zhang, Z., Liu, F., Li, L., Tang, X., Liang, Z., Chen, W., Hu, M., & Tan, S. (2022). Geographic patterns of the richness and density of wild orchids in nature reserves of Jiangxi, China. *Diversity*, 14, 855. https://doi.org/10.3390/d14100855

Article history: Received: 04.08.2023 Revised: 12.09.2023 Accepted: 18.10.2023 Available online: 21.11.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1373-1381
DOI 10.30892/gtg.50418-1136

FACTORS AFFECTING NIGHT ECONOMY DEVELOPMENT: A CASE STUDY IN DA NANG CITY, VIETNAM

Tuan Anh LE
Duy Tan University, Faculty of Accounting, Da Nang City, Vietnam, e-mail: latuan0507@gmail.com

Vu Phan Gia ANH*
HCMC University of Technology and Education, Faculty of applied sciences, Ho Chi Minh, Vietnam, e-mail: vuphan@hcmute.edu.vn

Tram Nguyen Thi HUYEN
HCMC University of Technology and Education, Faculty of Economics, Ho Chi Minh, Vietnam, e-mail: tramnth@hcmute.edu.vn

Nguyen Minh Quan HA
HCMC University of Technology and Education, Faculty of Economics, Ho Chi Minh, Vietnam, e-mail: quanhnm@hcmute.edu.vn

Citation: Le, T.A., Anh, V.P.G, Huyen, T.N.T., & Ha, N.M.Q. (2023). FACTORS AFFECTING NIGHT ECONOMY DEVELOPMENT: A CASE STUDY IN DA NANG CITY, VIETNAM. *GeoJournal of Tourism and Geosites*, 50(4), 1373–1381. https://doi.org/10.30892/gtg.50418-1136

Abstract: The purpose of this study is to examine the factors affecting the development of the night economy in Da Nang city, Vietnam on the basis of a survey of 346 domestic tourists choosing this as a tourist destination and participate in night activities and services. The author has synthesized the relevant background theory as well as previous outstanding studies on the issue of tourism development and night economy. SPSS 20 software was used to test the relationship between factors affecting the development of the night economy based on the viewpoints of tourists, residents and local authorities. The results of the study show that 05 factors affect the development of the night economy in Da Nang city in order: The development of a variety of services; Legal and safety regulations; cultural experience opportunities; infrastructure and traffic; service prices. The remaining two factors did not find any influence on the development of the night economy: tourism natural resources; promote and share. The study once again confirms the relationship between the factors affecting the development of the night economy and is a document to help researchers understand better in the research context in Vietnam, one of the leading countries in the world. developing countries and are limited in developing the night economy after the Covid-19 pandemic.

Key words: night economy, night tourism, tourists, sustainable development, Da Nang, Viet Nam

* * * * * *

INTRODUCTION

Huang and Wang (2018) argued that economic activities taking place at night constitute night economic activities. Stabler et al. (2009) found that nighttime economic activity generates about 15% of revenue in urban centers and popular tourist destinations around the world. The Prime Minister issued Decision No. 1129/QD - Ttg on July 27, 2020 approving the project of developing night economy in Vietnam. In particular, the project clearly states the point of view "Developing the night economy to promote domestic consumption and tourism development, through focusing on developing the field of cultural services, entertainment, entertainment and services catering, shopping and tourism services take place from 18:00 to 6:00 a.m.", "... better serve the material and spiritual life of people, foreigners, especially tourists" (Government, 2020). At the same time, the project also identifies the construction of night tourism products based on indigenous cultural factors, creating accents according to local characteristics (selecting types of services, iconic locations to attract tourists) attract tourists)".

Even when Vietnam is closely monitoring the development of the new COVID-19 epidemic. There may be doubts about the ability to implement the Scheme at that time, when many tourist cities are concerned about the ability to prevent and control the epidemic, and tourists tend to postpone or cancel trips. However, the project has been "tested" right from the construction phase since 2019 and completed, especially from the March and April period associated with the epidemic prevention and social distancing period of the whole country. In fact, the COVID-19 pandemic has not reduced the interest in the construction and consultation on the orientation of night economic development. The promulgation of the Scheme further demonstrates the determination not to miss any opportunities for economic growth, especially in the difficult context of the COVID-19 pandemic. The Night Economy Project creates an open space for localities to study and utilize. Firstly, the concept of night economy is most expanded, that is, activities from 6 p.m. the night before until 6 a.m. the next day. There can be many different economic activities at night, but the Project mainly focuses on the following fields: cultural services, entertainment and entertainment (cultural-artistic activities, theatre, music, entertainment programs, festivals, events, etc.), food services (restaurants, bars, etc.), shopping services (markets, shopping malls, etc.) and tourism.

* Corresponding author

Secondly, the Project emphasizes proactively giving priority to night-time economic activities that develop smoothly and based on market principles, and at the same time effectively handle risks and negative consequences from business activities night economy. Third, the project allows piloting to extend the time of night services in some localities such as Ha Noi, Ho Chi Minh City, Da Nang, Hoi An, Quang Ninh, Hai Phong, Da Lat, Phu Quoc.

Da Nang is considered as one of the cities with a lot of potential for night-time economic development, with the traffic infrastructure, facilities, activities and services at night basically formed synchronously, safe and friendly tourist environment, entertainment activities, entertainment and night services are forming such as An Thuong tourist area, Son Tra night market, Helio, Sun World Danang Wonders tourist area. Issues related to nightlife in the city (Nofre et al., 2018), 24-hour city (Roberts and Eldridge, 2012) or night entertainment (Roberts, 2006) are related concepts. However, night tourism activities have only been exploited on a small scale in some areas of the city, and have not yet made a difference compared to that of night tourism with activities in the traditional time frame, therefore, it is necessary to further evaluate the scale, size and potential of the night economy development in Da Nang.

LITERATURE REVIEW AND RESEARCH HYPOTHESES

Chang et al. (2022) have shown that the development of night economy in each province is quite different in China based on the difference in tourism resource allocation. Christou et al. (2022) used complexity theory to investigate the factors that influence tourists to Cyprus on their night travel experiences, most of which agree on the aspects of socialization and Cultural connection, education is the main factor influencing the choice of experience of tourists. In addition, the cost of spending also partly affects the choice of experience of these tourists. Hsieh and Chang (2006) conducted research and showed that the search for novelty, cultural experience and local customs are the motivation factors of tourists when visiting the night market in Taiwan, Moreover, some problems of theft, traffic and parking are "barriers" to the development of tourist night market activities in Taiwan. Chen et al. (2020) evaluated the factors affecting the development of the night economy from the emotional perspective of tourists when choosing cultural heritage night services in Korea. The enhancement of the destination's cultural and aesthetic experiences will contribute to increasing the love of tourists as well as the sustainable development of the economy and night tourism in this country. Tsai (2013) said that food plays a huge role in confirming culture, when tourists come to Taiwan, the number one preferred place to choose is the night market where they can experience the culture’s cuisine. Most visitors will enjoy and learn about the culture when accompanied by high quality food, which is an effective way of promoting cultural experiences for Taiwan. Tsai (2013) also concludes that the night market is an important factor in building the destination's image, enhancing the interaction and cultural exchange between locals and tourists.

Lin et al. (2022) argued that the allocation of resources on infrastructure, specifically lighting, will greatly determine the development of the driving force for the night economy, the rational allocation of resources. This electric power is essential to meet the night-time economic development especially after the Covid-19 period for Chinese cities. Maráková et al. (2016) argue that it is very important to retain overnight visitors at the destination, which shows the tourism competitiveness of the destination because when tourists choose a destination, stay overnight at the new destination brings a lot of revenue for businesses in the area. Maráková et al. (2016) also put forward the view that the development of tourism in general and the night economy in particular will help build a better culture and education of that locality. Zmyslony and Pawlusiński (2020) stated that to ensure sustainable development of the night economy, it is necessary to pay attention and ensure the following issues: technological, economic, environmental, political and social. This is considered a closed circle towards the development of the night economy. Olt et al. (2021) made the statement that in order to develop infrastructure for each locality, the development of tourism and night economy is inevitable. The development of tourism, the increase in the consumption value of tourists will significantly contribute to the urbanization process of that locality. Moreover, it is very important to develop legal regulations related to this activity to ensure the preservation of related heritages for tourism development. Chenli (2021) argues that the night economy has great potential for development because of its great economic value, especially consumption. But to ensure its development, it is advisable to control the macro environment and develop new tourism products at night. Pinke-Sziva et al. (2019) suggested that in order to better improve the tourist experience and improve the quality of life of the people of Budapest at night, the issues that need to be improved are sanitation services, better public life, lighting system and security and order are ensured.

In Vietnam, as mentioned above, night economic development has been considered by the Government as a potential economic development direction after the Covid-19 pandemic. There have been a few published studies related to nighttime economic development in Vietnam. Huong (2021) has commented that the problem of night economic development has been mentioned quite a lot in countries around the world but is a relatively new issue in Vietnam. The development of the night economy is absolutely necessary because it creates more jobs and contributes to the growth of the Vietnamese economy, to do that solutions on: strategy, diversification night tourism products, legal regulation, public and government perception, infrastructure development and financial support measures. Nguyen (2023) has pointed out the factors affecting the behavior of young people participating in the night economy in Vietnam.

Young people will choose night activities and are willing to spend on these activities if they can increase their perceived value, experience local culture and participate in places if they are invested in infrastructure. Tuong (2022) has consulted the night economic development policies in developed cities to apply to Da Nang in order to develop the night economic services of this locality. The solutions are aimed at developing entertainment services, transportation infrastructure, the new point is being able to develop cross-border financial transactions due to time zone differences. It is necessary to attract entertainment brands and large investors as well as have a legitimate management strategy to avoid an outbreak. Son et al. (2023) have shown that promoting and sharing destination images; developed and safe infrastructure; institutions and the environment; natural and tourist resources destination. These are the factors that will affect the night-time economic development of Hanoi city. Research also shows that diversifying entertainment services will also play an important role in attracting tourists to spend more in the night economy. Based on the results of the above outstanding studies. The author proposes the following hypotheses in the model:

H1: The opportunity to experience local culture (OECU) affects the development of the night economy (+).

Experiencing the local culture in terms of people, history, unique characteristics of the people will urge visitors to participate in local activities at night such as performances of singing hut, singing folk music, folk playing (Tuong, 2020), besides that, the culinary culture of the local people will also influence the tourists' choice of night markets (Tsai, 2013), specializing in cuisine such as Helio night market, night food street. Having the opportunity to experience the culinary culture at night will draw tourists closer to Da Nang (Nguyen, 2023). Maráková et al. (2016) also mentioned the exchange and development of local culture if the night economy is really developed.

H2: Convenient infrastructure and transportation (INTR) affect (+) the development of the night economy (DNTE).

Infrastructure plays a very important role in the development of the night economy (Christou et al., 2022; Hsieh and Chang, 2006). Modern electric light system, convenient transportation will help attract tourists to nighttime tourist areas (Pinke-Sziva et al., 2019). The development of the night economy also provides a source of income from which to increase the urbanization of the locality (Olt et al., 2021). Functional management agencies should have specific orientations for investing in transportation infrastructure development resources for key development localities (Son et al., 2023).

H3: Legal and safety regulations (LERE) affect (+) the development of the night economy (DNTE).

Having a legal basis will help investors and businesses feel secure when investing in the night economy service industries (Tuong, 2020). The consensus between the authorities and the locality, the people in these locations will greatly facilitate the development of the night economy (Huong, 2012). Ensuring security and order at entertainment venues as well as night activities also needs attention (Olt et al., 2021). Visitors only feel secure to use the services when they are assured of their safety.

H4: Tourism natural resources (TORE) affect (+) the development of the night economy (DNTE).

Da Nang is convenient because of its diverse terrain, including many forms such as mountains, rivers and sea, with many famous tourist attractions such as Ba Na Hill, Than Tai Hot Springs, Son Tra Peninsula bordering Hoi An Ancient Town. An, the ancient capital of Hue. This is a great potential to attract tourists to the night economy with fishing activities such as squid fishing at sea, music, bars, cultural exchanges at night. If you know how to promote the full potential of tourism natural resources, it will help a lot in the economic development of the locality.

H5: Promotion and sharing of destination information (PRSH) affects (+) the development of the night economy (DNTE).

Promoting and sharing information about the destination image of Da Nang is not really strong for potential markets such as Europe, America, Japan, Russia. The rate of tourists coming to Da Nang and participating in night activities of these markets is quite low. Mostly still Chinese and Korean tourists. Another remarkable feature is that it has not yet attracted big "eagles" to invest in nighttime economic services (Son et al., 2023; Huong, 2021). The promotion and sharing of information about services and economic activities at night must be carried out synchronously with many different channels, with different levels of attraction for each different target group and should aim at diversifying age groups (Huong, 2021).

H6: The development of diversified services (DESE) affects (+) the development of the night economy (DNTE).

This is a factor that many studies have mentioned before, but it is quite different in the research context. Huong (2012) said that night activities should be diverse for teenagers, such as cultural exchanges, music and special art activities of the central region of Vietnam. Chenli (2021) argued that tourism activities, entertainment and night experiences must be designed more diversely, helping tourists have more choices of experiences. Moreover, it is possible to think of developing activities such as commerce and nighttime economic exchanges due to the difference in time zones in addition to the entertainment and entertainment activities being implemented.

H7: Service prices (SEPR) affect (+) the development of the night economy (DNTE).

Christou et al (2022) have made the assumption that service costs will have more or less impact on the development of the night economy. With a moderate service fee, being publicly transparent will help tourists intend to return to night activities more. Nguyen (2023) also agreed that tourists will spend more at night if the price of the service is appropriate and provides a good experience for them.

METHODOLOGY

To achieve research goals. The author carries out the research process through five steps according to the following process (Figure 1):

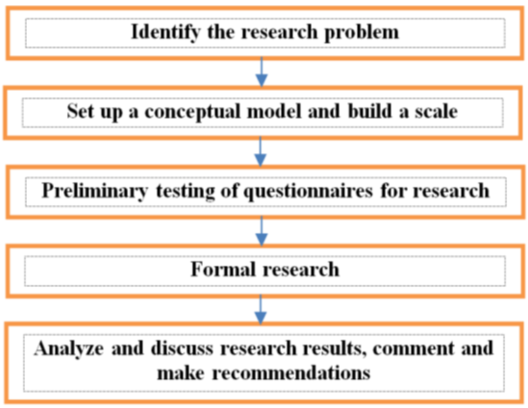


Figure 1. Author's research process
(Source: Compiled by the author)

Step 1: Identify the research problem

The author summarizes previous studies related to the theory, concepts, characteristics of the night economy and factors affecting the development of the night economy in countries and places with special characteristics. Similarities from which the author identifies research gaps. On that basis, the author develops appropriate research design and methodology to help address the research questions as well as to identify relevant factors that need to be considered in this study.

Step 2: Set up a conceptual model and build a scale

From the research gap identified above, the author will establish a research conceptual model. Then, the author proceeds to build a list of independent and dependent variables for evaluation based on the literature review. From here, the author obtains the first questionnaire (draft scale). Next, the author applies interviewing techniques with experts working in tourism and entertainment businesses and other professionals. research on this issue to determine the appropriateness of the first draft scale, to supplement and adjust the contents and statements describing these concepts (if any). As a result, after implementing this technique, the author has the second draft scale. After that, the author completes the questionnaire to prepare for the next research.

Step 3: Preliminary testing of questionnaires for research

In this step, the author will distribute a survey (questionnaire) to tourists who have been to Da Nang for tourism, the subjects of the survey are those who have been to Da Nang at least once and have experienced night tourism activities in this city. The questionnaire was designed on a 5-point Likert scale. Sample sizes range from 30 to 50 visitors. After that, the data from the preliminary test will be cleaned and processed on SPSS 20 software. All statistical procedures, analysis, testing, regression…. which the author intends to do when the full data set is available will be conducted on this prototype.

Step 4: Formal research

In this step, the author conducts to send the survey mainly by direct interview and email (via google drive) to the tourists with full sample size. After the data is fully collected, the author conducts the necessary analyzes and tests.

Step 5: Analyze and discuss research results, comment and make recommendations

The thematic nature of the research topic is a very important factor in considering the researcher's use of documentary research methods (Saunders et al., 2007). In case the source material of the research topic is diverse and easy to find, the researcher should focus on the quantitative method, on the contrary, if the research material source is small due to the novelty of the topic, the researcher should using qualitative methods.

Qualitative method

From the research gap identified through the literature review, the researcher will choose a research strategy to solve the research problem. Within the scope of this research, the author uses mixed methods to solve the found research gap. In this mixed research method, the main research strategy is quantitative. Descriptive statistical data is used to answer the first research question related to night economic development in Ho Chi Minh City. Da Nang is based on traveler reviews. Collis and Hussey (2003) have demonstrated that quantitative methods will partly explain the relationships in business and management research models. When going to research papers, the researcher used supporting tools such as Google Scholar to search for articles in journals ranked in WOS, Scopus data, the results showed documents about this research area is very diverse, they are studied in many different subjects and scopes, this is a great support for the research that the author is pursuing but also a pressure for the research team to find make new discoveries. Also through the study of these research documents, the author has found that there are irregular studies that use a combination of quantitative and qualitative methods to solve the research objectives, there are almost very few researchers. The study used only one of the above two methods. Using a combination of these two research methods will help the researcher promote the strengths while significantly reducing the inherent weaknesses of each method (Hong and Easterby-Smith, 2002). The author has conducted a variety of research from group interviews, interviews with individual experts in both face-to-face and online forms (with audio and video recording). From the summary of qualitative research results, the author has presented a summary of research results in Table 1 as follows:

Table 1. Statistical table of qualitative research results (Source: Compiled by the author)

Factor	Abbreviation symbol	Number of scales	Reference source	Expert opinion
Opportunity to experience culture	OECU	5	(Tuong (2020); Tsai (2013)	6/7 experts agree completely 1/7 experts edit 01 scale
Infrastructure and transportation	INTR	3	Christou et al. (2022); Hsieh and Chang (2006)	5/7 experts agree completely 2/7 experts edit 01 scale
Legal and safety regulations	LERE	4	Tuong (2020); Olt et al. (2021)	7/7 experts agree completely
Tourism natural resources	TORE	4	Zmyslony và Pawlusiński (2020); Olt et al. (2021)	6/7 experts agree completely
Promote and share	PRSH	3	Son et al. (2023)	7/7 experts agree completely; 1/7 experts edit 01 scale
The development of a variety of services	DESE	3	Nguyen (2023); Tsai (2013)	5/7 experts agree completely 2/7 experts edit 01 scale
Service Price	SEPR	4	Christou et al. (2022); Nguyen (2023)	6/7 experts agree completely
The development of the night economy	DNTE	3	Sơn et al. (2023)	5/7 experts agree completely; 2/7 experts commented to correct the content of the scale

Quantitative methods

Using qualitative research results, the author will base on the opinions collected from experts (academic and experimental) to adjust the research model and scale to be more suitable with the research context that is the development of the night economy in Da Nang city. Saunders et al. (2007) suggested that most researchers decide on sample size in a study often by judgment rather than purely calculation. There is no unified assertion about sample size in quantitative sof the analysis. For this study, the research team used EFA test to test reliability as well as perform factor discovery.

The construction of an appropriate sample size is mainly based on the research experience of the group to propose as well as on the overall sample size of the research subjects of this topic. Tho (2011) quoted from Hair et al (2006) said that: “the sample size to use EFA must be at least 50 samples, if 100 samples are achieved, it is better; Extracted from Tabachnick and Fidell (2007), in multivariable regression analysis, sample size depends on many things such as significance level, strength of test, number of independent variables Tiger (2014, page 46) extracted from Green (1991) and Tabachnick and Fidell (2007) then: “the sample size can be determined by the formula: $n \geq 50 + 7k$, where k is the number of independent variables of the model. image". Based on the above statements combined with having 07 independent variables, it is appropriate for the research team to use 346 samples, in which each enterprise will have a representative to answer the survey. After that, the data will be imported into SPSS 20.0 software and deploy techniques in this software to target statistical testing. In this research step, the author uses Cronbach's alpha reliability coefficient analysis and EFA exploratory factor analysis with PCA and Varimax. Cronbach's alpha coefficient is used to eliminate variables that do not ensure reliability "variable correlation coefficients - sum less than 0.30 will be rejected and the scale standard is met when Cronbach's alpha reliability is from 0.60 or higher. The measurement is acceptable in terms of reliability with $\alpha = 0.60$ and KMO test analysis with the condition ($0.5<KMO<1$) according to. Next, the EFA exploratory factor analysis method was used Principal Components Analsyis (PCA) factor extraction and Varimax perpendicular rotation, the stopping point when extracting factors with eigenvalue = 1. The scale is accepted. when the total variance extracted is equal to or greater than 50% and the factor weight must be 0.50 or more. “The EFA exploratory factor analysis method is used to evaluate the scale instead of the traditional method” (Thọ, 2011). Next, the research team used multivariate regression analysis technique to test the hypotheses in the model and the relationship between the independent factors affecting the dependent variable (hypothesis from H1 to H7). Based on the processing results from the software, the research team discusses the results, compares the results of the research team and previous studies, is consistent, similar or not, and most importantly, gives provide suggestions to guide stakeholders to make appropriate decisions.

RESULT AND DISCUSSION

Based on the results from the data processing on SPSS 20 software, it shows that there are 346 tourists asked, there are a lot of tourists coming to Da Nang 3 times or more, proving this city has a great attraction. for domestic tourists. Based on data in Table 2, the respondents mainly participated in the activities of Helio night market, shopping mall and shows, the majority chose other activities. Another statistic is that the age of survey participants is mainly from 22-30 years old and tourists usually accept to spend quite well every night in Da Nang city. Testing the reliability of this factor scale by Cronbach Alpha coefficient, the results are as shown in Table 3. Most of the total correlation coefficients of all observed variables are greater than 0.3 and the Cronbach Alpha coefficients of all the observed variables are greater than 0.3. All observed variables are greater than 0.6, thereby ensuring the reliability of the scale.

Table 2. Descriptive statistics of basic sample of visitors (Source: Compiled by the author)

		Frequency	Percent
Number of visits to Da Nang	1-3 times	96	27.7
	3-5 times	180	52.0
	>5 times	70	17.3
	Total	346	100.0
		Frequency	Percent
Activities mainly participate in the night	Walking on a cruise on the Han River at night	36	10.4
	Night shopping	34	9.8
	Bar, pup, night-club	44	12.7
	Night market, shopping area	62	18.0
	Helio night market - food court	128	37.0
	Performances and shows	32	9.2
	Others	10	2.9
	Total	346	100.0
		Frequency	Percent
Age	18-22 years old	94	27.2
	22-30 years old	180	52.0
	>30 years old	72	20.8
	Total	346	100.0
		Frequency	Percent
The amount of spending that can be spent every night	<500.000 VND	56	16.2
	500.000-3.000.000 VND	256	74.0
	>3.000.000 VND	34	9.8
	Total	346	100.0

Table 3. Reliability according to Cronbach's Alpha coefficient (Source: Compiled by the author)

Factor	Abbreviation symbol	Number of scales	Cronbach's Alpha
Opportunity to experience culture	OECU	5	0.858
Infrastructure and transportation	INTR	3	0.775
Legal and safety regulations	LERE	4	0.900
Tourism natural resources	TORE	4	0.906
Promote and share	PRSH	3	0.778
The development of a variety of services	DESE	3	0.791
Service price	SEPR	4	0.897
The development of the night economy	DNTE	3	0.876

Exploratory factor analysis of independent variables

The scale of independent variables is measured by 26 observed variables, after checking the reliability level by Cronbach's Alpha, the team found that all reliability is ensured, so these variables are not excluded from the scale. The results are as shown in Table 4, KMO value is $0.746 > 0.5$ and the Sig value of Bartlett's test is $0.000 < 0.05$, showing that the variables are correlated with each other, so the model is suitable for inclusion in exploratory factor analysis.

Table 4. EFA factor exploratory analysis of independent factors (Source: Compiled by the author)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.746
Bartlett's Test of Sphericity	Approx. Chi-Square	4959.082
	df	325
	Sig.	.000

Total Variance Explained (Extraction Method: Principal Component Analysis)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.328	16.645	16.645	4.328	16.645	16.645	3.251	12.504	12.504
2	3.438	13.223	29.869	3.438	13.223	29.869	3.164	12.171	24.675
3	3.063	11.780	41.648	3.063	11.780	41.648	3.117	11.989	36.664
4	2.702	10.394	52.042	2.702	10.394	52.042	3.098	11.915	48.579
5	2.147	8.257	60.299	2.147	8.257	60.299	2.167	8.335	56.914
6	2.075	7.980	68.279	2.075	7.980	68.279	2.121	8.158	65.072
7	1.281	4.929	73.208	1.281	4.929	73.208	2.115	8,136	73.208
8	.790	3.038	76.246						
9	.612	2.354	78.600						
10	.596	2.291	80.891						
11	.515	1.980	82.871						
12	.500	1.924	84.794						
13	.483	1.857	86.651						
14	.444	1.709	88.361						
15	.413	1.589	89.950						
16	.406	1.560	91.510						
17	.370	1.422	92.932						
18	.331	1.274	94.207						
19	.287	1.104	95.311						
20	.231	.887	96.198						
21	.227	.872	97.071						
22	.207	.798	97.869						
23	.167	.642	98.510						
24	.148	.568	99.078						
25	.145	.558	99.637						
26	.094	.363	100.000						

Component	**Rotated Component Matrix**[a] (a. Rotation converged in 5 iterations.)						
	1	2	3	4	5	6	7
OECU5	.842						
OECU4	.817						
OECU1	.806						
OECU3	.763						
OECU2	.730						
TORE1		.916					
TORE3		.871					
TORE2		.857					
TORE4		.855					
LERE4			.896				
LERE3			.874				
LERE1			.850				
LERE2			.837				
SEPR2				.888			
SEPR4				.878			
SEPR3				.869			
SEPR1				.851			
DESE1					.844		
DESE3					.833		
DESE2					.831		
INTR1						.792	
INTR3						.789	
INTR2						.746	
PRSH3							.838
PRSH1							.825
PRSH2							.820
Extraction method: principal component analysis; Rotation method: Varimax with Kaiser normalization							

The extracted factors all have Eigenvalue greater than 1 and the breakpoint when extracting factors at factor 4 has an Eigenvalue of 1.281 > 1. The sum of extracted variances of 7 factors is 73.208 % > 50% of this. shows the possibility of using these 7 components to explain 73.208 % variation of the observed variables. Based on the factor rotation matrix when running EFA, the remaining 26 variables are extracted into 7 factors.

Exploratory factor analysis of dependent variable

The results of exploratory factor analysis EFA with KMO equal to 0.739 > 0.5 and Bartlett's test has sig equal to 0.000 < 0.05, so it can be confirmed that the data is suitable for factor analysis. The analysis has extracted from 3 variables assessing the influence on the development of the night economy into a major factor with an Eigenvalue of 2.407 and a total variance of 80.232% > 50%.

Table 5. Exploratory factor analysis EFA of the dependent variable (Source: Compiled by the author)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.739
Bartlett's Test of Sphericity	Approx. Chi-Square	522.988
	df	3
	Sig.	.000

Communalities (Extraction Method: Principal Component Analysis)		
	Initial	Extraction
DNTE1	1.000	.810
DNTE2	1.000	.823
DNTE3	1.000	.774

Total Variance Explained (Extraction Method: Principal Component Analysis)						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.407	80.232	80.232	2.407	80.232	80.232
2	.335	11.161	91.393			
3	.258	8.607	100.000			

Regression model analysis results

After extracting the factors from the exploratory factor analysis, we conduct regression analysis to determine the factors affecting the development of the night economy. Regression analysis will be performed with 7 independent factors: OECU; INTR; LERE; TORE; PRSH; DESE and SEPR; The dependent variable is DNTE.

The multivariable linear regression equation of this study has the form, overall regression function:

DNTE=β0 + β1OECU + β2INTR + β3LERE + β4TORE+ β5PRSG + β6DESE + β7SEPR + Ui

The regression model will find out the independent factors that have an impact on the dependent factor. At the same time, the model also describes the level of impact, thereby helping us to predict the value of the dependent factor. According to Table 6, the explanatory level of the model with the Adjusted R Square index = 0.457, so about 45.7% of night economic development in Ho Chi Minh City. Da Nang is affected by the independent factors of the model, the confidence level is over 99% (F test, sig < 0.05).

Table 6. Results of regression model analysis (Source: Compiled by the author)

Model Summary[b]									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.684[a]	.468	.457	.73688007	.468	41.279	7	328	.000
a. Predictors: (Constant), SEPR, DESE, PRSH, TORE, LERE, INTR, OECU						b. Dependent Variable: DNTE			

Coefficients[a] (a. Dependent Variable: DNTE)											
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	5.332E-016	.040		.000	1.000					
	OECU	.198	.040	.198	4.921	.000	.198	.262	.198	1.000	1.000
	INTR	.197	.040	.197	4.888	.000	.197	.261	.197	1.000	1.000
	LERE	.374	.040	.374	9.282	.000	.374	.456	.374	1.000	1.000
	TORE	-.090	.040	-.090	-2.246	.155	-..090	-.123	-.090	1.000	1.000
	PRSH	.046	.040	.046	1.133	.258	.046	.062	.046	1.000	1.000
	DESE	.483	.040	.483	11.988	.000	.483	.552	.483	1.000	1.000
	SEPR	.087	.040	.087	2.154	.032	.087	.118	.087	1.000	1.000

Table 7. ANOVA Analysis Results

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	156.899	7	22.414	41.279	.000[b]
	Residual	178.101	328	.543		
	Total	335.000	335			
a. Dependent Variable: DNTE; b. Predictors: (Constant), SEPR, DESE, PRSH, TORE, LERE, INTR, OECU						

Based on the above Table 7 results, ANOVA with Sig = 0.000 < 0.05 can conclude the model exists.

In other words, with the 5% significance level, it can be concluded that the development of the night economy in Ho Chi Minh City. Da Nang is influenced by at least 1 of the remaining 5 factors. The development of diversified services is the most influential factor in the development of sustainable night-time economy of Da Nang. This is completely consistent with previous research results on the diversification of night economic services (Huong, 2012; Chenli, 2021). Night economy means service activities that take place after 6pm the previous evening to 6am the next morning, including: Shopping at night markets, 24/24 convenience stores; cuisine, art, music; entertainment programs, festivals, events, tourist attractions only open at night. The night economy is increasingly being exploited by many countries and is considered as a new economic growth engine (Son et al., 2023). Economic experts also suggested that, in night tourism activities, the city should open movie screenings at midnight in the morning; performing arts, investing in the construction of large-scale ao dai performances combining dance and applying water music, sound, light, 3D effects... Economic points the night is organized specifically, long-term planning, well-invested. Developing a long-term strategy, having clear legal regulations and ensuring safety in exploiting aspects of the night economy is essential (Olt et al., 2021). Moreover, it is necessary to have drastic direction from local authorities, coordinate to reach consensus with the people, and disseminate to them the benefits of night economic development (Tuong, 2020). The legal and policy framework related to night economy is quite broad, covering from: master planning, market orientation, environmental management, infrastructure, to specific policies related to night economy.

Time frame, security and order, product and service characteristics, etc. Similarly, in other countries in the world, Vietnam has not developed an overall legal/policy framework at the national level to develop the economy initially. separate day and night economies that include central and local policies. In general, the legal and policy framework does not discriminate between subjects participating in daytime economic activities and those participating in nighttime economic activities.

Da Nang is the gateway, the cultural center of the Central and Central Highlands is the place between two localities with long-standing cultures, the ancient capital of Hue and the ancient town of Hoi An that so the development of the night economy needs to be associated with associated with the promotion of local culture (Tuong, 2020). Besides, the control of sensitive issues is also very important, avoiding the arising of unhealthy services that cause unsafety. Focus on building large-scale festivals and food courts, developing local food stalls to promote tourists (Son et al., 2023).

In the past 10 years, Da Nang has built a lot of works and tourist areas aiming to become a tourist city. The construction of separate projects and planning areas for the development of the night economy is not really attractive. City leaders have noticed this problem and are focusing on investing in specialized areas, mobilizing people to agree on building infrastructure. Not only targeting tourists in Da Nang, but if the traffic is favorable, it will attract tourists from neighboring localities (Pinke-Sziva et al., 2019). When tourists spend a lot, income from tourism increases, it will lead to having enough budget to invest in works, accelerating the urbanization process for the city (Olt et al., 2021). In order to be able to conduct research on tax incentives and policies for night economic activities, it is necessary to have a deep understanding of the night economy as well as the experiences of other countries to serve as a basis and argument for the research. adopt supportive policies for the night economy. That is the foundation for building separate mechanisms and policies for the night economy before selecting, planning and attracting businesses and industries to participate in the night economy.

The management and construction of the service price identification table in the area is quite good, there is no place that tourists appreciate the level of publicity of service prices like in Da Nang. This is almost a factor that pulls tourists back here more (Nguyen, 2023). But there is still the situation that some places have not publicly listed service prices as well as some public services serving the night economy that have not been well managed by the authorities. This needs to be improved in the future. The two factors of natural resources and promotion and sharing do not affect the development of the night economy in the context of Da Nang city. This is easy to see because Da Nang has confirmed that it has many attractive tourist destinations such as Ba Na Hill, Son Tra Peninsula, My Khe beach. The promotion and sharing here does not affect the development of the night economy because most of the tourists asked have a high frequency of coming to Da Nang, they feel this is a familiar tourist destination, so the promotion, sharing does not affect their choice.

CONCLUSION

The results of this study partly show the perspective of the factors affecting the night-time economic development in Da Nang city of tourists. Da Nang's biggest challenge is that, hindering the normal development of night economic activities in the past time, because the night economic model is still quite new and there are different perceptions, the agency State management also encounters confusion in the management of central and urban areas in Da Nang where economic services are developed at night. In addition to building a roadmap and development strategy for the night economy, ensuring consistency and being consistent with the tourism development strategy of Da Nang as well as the national socio-economic orientation, it is necessary to have a provide financial support to subjects participating in night economic activities, at least at the initial stage to encourage subjects to actively participate in night economic activities. It is hoped that there will be many studies from many different perspectives and subjects to help Da Nang city develop a complete night economic model in the near future.

Author Contributions: Conceptualization, Tuan, L.A and Vu, P.G.A; methodology, Tuan, L.A and Tram, N.T.H; software, Tuan, L.A and Minh, Q.N.H; validation, Tuan, L.A and Vu, P.G.A; formal analysis, Tuan, L.A and Minh, Q.N.H; investigation, Tuan, L.A and Minh, Q.N.H; data curation, Tuan, L.A and Tram, N.T.H; writing original draft preparation, Tuan, L.A and Tram, N.T.H; writing review and editing, Tuan, L.A and Minh, Q.N.H; visualization, Tuan, L.A and Vu, P.G.A; supervision, Tuan, L.A and Vu, P.G.A; project administration, Tuan, L.A and Tram, N.T.H. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Chang, P., Pang, X., He, X., Zhu, Y., & Zhou, C. (2022). Exploring the spatial relationship between nighttime light and tourism economy: evidence from 31 provinces in China. *Sustainability*, *14*(12), 7350. https://doi.org/10.3390/su14127350

Chen, N., Wang, Y., Li, J., Wei, Y., & Yuan, Q. (2020). Examining structural relationships among night tourism experience, lovemarks, brand satisfaction, and brand loyalty on "cultural heritage night" in South Korea. *Sustainability*, *12*(17), 6723. https://doi.org/10.3390/su12176723

Chenli, G. (2021). Research on promoting night tourism and night economic development in Guilin city. In *E3S Web of Conferences*, 292, 02015. EDP Sciences. https://doi.org/10.1051/e3sconf/202129202015

Chính phủ [Government] (2020). Quyết định số 1129/QĐ-TTg của Thủ tướng Chính phủ: Phê duyệt Đề án phát triển kinh tế ban đêm ở Việt Nam [Decision No. 1129/QD-TTg of the Prime Minister: Approving the Project to develop the night economy in Vietnam]. https://vanban.chinhphu.vn/default.aspx?pageid=27160&docid=200607

Christou, P., Pericleous, K., & Papatheodorou, A. (2022). Dazzled by the strobe lights: Tourist experience and complexity in the night-economy. *Journal of Hospitality and Tourism Management*, *52*, 452-458. https://doi.org/10.1016/j.jhtm.2022.08.001

Collis, J.H., & Hussey, R.R. (2003). Business Research-A practical guide for undergraduate and postgraduate students. *Hampshire: Palgrave Macmillan*.

Green, S. B. (1991). How many subjects does it take to do a regression analysis. *Multivariate behavioral research*, *26*(3), 499-510. https://doi.org/10.1207/s15327906mbr2603_7

Hair, J.F., Andreson, R.E., Tahtam, R.L., & Black, C.W. (1998). Multivariate Data Analysis, Prentice-Hall International Inc. *New Jersey*.

Hong, J.F., & Easterby-Smith, M. (2002). Transfer of organizational learning practices. In *Third European Conference on Organizational Knowledge, Learning and Capabilities.* Athens April, 5-6. https://d1wqtxts1xzle7.cloudfront.net/41598390/ID306-libre.pdf?1453849930=&response-content-disposition=inline%3B+filename%3DTRANSFER_OF_ORGANIZATIONAL_LEARNING_PRAC.pdf&Expires=1693199186&Signature=en98ORNJWvHxeUTsj7nkg9RZv08P7FTDWZvX6DTOcFINZ6psNX0HwBG7Ac~lSo0zIfJL6QdkuhlG5ZC49AWXH8cPRzI2h--hVk7Wdx0rAGqlbknWBbyMS3a1CyxZrLi0~OxelaoYNBonXnOZJwpZ~waXiTLpfAilCg9Uq5g4q9G1IHbcrZGNdhWi3VFFkXcnbLcj9PZwH-J5mNGLoRGCtzEJQanXgWhtHJOL78uk-MuUGEE8IYrV71NErTvpMDcMmT2APV8cJGJKajUOf0GOxNKWrxg8W7-vJvZFKA2k9mVkdZV5HNGh2BET-6mOwE5G5uNKEYRDOPxB6YzhAeCseg__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA

Hsieh, A.T., & Chang, J. (2006). Shopping and tourist night markets in Taiwan. *Tourism management*, *27*(1), 138-145. https://doi.org/10.1016/j.tourman.2004.06.017

Huang, W.J., & Wang, P. (2018). All that's best of dark and bright. Day and night perceptions of Hong Kong cityscape. *Tourism Management*, *66*, 274-286. https://doi.org/10.1016/j.tourman.2017.12.006

Huong, T.T.T. (2021). Night-Time Economy Development in Vietnam. *International Journal of Advanced Engineering and Management Research*, *6*(3), 26-34. https://ijaemr.com/uploads/pdf/archivepdf/2021/IJAEMR_449.pdf

Lin, V.S., Qin, Y., Ying, T., Shen, S., & Lyu, G. (2022). Night-time economy vitality index: Framework and evidence. *Tourism Economics*, *28*(3), 665-691. https://doi.org/10.1177/13548166211042970

Maráková, V., Dyr, T., & Wolak-Tuzimek, A. (2016). Factors of tourism's competitiveness in European union countries. *Economics and Management*. https://doi:10.15240/tul/001/2016-3-007

Nguyen, T.T.T. (2023). Factors influencing Vietnam youth's participation in the nighttime economy. *Journal of Eastern European and Central Asian Research (JEECAR)*, *10*(3), 515-526. https://doi.org/10.15549/jeecar.v10i3.1376

Nofre, J., Giordano, E., Eldridge, A., Martins, J.C., & Sequera, J. (2018). Tourism, nightlife and planning: challenges and opportunities for community liveability in La Barceloneta. *Tourism Geographies*, *20*(3), 377-396. https://doi.org/10.1080/14616688.2017.1375972

Olt, G., Smith, M.K., Csizmady, A., & Sziva, I. (2021). Gentrification, tourism and the night-time economy in Budapest's district VII–the role of regulation in a post-socialist context. *Tourism and the Night*, 24-36, Routledge.

Pinke-Sziva, I., Smith, M., Olt, G., & Berezvai, Z. (2019). Overtourism and the night-time economy: A case study of Budapest. *International Journal of Tourism Cities*, *5*(1), 1-16. https://doi.org/10.1108/IJTC-04-2018-0028

Roberts, M. (2006). From 'creative city'to 'no-go areas'–The expansion of the night-time economy in British town and city centres. *Cities*, *23*(5), 331-338. https://doi.org/10.1016/j.cities.2006.05.001

Roberts, M., & Eldridge, A. (2012). Planning the night-time city. Routledge. https://books.google.com.vn/books?hl=vi&lr= &id=qTS_1tEbvP4C&oi=fnd&pg=PP2&dq=Roberts+and+Eldridge,+2012+economy&ots=Cw0l4hsqXn&sig=d-ByagVeZ4A8f7VHORdufDTlaiE&redir_esc=y#v=onepage&q=Roberts%20and%20Eldridge%2C%202012%20economy&f=false

Saunders, M., Lewis, P., & Thornhill, A. (2007). Research methods. Business Students 4th edition Pearson Education Limited, England.. https://www.researchgate.net/profile/Mark-Saunders-10/publication/330760964_Research_Methods_for_Business_Students_Chapter_4_Understanding_research_philosophy_and_approaches_to_theory_development/links/5c53056f299bf12be3f0e2cf/Research-Methods-for-Business-Students-Chapter-4-Understanding-research-philosophy-and-approaches-to-theory-development.pdf

Son, N.N., Thu, N.T.P., Dung, N.Q., Huyen, B.T.T., & Xuan, V.N. (2023). Determinants of the Sustained Development of the Night-Time Economy: The Case of Hanoi, Capital of Vietnam. *Journal of Risk and Financial Management*, *16*(8), 351. https://doi.org/10.3390/jrfm16080351

Stabler, M.J., Papatheodorou, A., & Sinclair, M.T. (2009). *The economics of tourism*. Routledge. https://books.google.com.vn/books?hl=vi&lr=&id=cTmMAgAAQBAJ&oi=fnd&pg=PP1&dq=Stabler+et+al.,+2010+economy&ots=Qfs9up0ajK&sig=HycPtEDy6FDYlfdkASsdg1l9ils&redir_esc=y#v=onepage&q&f=false

Tabachnick, B.G., & Fidell, L.S. (2007). Experimental designs using ANOVA. 724. Belmont, CA: Thomson/Brooks/Cole. https://www.researchgate.net/profile/Barbara-Tabachnick/publication/259465542_Experimental_Designs_Using_ANOVA/links/5e 6bb05f92851c6ba 70085db/Experimental-Designs-Using-ANOVA.pdf

Thọ, N.Đ. (2011). Phương pháp nghiên cứu khoa học trong kinh doanh (Scientific research methods in business). *Nhà xuất bản Lao động-Xã hội*, *593*.

Tsai, C.T.L. (2013). Culinary tourism and night markets in Taiwan. *International Journal of Business & Information*, *8*(2). https://www.proquest.com/openview/3e223e05ee73f6ff1cbca95ec8ce4963/1?pq-origsite=gscholar&cbl=236248

Tuong, N.T. (2022). Developing night-time economy: International experience and policy implications for Da Nang City, Vietnam. *Journal of Language and Linguistic Studies*, *18*(1), 1157-1180. http://www.jlls.org/index.php/jlls/article/view/4172/1171

Zmyslony, P., & Pawlusiński, R. (2020). Tourism and the night-time economy: the perspective article. *Tourism Review*, *75*(1), 194-197. https://doi.org/10.1108/TR-05-2019-0158

Article history: Received: 08.08.2023 Revised: 14.09.2023 Accepted: 19.10.2023 Available online: 04.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1382-1389
DOI 10.30892/gtg.50419-1137

EMPIRICAL EVIDENCE IN AN GIANG PROVINCE ABOUT THE RESULTS OF ASSESSING FACTORS AFFECTING TOURISM DESTINATION SATISFACTION

To Minh CHAU*

Department of Geography, An Giang University, Vietnam National University Ho Chi Minh City, Vietnam; Faculty of Geography, University of Social Sciences and Humanities, Vietnam National University Ho Chi Minh City, Vietnam, e-mail: tmchau@agu.edu.vn

Citation: Chau, T.M. (2023). EMPIRICAL EVIDENCE IN AN GIANG PROVINCE ABOUT THE RESULTS OF ASSESSING FACTORS AFFECTING TOURISM DESTINATION SATISFACTION. *GeoJournal of Tourism and Geosites*, 50(4), 1382–1389. https://doi.org/10.30892/gtg.50419-1137

Abstract: This study was carried out in An Giang province, Vietnam, to examine the variables in explaining the factors affecting the satisfaction of domestic tourists in tourist destinations. This quantitative study used a convenience sampling technique from 400 tourists by questionnaire. Responses from the questionnaire were coded and analyzed using SPSS 29.0. The study uses Pearson correlation tests to examine the relationship between the natural environment, historical and cultural environment, infrastructure, tourism safety, and tourist satisfaction at destinations to travel. Research results show a strong correlation between the natural environment and the historical and cultural environment with tourist destination satisfaction. Infrastructure factor with tourist destination satisfaction has a medium correlation coefficient, while safety factor in tourism has a low correlation coefficient.

Keywords: tourist destination satisfaction, natural environment, historical and cultural environment, infrastructure, tourism safety, An Giang province

* * * * * *

INTRODUCTION

Today, tourism is considered one of the vital economic sectors that create jobs, increase foreign exchange earnings, improve the living standards of local people, and support the growth of other industries (Gabriel et al., 2017), as well as Vietnam's renovation and international integration process in the current context (Khuong et al., 2017). Tourism is “the totality of phenomena and relationships arising from the travel and stay of non-residents” (Gossling, 2002). It is highly regarded as the “smokeless industry” and is prioritized as an essential economic driver. It is also known as the "green economy" (Petrovic et al., 2018). Everett and Aitchison (Everett and Aitchison, 2008), Demirovic and associates (Demirovi'c et al., 2016) find a strong relationship between tourism and local life, culture, and heritage, while Petrovic and associates (Petrovic et al., 2017) found that tourism is closely related to natural attractions. As a result, tourism can enhance national identity and benefit society significantly (Lucchetti and Arcese, 2014). In addition, the tourism industry also contributes significantly to the conservation and development of the value of the heritage, tangible and intangible relics in localities. The development of the tourism industry also plays a vital role in reducing poverty and promoting economic restructuring (Giao et al., 2021). The World Tourism Organization describes the tourism industry precisely because the behavior of travelers is outside of their typical atmosphere, and tourism activity is related to tourists' actions according to their attitudes and levels before and after traveling (Szromek et al., 2020). Baker and Crompton define travel as an emotional state that affects happiness only after a trip with a high degree of lightness (Baker and Crompton, 2000).

This satisfaction factor is often an essential consideration in business (Hung et al., 2021). It is possible to realize “the importance of tourist satisfaction in influencing arrivals and stimulating return visits through recorded data. Furthermore, a destination's attractions and natural beauty can increase tourist satisfaction. Likewise, the most beautiful and pleasant facilities ensure that tourists will enjoy their visit to the destination”. According to Kozak and Rimmington (2000), “tourist satisfaction is essential for effective destination marketing as it influences destination choice, the use of products and services, and the decision to return”. Natural environmental factors are one of the causes affecting tourists' satisfaction with tourist destinations. For destinations, the issue of the natural environment is now more critical than ever and is now an integral part of a sustainable development strategy. At the destination, first-time travelers will have more experiences based on the natural environment than other factors. For example, research on the Balearic Islands (Aguilo et al., 2005) has shown that "tourists increasingly demand their natural environment and quality". Research by Mihalic (2013) has shown that "environmental tourist attractions must be maintained and provide visitors with the quantity and quality they ask for and the price they are willing to pay". In addition, the cultural and historical environment, including the heritage and social lifestyle in a destination, can attract tourists to see the cultural diversity and historical sites.

Some potential heritage-based products include sites designated by UNESCO as World Heritage sites. According to Kim and associates, "fierce competition for visitors between destinations with historical and cultural sites, especially UNESCO-listed sites, means it is crucial to continuously improve the management of these sites" (Kim et al., 2017). In this view, "tourist satisfaction is essential, especially for tourist attractions in areas with cultural heritage" (Zhang et al., 2014).

* Corresponding author

Infrastructure is an essential factor in tourism development. According to Rahmiati and associates (Rahmiati et al., 2020), "it is impossible to exclude infrastructure variables, such as visitor satisfaction with the quality of tourism products and services, including facilities at tourist attractions". Improving tourism infrastructure to increase the destination's attractiveness is essential to attract tourists. Studies by Naude and Saayman (Naude and Saayman, 2005) Seetanah and Khadaroo (Seetanah and Khadaroo, 2011) indicate that "a country's infrastructure determines its potential attractiveness as a country is a tourist destination". Safety in tourism is one of the critical factors affecting tourists' decision to choose a destination because it is directly related to their health and safety during the trip and their overall satisfaction with a tourist's surname (To, 2023). For tourists of An Giang province, safety in tourism is an essential factor affecting visitor satisfaction and determining the intention to return tourists. Due to its importance, local authorities must create a safe and secure tourist environment. Therefore, this study examines the relationship between the natural environment, cultural and historical environment, infrastructure, tourism safety, and tourist destination satisfaction of domestic tourists in the An Giang province, Vietnam, to assess and propose appropriate development directions.

LITERATURE REVIEW

Tourist Destination Satisfaction

"Tourist satisfaction is one of the consumer needs that can be increased by the criteria and expectations of tourists about the given travel package. Tourism organizations must adopt a definition to assist them in their ongoing efforts to balance capacity with needs and the quality of service provided to guests to satisfy them" (Kandampully, 2000). Visitor satisfaction is crucial for effective destination marketing, influencing destination selection, product usage, and return decisions. Comparing the wishes of the buyer before and after the purchase is satisfaction. The difference between such guest expectations and real value is tourist happiness. Delighted tourists should return to the site and encourage others to do the same. The frequency of complaints from tourists decreased as satisfaction increased.

In the context of globalization, visitor satisfaction is seen as a critical tool to increase tourism output and revenue. "Satisfaction with a tourist destination results from an evaluation between desire and encounter" (Ibrahim and Gill, 2015). "Satisfied customers can be an excellent strategy to promote tourist attractions by positive word of mouth" (Pavlic et al., 2011). "Tourists' happiness is only achieved when tourists realize that the quality received must be better than the money they spend" (Abbasi et al., 2021). The notable finding of Acharya et al. (2023) highlighted the importance of tourist satisfaction with the destination in maintaining sustainable tourism. It showed that more than investing in destination attributes may be needed to achieve the desired level of tourism for the destination.

Natural environment and tourist destination satisfaction

The environment is often identified with many factors and investigates the relationship with satisfaction (Jarvis et al., 2016). Tourist destinations are determined primarily by the quality of the natural environment, which has long been a tourist attraction. The environment has many positive benefits for tourist satisfaction. Therefore, "tourism management should be concerned with maintaining the environmental quality of tourist sites" (Khuong et al., 2016). "The natural environment in the tourism business indicates that all tourism activities directly depend on using natural resources such as landscapes, water resources, topography, flora, and fauna animals" (Fossgard and Fredman, 2019). Previous research has shown that tourists of all types are becoming more sensitive to dirty situations at various tourist destinations. As a result, "tourism activity is declining in some areas, which has recently become popular due to environmental problems" (Khuong and Nguyen, 2017). Lata et al. (2023) confirmed in their study that the natural environment positively influences tourist satisfaction at the destination. This study provides implications for local people and governments in considering tourism development.

Historical and cultural environment with tourist destination satisfaction

According to McKay (2018), the historical and cultural environment includes historical sites, customs, lifestyles, religions, festivals, historical landscapes, and the friendliness of local people. In addition, the cultural environment selects several cultural attributes, such as historic buildings, palaces, museums, theatres, galleries, festivals, and events (Martin et al., 2016). Moreover, people travel to experience and learn about the history, language, and daily life of ethnic minorities. Tourists choose An Giang province from different provinces and cities as a tourist destination because An Giang has many ethnic minorities with diverse languages, cultures, and environments (Hai et al., 2023).

Infrastructure and tourist destination satisfaction

Many studies have mentioned a close link between infrastructure and visitor satisfaction. "Tourism infrastructure refers to both the physical and technological facilities created by governments and tourism organizations to capitalize on the potential of tourism, such as hotels and residential complexes, products and services, amusement parks, transportation equipment, and infrastructure works. Infrastructure is a transport network, including road, rail, sea, and air" (Khuong et al., 2020). Furthermore, "tourist pleasure is influenced by location accessibility, including infrastructure, operational variables, government legislation, and equipment" (Virkar and Mallya, 2018). The infrastructure component of tourism development is essential as it supports the destination's competitive advantage. In addition, a compelling tourist destination significantly affects the satisfaction level of infrastructure (Nguyen, 2017). Previous studies have shown that accessible infrastructure and accessibility expand tourist destinations and develop new attractions. Furthermore, "developing adequate public infrastructure is necessary for high-quality tourist facilities in tourist destinations" (Jovanovia and Ilia, 2016). According to Nguyen (Nguyen, 2017), "many studies examine the relationship between infrastructure and tourism development. These studies have examined the relationship between infrastructure, tourist spending, distance, price, and satisfaction".

Tourism safety

Safety and security are among the most critical issues that almost every tourist is concerned with before visiting a place (Rittichainuwat et al., 2012) because of uncertainty and fickleness in contemporary society (Rojek, 2000). It deals with the protection from incidents and risks for the whole trip of tourists. Ngoc and Trinh (2015) define security as protecting tourists from permanent incidents and risks and call safety the protection of tourists from incidents and unexpected risks. Once security and safety are well ensured at the destination, visitors will have exciting experiences after the trip because they feel comfortable and secure in exploring the destination, contributing to building the destination's image as more beautiful, friendly, and safer. These tourists will share their good impressions with others who may be potential visitors to the destination. Burch has shown that the reward of security is more significant than any possible reward due to the high cost of uncertainty (Burch, 2009). The study's results by Huang et al. (2023) show that safety plays a vital role in tourism development, especially the safety of tourism at night, but the safety issue of night tourism receives little attention.

HYPOTHESIS

The research Framework is shown in Figure 1. This study uses the dependent variable "Tourist destination satisfaction" affected by four independent variables: natural environment, historical and cultural environment, infrastructure, and tourism safety. Based on the literature review, the following hypotheses were formulated for this study:

H1: Natural environment and tourist destination satisfaction have a significant relationship.

H2: There is a significant relationship between cultural and historical environment and tourist destination satisfaction.

H3: There is a significant relationship between infrastructure and tourist destination satisfaction.

H4: There is an essential relationship between tourist safety and tourist destination satisfaction.

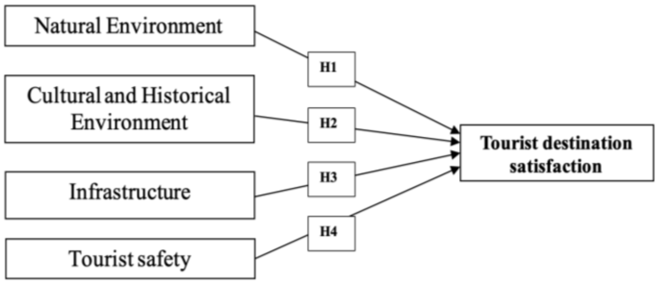


Figure 1. Research Framework

RESEARCH METHODOLOGY

Research area

The province of An Giang is located within the Mekong Delta region of Vietnam. The geographical location of An Giang province is shown in Figure 2. An Giang province holds a geographical position in proximity to the neighboring country of Cambodia, sharing a northern border stretch of 100 kilometers. It shares boundaries with Kien Giang Province to the southwest, Dong Thap Province to the east, and Can Tho to the southeast. An Giang encompasses two primary geographical terrains: the lowlands and the foothills.

This diversity contributes to the richness of the natural landscape while significantly influencing the activities of the local population and the socio-economic development. The amalgamation of abundant natural resources and distinctive cultural heritage forms the distinct allure of An Giang. This amalgamation has propelled the region to become an appealing destination, drawing the attention of both domestic and international tourists.

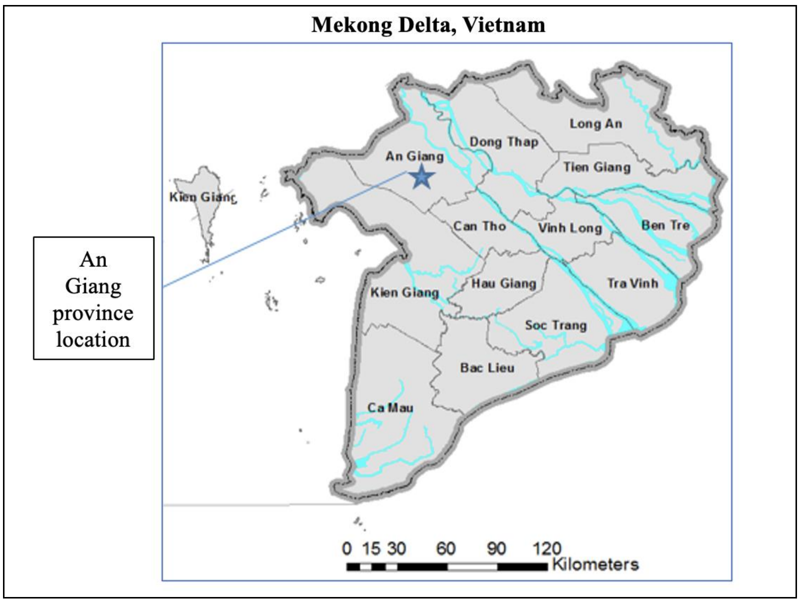


Figure 2. Location of An Giang province, Vietnam (Source: Author, 2023)

The tourism industry of An Giang Province, Vietnam, has made an essential contribution to the country's socio-economic development, especially in revenue and job creation for local people. This can be demonstrated when An Giang welcomes more than 7.3 million visitors, up 122% over the same period in 2021, including eight thousand international guests, up 250% over the same period in 2021. Total revenue from tourism activities reached more than VND 4,600 billion, up 114% over the same period in 2021. Eighty-seven percent of tourists to An Giang are domestic (Nguyen et al., 2023).

Data collection

The subjects of this study include domestic tourists in An Giang province. The survey was carried out using a convenience sampling method. The total number of survey questionnaires distributed was 440, and the total number of votes collected was 416. After checking, there were 16 invalid survey questionnaires (mainly due to incomplete information or only choosing one option, not being serious in answering too neutral answer). Thus, the total number of valid questionnaires included in the analysis is 400 votes with complete answers, satisfying the minimum requirements of sampling, achieving a response rate of 94.5%, and valid votes reaching 96.2% of the total survey panels.

Measurement scales

Aspects of the cultural and historical environment developed by Martin et al. (2016), natural environment and infrastructure developed by Khuong and Nguyen (2017), safety in tourism developed by To (2023), and tourist destination satisfaction developed by Suanmali (2014). The questionnaire is designed with 25 variables evaluated on a five-point Likert scale (1- Completely disagree; 2- Disagree; 3- Normal; 4- Agree; 5- Completely agree. idea). Based on the collected data, the SPSS 29.0 software tests Cronbach's Alpha reliability coefficient to eliminate variables with a low confidence coefficient (<0.6), ensuring that the questions reflect the same content. From there, as a basis for testing Pearson correlation for the study.

Research design

Quantitative research to examine factors that have a relationship with tourist satisfaction at the destination. Descriptive statistics are also mentioned to determine the characteristics of the variable of interest. The research steps are shown in Figure 3.

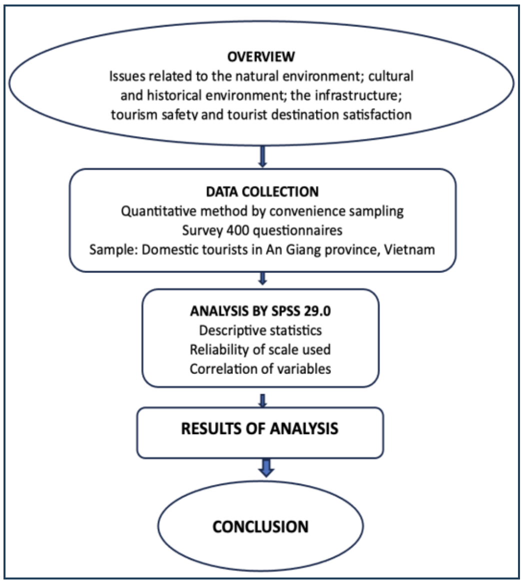


Figure 3. Methodology flow chart

Table 1. Characteristics of the survey sample (Source: Data analysis results from direct tourist survey in 2022, n = 400)

Factors	Component	Amount	Percent
Gender	Male	218	54.5 %
	Female	182	45.5 %
Employment	State employees	52	13.0 %
	Student	72	18.0 %
	Business	168	42.0 %
	Other	108	27.0 %
The time for traveling	Summer vacation	210	52.5 %
	Tet holiday	120	30.0 %
	Leisure time	24	6.0 %
	Weekend	46	11.5 %

RESEARCH RESULTS

Descriptive statistics of the study sample

Characteristics of the survey sample including gender, employment, and travel time are shown in Table 1 and Figure 4. The values of Cronbach's Alpha coefficient for the independent and dependent variables (Satisfaction with tourist destinations) in this study are shown in Table 2.

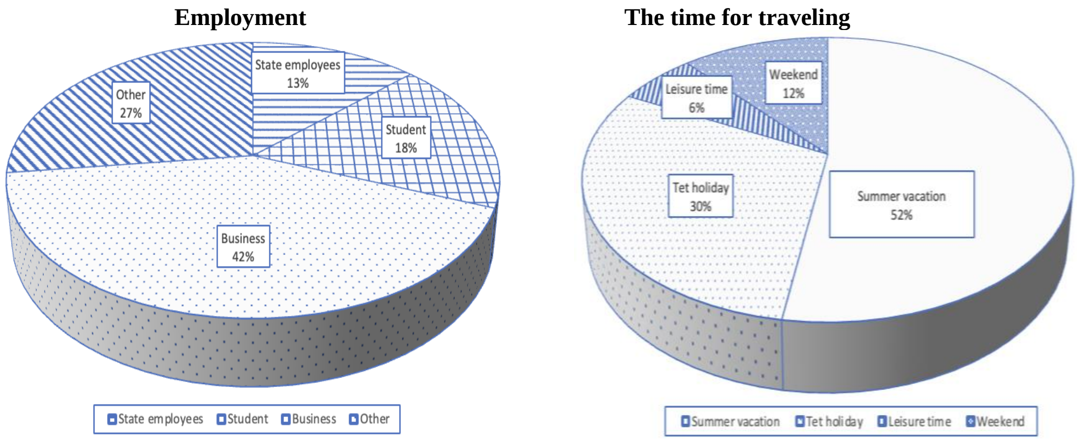


Figure 4. The chart depicts the research sample according to employment and the time for traveling

For the reliability of the scale, Hoang Trong and Chu Nguyen Mong Ngoc (2008) said that Cronbach's Alpha from 0.7 to nearly 0.8, the scale is usable, Cronbach's Alpha from 0.8 to close to 1, the scale is good. To ensure the reliability of the scale and measurement variables, from the results of the evaluation of the above criteria (25 variables), it is found that all variables have Cronbach's Alpha coefficient values higher than 0.8, showing that the questionnaire Questionnaire has high reliability and can continue research. The reliability of the questionnaire indicated that the respondents understood the questions effectively, implying that the questionnaire was accepted for this study. The mean and standard deviation of the dependent and independent variables are shown in Table 2. The dependent variable's mean score is 3.32, and the standard deviation is 1.32.

Table 2. Cronbach's Alpha test results (Source: Data analysis results from direct tourist survey in 2022, n = 400)

Variables	Item	Value of Cronbach's Alpha	Mean	SD
Natural environment	5	0.898	3.44	1.28
Cultural and Historical environment	5	0.899	3.35	1.23
Infrastructure	5	0.895	3.45	1.34
Touristm safety	5	0.880	3.40	1.26
Tourist destination satisfaction	5	0.884	3.32	1.32

For Independent variables, the highest average score is the variable “infrastructure” which is 3.45, followed by the variable “natural environment” which is 3.44. The mean scores of the two variables, “safety in tourism” and “infrastructure” are 3.40 and 3.35, respectively. Table 3 shows the results of the analysis of the mean and standard deviation of the respondents for the independent variable “natural environment”. Item number one has the highest mean of 3.75. The respondents found that “The natural environment has many positive effects on tourist satisfaction”. Item number three has the lowest mean of 2.98. Only a few respondents agree, "Tourism is best when the destination has a favorable natural environment”. The standard deviation of the values in the data set from 400 respondents is all greater than 1.5, indicating that the values have a relative dispersion.

Table 4 shows the mean and standard deviation analysis on the independent variable “historical, cultural environment”. The highest mean for item number two is 3.79. Most respondents agree that “Cultural and historical heritage objects are an important asset of tourist destinations”. The lowest mean for item number one is 3.03. Only a few respondents agreed, "Exposure to cultural and historical heritage is the driving force of visitor engagement in the tourist destination”. A dataset from 400 respondents with the most standard deviations of low values below 1.5 shows values close to the mean.

Table 5 shows the analysis of respondents' mean and standard deviation on the independent variable “Infrastructure”. Item number four has the highest mean of 3.77. Most respondents agreed that “Providing attractive facilities and amenities is a contributing factor to attracting tourists”. The lowest mean is item number three, with a mean of 3.06. A few respondents found that “Complete infrastructure will determine the presence of tourists to tourist attractions”. From a dataset of 400 respondents with most standard deviations less than 1.5, the values are close to the mean and less scattered.

Table 3. Descriptive Statistics of Natural Environment (Source: Data analysis results from direct tourist survey in 2022, N = 400)

No	Item Description	Mean	SD
1	The natural environment has many positive impacts on visitor satisfaction	3.75	1.86
2	Tourism operators need to pay attention to preserving the environmental quality of tourist destinations	3.60	1.71
3	Tourism has the best conditions when the destination has a favorable natural environment	2.98	1.67
4	The level of visitor satisfaction depends on the geographical location, climate, and natural environmental conditions of the destination	3.58	1.86
5	Satisfaction with a tourist destination is mainly influenced by the quality of the natural environment and is considered a significant attraction for tourists	3.45	1.69

Table 4. Descriptive Statistics of Cultural and Historical Environment (Source: Data analysis results from direct tourist survey in 2022, N = 400)

No	Item Description	Mean	SD
1	Exposure to cultural and historical heritage is the driving force behind visitor engagement at the tourist destination	3.03	1.35
2	Cultural and historical heritage objects are an essential asset of tourist destinations	3.79	1.43
3	Tourism associated with culture and history has informational and educational value	3.35	1.33
4	Tourism provides funding to preserve cultural heritage and opens opportunities for cultural sharing and learning	3.20	1.39
5	Visitors can raise local community awareness by entering the tourism business in tourist destinations	3.54	1.43

Table 5. Descriptive Statistics of Infrastructure (Source: Data analysis results from direct tourist survey in 2022, N = 400)

No	Item Description	Mean	SD
1	The improved infrastructure in the tourist area will ensure the quality of tourism services	3.58	1.47
2	Good tourism services will promote tourists to tourist destinations	3.48	1.45
3	Complete infrastructure will determine the presence of visitors to tourist attractions	3.06	1.46
4	Providing attractive facilities and amenities is a factor that contributes to attracting tourists	3.77	1.41
5	Infrastructure is capable of generating diverse tourism activities and is the main attraction for visitors	3.32	1.40

Table 6. Descriptive Statistics of Tourist safety (Source: Data analysis results from direct tourist survey in 2022, N = 400)

No	Item Description	Mean	SD
1	The destination on the trip ensures safety	2.92	1.09
2	There are always safety measures taken at the destination to protect tourists	3.15	1.10
3	You feel comfortable using public transportation services at your destination	2.80	1.08
4	Staff and customer care systems at tourist destinations have provided safety support for tourists	3.18	1.07
5	Safety in tourism at a destination is one of the deciding factors for tourists' return	3.41	1.18

Table 6 shows the analysis of respondents' mean and standard deviation on the independent variable “Tourist safety”. The year item has the highest mean of 3.41. Most respondents agree that “Safety in tourism at the destination is one of the factors that determine the return of tourists". The lowest mean is item number three, with a mean of 2.80. A few respondents said, "You feel comfortable using public transit services at your destination". From a dataset of 400 respondents with standard deviation, most values close to 1 show that the values are close to the mean and have very little dispersion.

Table 7 shows the analysis of respondents' mean and standard deviation for the dependent variable "Satisfaction with tourist destination". The year item has the highest mean of 3.94. Most respondents agree that "Satisfaction about tourist destination can be considered from tourists' intention to return". The lowest mean score is item 2, with a mean of 3.43. The respondents found that "Satisfaction with the tourist destination can relieve the physical and mental stress of tourists". The values are relatively small from a dataset of 400 respondents, with most standard deviations of less than 1.5.

Table 7. Descriptive Statistics of Tourist Destination Satisfaction (Source: Data analysis results from direct tourist survey in 2022, N = 400)

No	Item Description	Mean	SD
1	Tourist destination satisfaction is driven by its popularity and satisfaction of tourists' desires	3.83	1.45
2	Satisfaction with the tourist destination can relieve tourists' physical and mental stress	3.43	1.42
3	Satisfaction with a travel destination can restore health	3.67	1.50
4	Satisfaction with the tourist destination helps connect emotional exchanges with family and friends	3.78	1.37
5	Satisfaction with a tourist destination can be considered from tourists' intention to return	3.94	1.41

Pearson correlation test

Table 8 analyzes the correlation between the four factors and tourist destination satisfaction, showing that all Sig values are equal to 0.000. The Pearson correlation coefficient between natural environment and tourist destination satisfaction is 0.877. This shows that the correlation is robust and the correlation is positive. There is a correlation coefficient of 0.765 between cultural and historical environment and satisfaction of tourist destinations, showing a strong positive correlation. There is a correlation coefficient between infrastructure and tourist destination satisfaction of 0.672, showing the average positive correlation and the correlation coefficient between safety in tourism and satisfaction of tourist destinations has a weak positive correlation coefficient; the correlation coefficient is only 0.477.

Table 8. Analysis of correlation factors and Tourist Destination Satisfaction
(Source: Data analysis results from direct tourist survey in 2022, N = 400) **Significant at the 0.01 level (2-tailed)

		Tourist Destination Satisfaction	Natural Environment	Cultural and Historical Environment	Infrastructure	Tourism safety
Tourist Destination Satisfaction	Pearson correlation	1	**0.877****	**0.765****	**0.572****	**0.477****
	Sig. (2- sides)		0.000	0.000	0.000	0.000
	N	400	400	400	400	400

DISCUSSION

The conducted analysis shows the highest correlation of the relationship between the natural environment and tourist destination satisfaction (r=0.877, N=400, p<0.01). Research has discovered a positive and significant relationship between the natural environment and tourist destination satisfaction. The research results help local authorities and tourism operators have practical solutions to improve and enhance visitor satisfaction. These findings support the study of Jarvis (2016), who explained that the quality of the natural environment mainly affects the satisfaction of the tourist destination as a major attraction. Therefore, the natural environment is essential to determining tourist destination satisfaction.

Next, the results show that the power of historical and cultural environment on tourist destination satisfaction is quite strong (r=0.765, N=400, p<0.01). Findings show a positive and significant relationship between cultural and historical environment and tourist destination satisfaction. This is consistent with reality because An Giang is home to many famous communal houses, pagodas, and festivals in Vietnam. These factors have created a historical-cultural environment with unique architectural and long-standing historical-cultural values (To, 2023). This is an excellent advantage for An Giang to exploit spiritual and cultural tourism to promote the development of the province's tourism industry. This result is consistent with previous research by Haneef (2017), who emphasized that the cultural and historical environment plays a vital role in building a place's positive reputation among tourists and making them happy to come back again.

The results also show that the correlation relationship between infrastructure and tourist destination satisfaction is at an average level (r = 0.572, N=400, p<0.01). The findings suggest a positive and significant relationship between infrastructure and tourist destination satisfaction. Infrastructure is essential in tourism because the environment must be equipped with adequate service infrastructure to attract tourists to the destination. Tourism is a fragmented industry that includes various elements, such as attractions, activities, services, and infrastructure, that make up the overall appeal of a place point's natural and artificial features. Cooper (2005) argues that the destination's facilities are the most crucial thing for tourism. This place has exciting places to visit and must have all the necessary needs and facilities for tourists, such as accommodation, activities, and means of transportation to meet the needs and satisfaction of visitors. Moreover, finally, the correlation between tourism safety and satisfaction with tourist destinations is weak (r = 0.477, N=400, p<0.01). The findings show a positive and significant relationship between tourism safety and tourist destination satisfaction.

Furthermore, this indicates the need for authorities to enhance their efforts to conduct more rigorous inspections, closely monitor, and effectively manage security breaches. These breaches include luring tourists into purchasing items like incense, lanterns, and religious artifacts and engaging in fortune-telling, panhandling, and theft at various tourist destinations. Pertinent governing bodies should also thoroughly reconsider designated commercial zones and parking facilities. This proactive measure aims to elevate the visual allure of these tourist locales while concurrently upholding the paramount concern of ensuring the safety and well-being of the visitors.

CONCLUSION AND STUDY LIMITATION

Research results confirm a strong correlation between the natural environment and the cultural and historical environment with satisfaction with tourist destinations. At the same time, infrastructure and safety in tourism positively correlate with tourist destination satisfaction at moderate and weak levels. This research has widely contributed to the body of knowledge on natural, cultural, historical, environmental, and physical environmental factors that drive tourism destination satisfaction. This study aids stakeholders in the tourism sector to gain a deeper comprehension of the matter and improve their capacity to devise and execute more efficient strategies for enticing tourists.

Study limitation: The scope of this research is confined to investigating the correlation between elements like the natural environment, cultural aspects, historical context, amenities, and safety in tourism, all about visitor satisfaction at travel destinations. Consequently, forthcoming studies could explore additional factors, such as the caliber of services tour operators provide their promotional efforts, and external environmental influences.

Author Contributions: Conceptualization, T.M.C. and T.M.C.; methodology, T.M.C. and T.M.C.; software, T.M.C. and T.M.C.; validation, T.M.C. and T.M.C.; formal analysis, T.M.C. and T.M.C.; investigation, T.M.C. and T.M.C..; data curation, T.M.C. and T.M.C..; writing - original draft preparation, T.M.C. and T.M.C.; writing - review and editing, T.M.C. and T.M.C.; visualization, T.M.C. and T.M.C.; supervision, T.M.C.; project administration, T.M.C. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study were directly surveyed by the author.

Acknowledgments: The author sincerely thanks the journal's editorial board and reviewers for their comments on this article.

Conflicts of Interest: The author declare no conflict of interest.

REFERENCES

Abbasi, G.A., Kumaravelu, J., Goh, Y.N., & Dara Singh, K.S. (2021). Understanding the intention to revisit a destination by expanding the Theory of Planned Behavior (TPB). *Spanish Journal of Marketing - ESIC,* 25(2), 282-311. https://doi.org/10.1108/SJME-12-2019-0109

Acharya, S., Mekker, M., & De Vos, J. (2023). Linking travel behavior and tourism literature: Investigating the impacts of travel satisfaction on destination satisfaction and revisit intention. *Transportation research interdisciplinary perspectives*, *17*, 100745.

Aguilo, E., Alegre, J., & Sard, M. (2005). The Persistence of the Sun and Sand Tourism Model. *Tourism Management,* 26(2), 219-31. https://doi.org/10.1016/j.tourman.2003.11.004

Baker, D.A., & Crompton, J.L. (2000). Quality, satisfaction, and behavioral intentions. *Annals of Tourism Research,* 27, 785-804. http://dx.doi.org/10.1016/S0160-7383(99)00108-5

Burch, W. (2009). The social circles of leisure: Competing explanations. *J. Leis. Res*, *41*, 313-335, https://doi.org/10.1080/00222216.2009.11950176

Cooper, C., Fletcher, J., Fyall, A., Gilbert, D., & Wanhill, S. (2005). *Tourism Principle and Practice,* Prentice Hall, Harlow, England.

Demirovic, D., Petrovic, M.D., Neto Monteiro, L.C., & Stjepanovic, S. (2016). An Examination of Competitiveness of Rural Tourism Destinations from the Supply Side Perspective - Case of Vojvodina (Serbia). *J. Geogr. Inst. Jovan Cviji*, *66,* 387-400.

Everett, S., & Aitchison, C. (2008). The Role of Food Tourism in Sustaining Regional Identity: A Case Study of Cornwall, South West England. *J. Sustain. Tour, 16,* 150-167. https://doi.org/10.2167/jost696.0

Fossgard, K., & Fredman, P. (2019). Dimensions in the nature-based tourism experiencescape: An explorative analysis. *Journal of Outdoor Recreation and Tourism,* 28(2019) 100219. https://doi.org/10.1016/j.jort.2019.04.001

Gossling, S. (2002). Global environmental consequences of tourism. *Glob. Environ. Chang*, *12*, 283–302.

Giao, H.N.K., Vuong, B.N., Phuong, N.N.D., & DAT, N.T. (2021). A model of factors affecting domestic tourist satisfaction on eco-tourism service quality in the Mekong Delta, Vietnam. *GeoJournal of Tourism and Geosites,* 36(2spl), 663–671. https://doi.org/10.30892/gtg.362spl14-696

Hai, N.C., Le, V.T.P., Son, N.T., & Tuan, P.V. (2023). Evaluation of citizens' satisfaction with the quality of public administrative services in the Mekong Delta, Vietnam. *GeoJournal of Tourism and Geosites*, 48(2spl), 751–762. https://doi.org/10.30892/gtg.482109-1075

Haneef, S.K. (2017). *A model to explore the impact of tourism infrastructure on destination image for effective tourism marketing,* PhD Dissertation, University of Salford, UK.

Hoang, T., & Chu, N.M.N. (2008). *Nghiên cứu phân tích dữ liệu với SPSS - tập 1, 2 (Research data analysis with SPSS - Volume 1, 2),* Hong Duc Publishing House, Hanoi, Vietnam.

Hung, V.V., Dey, S.K., Vaculcikova, Z., & Anh, L.T.H. (2021). The influence of tourists' experience on destination loyalty: A case study of Hue City, Vietnam. *Sustainability,* 13(8889), 1-16. https://doi.org/10.3390/su13168889

Huang, R., Xie, C., Lai, F., Li, X., Wu, G., & Phau, I. (2023). Analysis of the characteristics and causes of night tourism accidents in China based on SNA and QAP methods. *International journal of environmental research and public health,* 20(3), 2584.

Ibrahim & Gill, J. (2015). A Positioning Strategy for a Tourist Destination, Based on Analysis of Customers' Perceptions and Satisfactions. *Marketing Intelligence and Planning,* 23(2), 172-188.

Jarvis, D., Stoeckl, N., & Liu, H.B. (2016). The impact of economic, social, and environmental factors on trip satisfaction and the likelihood of visitors returning. *Tourism Management,* 51, 1-18. https://doi.org/10.1016/j.tourman.2015.06.003

Jovanovia, S., & Ilia, I. (2016). Infrastructure is an important determinant of tourism development in the countries of Southeast Europe. *EcoForum,* 5(1), 288-294.

Kandampully, J. (2000). The Impact of Demand Fluctuation on the Quality of Service: A Tourism Industry Example *Managing Service Quality: An International Journal,* 10(1), 10-19. https://doi.org/10.1108/09604520010307012

Khuong, M.N., An, N.T.H., & Uyen, N.T.M. (2016). Direct and indirect effects on international tourists' destination satisfaction - The case of the World Natural Heritage of Halong Bay, Vietnam. *Journal of Economics, Business and Management,* 4(2), 85-91.

Khuong, M.N., & Nguyen, P.A. (2017). Factors affecting tourist destination satisfaction and return intention - A study in Ho Chi Minh City, Vietnam. *Journal of Economics, Business and Management*, 5(2), 95-102. https://doi.org10.18178/joebm.2017.5.493

Khuong, M.N., Nguyen, N., & Nguyen, T.M.K. (2020). Elements influence international tourists' satisfaction. *Management Science Letters,* 10, 2463-2476. https://doi.org/10.5267/j.msl.2020.4.003

Kim, H., Oh, C.O., Lee, S., & Lee, S. (2017). Assessing the economic values of World Heritage Sites and the effects of perceived authenticity on their values. *International Journal of Tourism Research,* 20(1), 126-136. https://doi.org/10.1002/jtr.2169

Kozak, M., & Rimmington, M. (2000). Tourist Satisfaction with Mallorca, Spain, as an Off-Season Holiday Destination. *Journal of Travel Research,* 38(3), 260-269. https://doi.org/10.1177/004728750003800308

Lata, S., Mathiyazhagan, K., & Jasrotia, A. (2023). Sustainable Tourism And Satisfaction: An Empirical Analysis Of Unesco World Heritage Sites In Delhi (India). *Journal of Hospitality Application & Research*, *18*(1).

Lucchetti, M.C., Arcese, G. (2014). Tourism Management and Industrial Ecology: A Theoretical Review. *Sustainability*, *6*, 4900-4909.

Martin, J.C., Moreira, P., Roman, C., & Santana, A. (2016). How to access transport mode to a world heritage city affects visitors' experience quality. *Tourism Economics,* 22(2), 2017-226. https://doi.org/10.5367/te.2016.0550

McKay, G. (2018). The heritage of slavery in British jazz festival. *International Journal of Heritage Studies,* 26(6), 571-588. https://doi.org/10.1080/13527258.2018.1544165

Mihalic, T. (2013). Performance of environmental resources of a tourist destination concept and application. *Journal of Travel Research,* 52(5), 614-630. https://doi.org/10.1177/0047287513478505

Naude, W.A., & Saayman, A. (2005). Determinants of tourist arrivals in Africa: A panel data regression analysis. *Tourism Economics,* 11(3), 365-391. https://doi.org/10.5367/000000005774352962

Nguyen, T.T.H. (2017). Current situation and solutions to promote the growth of Vietnam's tourism industry. *Journal of Commerce*, 10(2), 32-40.

Nguyen, T.P., To, C.M., Nguyen, H.N.T., & Tran, L.K.T. (2023). An evaluation on the exploitation level of tourist attractions, a case study in An Giang province, Vietnam. *GeoJournal of Tourism and Geosites*, 46(1), 78–87. https://doi.org/10.30892/gtg.46109-1003

Ngoc, K.M., & Trinh, N.T. (2015). Factors Affecting Tourists' Return Intention towards Vung Tau City, Vietnam-A Mediation Analysis of Destination Satisfaction. *J. Adv. Manag. Sci*, *3*, 292–298.

Pavlic, I., Perucic, D., & Portolan, A. (2011). Tourists' satisfaction as an important tool for increasing tourism destination competition in the globalization conditions: The case of Dubrovnik-Neretva country. *International Journal of Management Cases,* 13. https://doi.org/10.5848/APBJ.20111,00095

Petrovic, M.D., Vujko, A., Gajic, T., Vukovic, D.B., Radovanovic, M., Jovanovic, J.M., & Vukovic, N. (2018). Tourism as an Approach to Sustainable Rural Development in Post-Socialist Countries: A Comparative Study of Serbia and Slovenia. *Sustainability*, 10, 54.

Petrovic, M.D., Lukic, D., Radovanovic, M., Vujko, A., Gajic, T., & Vukovic, D. (2017). "Urban geosites" as potential geotourism destinations-Evidence from Belgrade. *Open Geosci*, *9*, 442-456.

Puah, C.H., Jong, M.C., & Ismail, S. (2021). The impact of tourism on the local economy in Malaysia. *International Journal of Business and Management,* 13(12), 151-151. https://doi.org/10.5539/IJBM.V13N12P151

Rahmiati, F., Othman, N.A., Bakri, M.H., Ismail, Y., & Amin, G. (2020). Tourism service quality and tourism product availability on the loyalty of international tourists. *The Journal of Asian Finance, Economics and Business,* 7(12), 959-968. https://doi.org/10.13106/jafeb.2020

Rittichainuwat, B.N., & Chakraborty, G. (2012). Perceptions of importance and safety are enough. *J. Bus. Res*, *65*, 42–50.

Rojek, C. (2000). *Leisure and Culture*. MacMillan Press: London, UK. https://doi.org/10.1057/9780230287563

Seetanah, B., & Khadaroo, J. (2009). An analysis of the relationship between transport capital and tourism development in a dynamic framework. *Tourism Economics,* 15(4), 785-802. https://doi.org/10.5367/000000009789955215

Suanmali, S. (2014). *Factors affecting tourist satisfaction: An empirical study in the northern part of Thailand.* in 4th International Conference on Tourism Research in 2014, in Sabah, Malaysia. https://www.shs-conferences.org/articles/shsconf/pdf/2014/09/shsconf_4ictr2014_01027.pdf

Szromek, A.R., Kruczek, Z., & Walas, B. (2020). The attitude of tourist destination residents towards the Effects of Overtourism - Krakow Case Study. *Sustainability,* 12(228), 1-17. https://doi.org/10.3390/su12010228

To, C.M. (2023). Assessment of factors affecting spiritual cultural tourism An Giang Province, Vietnam. *GeoJournal of Tourism and Geosites,* 46(1), 227–233. https://doi.org/10.30892/gtg.46125-1019

Virkar, A.R, & Mallya, P.D. (2018). A review of dimensions of tourism transport affects tourist satisfaction. *Indian Journal of Commerce and Management Studies,* 9(1), 72-80. https://doi.org/10.18843/IJCMS/V9I1/10

Zhang, H., Fu, X., Cai, L.A., & Lu, L. (2014). Destination image and tourist loyalty: A meta-analysis. *Tourism Management,* 40, 213-223. https://doi.org/10.1016/j.tourman.2013.06.006

Article history: Received: 31.07.2023 Revised: 15.09.2023 Accepted: 20.10.2023 Available online: 04.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1390-1399
DOI 10.30892/gtg.50420-1138

THE INFLUENCE OF ELECTRONIC WORD-OF-MOUTH, DESTINATION IMAGE, AND TOURIST SATISFACTION ON UNESCO WORLD HERITAGE SITE REVISIT INTENTION: AN EMPIRICAL STUDY OF PETRA, JORDAN

Hakam S. SHATNAWI*
Yarmouk University, Department of Hotel Management, Faculty of Tourism and Hotel Management, Irbid, Jordan, e-mail: hakamss@yu.edu.jo

Khalid A. ALAWNEH
University Malaysia Terengganu, Faculty of Business Economic and Social Development, Terengganu, Malaysia, e-mail: khalidalawneh77@gmail.com

Omar A. ALANANZEH
Yarmouk University, Department of Hotel Management, Faculty of Tourism and Hotel Management, Irbid, Jordan, e-mail: o.ananzeh@yu.edu.jo

Mohammad KHASAWNEH
Al-Balqa Applied University, Faculty of Ajloun, Ajloun, Jordan, e-mail :khasawnehmohammad79@bau.edu.jo

Ra'ed MASA'DEH
The University of Jordan, Department of Management Information Systems, School of Business, Amman, Jordan, e-mail: r.masadeh@ju.edu.jo

Citation: Shatnawi, H.S., Alawneh, K.A., Alananzeh, O.A., Khasawneh, M., & Masa'Deh, R. (2023). THE INFLUENCE OF ELECTRONIC WORD-OF-MOUTH, DESTINATION IMAGE, AND TOURIST SATISFACTION ON UNESCO WORLD HERITAGE SITE REVISIT INTENTION: AN EMPIRICAL STUDY OF PETRA, JORDAN. *GeoJournal of Tourism and Geosites*, 50(4), 1390–1399. https://doi.org/10.30892/gtg.50420-1138

Abstract: This study is conducted to find out the effect of Word-of-Mouth, Destination Image, and Tourist Satisfaction on the tourist's intention to revisit. The World Heritage site of Petra has been selected as a study site. The descriptive quantitative research design is employed ; visitors of Petra were the target population and the convenience sampling method has been calculated using the G*Power software (version 3.1.9.7). Results reveal a strong relationship between e-WOM, destination image, tourist satisfaction, and revisit intention. Meanwhile, results show that destination image doesn't have any impact or relationship on tourist revisit intention. The study has a practical and theoretical importance that helps in managing the heritage site and enables researchers to address more critically the strength and weaknesses of Petra's marketing locally and globally.

Key words: e-WOM, destination image, satisfaction, Re-visit intention, Petra, hospitality.

* * * * * *

INTRODUCTION

Some academics feel that consumer communication, such as word of mouth (WOM), has a significant and genuine impact on customer behavior. WOM has often been examined from the standpoint of face-to-face communication (Gupta and Harris, 2010). WOM is defined as communication about goods and services between individuals who are perceived to be independent of the company providing the product or service, and it is widely accepted that WOM plays an important role in shaping and establishing customer perceptions and behavioral intentions (Jalilvand et al., 2013). Several tourism experts believe that e-WOM is critical in attracting and maintaining tourists in the e-commerce age, as virtual contacts between visitors have increased as the Internet has spread (Litvin et al., 2008). The concept of e-WOM refers to the movement from restricted word of mouth about services and a product to internet-based word of mouth as technology advances, allowing it to reach a larger audience (Sen and Lerman, 2007).

A website, Twitter, Facebook, Instagram, and a web-based platform are just some of the ways that e-WOM spreads the word (Hennig-Thurau et al., 2004). More and more travelers are looking for e-WOM-powered sites as an alternative to the outdated, boring, and unreliable information typically found on official travel agency sites (Abubakar and Ilkan, 2016). Hence, e-WOM affects tourist satisfaction and image (Abubakar and Ilkan, 2016). E-WOM can affect a tourist destination's image, according to Abubakar and Ilkan (2016), and Setiawan (2014). E-WOM can affect tourist satisfaction when getting information about a research facility (Setiawan, 2014). Image and satisfaction can also impact tourists' decision to visit (Abubakar and Ilkan, 2016; Jalilvand et al., 2013). Petra, the Nabataean Arabs' capital on the Red Sea, is one of the world's most famous ancient sites. Jordan's biggest attraction is Petra, the world wonder (PDTRA, 2015).

* Corresponding author

Petra is a renowned tourist destination in Jordan. Due to the magnificent red sandstone used to sculpt many of Petra's monuments, it is known as the Rose-Red City. On December 6, 1985, Petra became a UNESCO World Heritage Site, and Smithsonian Magazine ranked it one of the top 28 locations to visit (PDTRA, 2015). What's drawing more tourists to Jordan's World Heritage Sites? Tourism strategy, marketing, development, planning, and conservation benefit from understanding destination choice factors. The location must have a positive image to attract tourists and provide an accommodating environment to influence tourists repurchase and recommendation intentions (Al-Mkhadmeh et al., 2022). Because the tourism sector is service-oriented and intangible, potential visitors rely on reliable communication channels like Word-of-mouth to reduce their purchasing risks (Alananzeh et al., 2023a). As a consequence of this, the purpose of the current research is to conduct an empirical analysis of the relationships between e-WOM, destination image, visitors' levels of contentment with their experiences at world cultural sites, particularly Petra (Jordan), and tourists' plans to return. Only a few scholars have investigated the connection between e-WOM, destination image, level of satisfaction, and the desire to return (Harahap and Dwita, 2020; Prayogo et al., 2017; Alananzeh et al., 2023b).

It is critical to study visitors' behavioral intentions, such as their willingness to return or promote the place, and to separate positive WOM (Ren and Hong, 2017). As a result, this paper investigates how e-WOM influences Petra's revisit intention, destination image, and pleasure. The report then covers the tourist industry's difficulties and potential online marketing strategies for managing and strengthening interpersonal impact. Ultimately, the study will build a conceptual model to experimentally prove tourism's increase in revisit intention.

LITERATURE REVIEW

1. Electronic Word-of-Mouth (E-WOM)

Word of mouth (WOM) in business has been disputed and studied, especially since the broad adoption of Internet technology has changed its distribution and impact (Jalilvand et al., 2013). "Any positive or negative statement made by potential, actual, or past customers about a product or firm, which is made available to a multitude of people and institutions over the Internet" is E-WOM (Hennig-Thurau et al., 2004). Two research streams dominate E-WOM. Most E-WOM research focused on its benefits, such as revenue, customer retention, and purchasing intention (Jawabreh et al., 2022; Lee and Lee, 2009). Additional research examined customer motivation and e-WOM creation and use (Cheung and Lee, 2012; Hennig-Thurau et al., 2004; Park and Kim, 2008). Traditional WOM has the drawback of relying heavily on face-to-face interaction to share product and service information (Hawkins et al., 2010). With the rise of internet technology and Web 2.0, E-WOM is now reaching more people more efficiently (Pandey and Sahu, 2020). Global users can anonymously discuss items and services on social media. E-WOM's ability to share knowledge across borders makes it more efficient and productive (Lee et al., 2011). E-WOM can be generated through emails, instant messaging, websites, blogs, online forums, newsgroups, chatrooms, hate sites, review sites, and social networking sites (Litvin et al.,2008; Blal and Sturman, 2014). Personal and commercial e-WOM might be separated by online information platform providers. While email exchanges between Internet users who know each other resemble conventional WOM, email may be swiftly shared with little effort and cost (Kiecker and Cowles, 2002). Web-based consumer opinion platforms (online forums, review sites) allow consumers to read and publish their thoughts and experiences (Chatterjee, 2001; Hennig-Thurau et al., 2004).

2. Destination Image

Destination image, defined by Hunt (1975) as "one's feelings about a location," was first used to select destinations in 1970 (Mayo, 1975). Most research found that tourists are more likely to visit a place with a good reputation (Baloglu and Love, 2005; Toral et al., 2018). Understanding the destination's impact on visitor satisfaction to build a positive brand image to increase the destination's attractiveness and economic growth is important for destination image (Hwang and Lee, 2019). Thus, destination image has been considered the foundation of tourism development for strategically accessing the destination image to potential tourists to promote a tourism area. Tourist satisfaction is difficult since destination image changes with educational, emotional, and social experiences (Prayag et al., 2017). While assessing a location's image, political situations, destination settings, pricing, travel costs, festivals, history, accessibility, and hospitality are also examined (Chi and Qu, 2008; Zhou, 2014). A destination image's impact on tourists' subjective perceptions, behavior, and destination selection has long been recognized (Zhang et al., 2018).

3. Tourist Satisfaction

Tourist satisfaction is the happiness visitors get from recreational activities (Chen and Tsai, 2007). Tourism management also relies on tourist satisfaction to choose destinations. Baker and Crompton (2000); Prayag and Ryan (2012) have found that satisfied tourists are more inclined to recommend the destination. For a nation to stay competitive, governmental and private organizations must satisfy their customers (Lamsoo et al., 2013). A hotel's features, pricing, and service quality may affect a customer's pleasure (Pratminingsih et al., 2014). Hence, tourist satisfaction is a holistic feature that requires assessing tourist attractions and the destination's image. Visitor satisfaction is an emotional perception that should be assessed after the visit (Baker and Crompton, 2000; Kozak, 2001).

4. Revisit Intention

Tourists' revisit intention is a post-purchase behavior that reflects their likelihood of returning to a site or place (Rousta and Jamshidi, 2020). Customer satisfaction is related to behavioral goals (Ryu and Han, 2010; Canny, 2014). Customer satisfaction is a strong predictor of post-purchase behavior since it increases consumers' understanding of the product or service. It may also increase customers' conscious attempts to return (Oliver, 1980).

Returning to the destination and spreading favorable word of mouth generate revenue (Marinkovic et al., 2014). According to tourism research, mentioning a location does not imply a future visit, which violates the idea of return intention. To account for repeat visits, revisit intention employs a discriminant method to address tourists' variety-seeking and switching tendencies. Tourists frequently review their experiences after visiting a location (Muskat et al., 2019). According to research by Che-Ha et al. (2016), this visitor's remark about the visiting experience might elicit emotional responses. The power of that reflection is dependent on destination features that have appealing, functional, and engaging qualities that work together to provide a comprehensive visitor experience (Baloglu et al., 2019; Zhang et al., 2018). This post-consumption evaluation of the visits may elicit emotional reactions and connections, resulting in a desire to return (Hosany et al., 2015).

5. Conceptual Framework and Hypotheses

The presence of positive e-WOM can increase and strengthen the desire of tourists to visit a location. Negative e-WOM diminishes the desire to visit an area, whereas positive e-WOM increases it. This is because travelers who intend to visit a location have seen and read content from a reputable blog or website. Hence, e-WOM has a considerable effect on return intent (Jalilvand et al., 2013). According to Di Pietro et al. (2012), social networks like Facebook influence the purchase decisions of customers. E-WOM communication, according to studies by Lee et al. (2009); Sparks and Brown (2011), had a favorable impact on tourists' intents to visit and sentiments toward a return. After reading, experiencing, hearing, or seeing a product brand in print, broadcast, or electronic media, each customer forms a distinct perception of the brand, according to Kotler (2000). According to a research Luong et al. (2017), e-WOM significantly and favorably affected brand perception. The better information about a product is disseminated and the more e-WOM communication is done, the better the brand image that is created in customers' minds about the product. According to Farzin and Fattahi (2018); Prayogo et al. (2017), e-WOM has a significant and favorable impact on the image of a place.

However, each tourist's level of satisfaction varies. Some tourists are easily satisfied, whereas others are frequently uncomfortable or dissatisfied (Kotler and Keller, 2012). According to Cooper and Hall (2008), the factors that influence tourist satisfaction are the tourist's need, the recognized price and value, perceptions and previous experiences, the integrity of tourism resources and related businesses, the quality of both the tangible and intangible environment, and the friendliness and care of employees and people involved in tourism businesses. Quintal (2010) and Kuo et al. (2009) found that tourists' happiness with tourist attractions, as well as the attractions' quality and value, positively affect their intention to return. In conclusion, travelers' contentment with their travel experiences will determine their future allegiance to a tourist destination. Visitors who are pleased with their trip are more inclined to return and suggest the location to others.

Thus, the following hypotheses are proposed based on the previous discussion:

H1: e-WOM has a positive and significant effect on destination image.

H2: e-WOM has a positive and significant effect on tourist satisfaction.

H3: e-WOM has a positive and significant effect on revisit intention.

H4: Destination image has a positive and significant effect on tourist satisfaction.

H5: Destination image has a positive and significant effect on revisit intention.

H6: Tourist satisfaction has a positive and significant effect on revisit intention.

Figure 1 shows the conceptual model and the hypotheses to be tested:

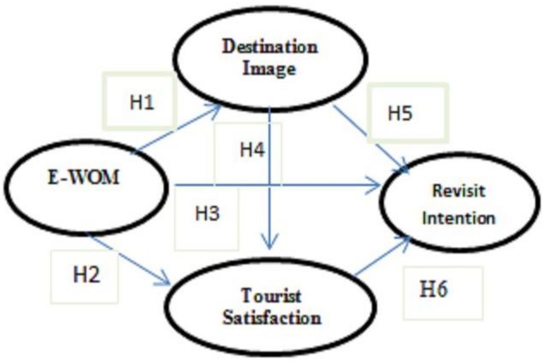


Figure 1. The conceptual model

RESEARCH METHODOLOGY

Figure 2 is a flowchart that represents the data collecting and processing approach and summarizes the workflow of the methodologies utilized in this investigation.

1. Study Area

Jordan's national treasure is Petra. Petra, three hours south of Amman, is the Nabataeans' legacy. Its exquisite culture, huge architecture, and clever dam and water channel system were recognized (PDTRA, 2022). In 2007, UNESCO designated Petra one of the Seven Wonders of the Earth. Petra is a UNESCO World Heritage Site since 1985 (PDTRA, 2022). A kilometer-long Siq with 200-meter-high cliffs leads to the spot. The Treasury, Petra's most famous monument, appears abruptly near the Siq's end. Petra's Treasury has a massive façade. The technical and aesthetic skill of Petra's occupants built 800 monuments from multicolored sandstone, including buildings, tombs, baths, burial halls, temples, arched gateways, and colonnaded walkways (PDTRA, 2022). Jordan's most famous sight is Petra in the mountains south of the Dead Sea. Tourists to Jordan and the Middle East must visit Petra, which means "stone" in Greek (PDTRA, 2022). This research will focus on Petra due to its unique properties.

2. Research design and data collection

This study employed a descriptive quantitative research design. The convenience sampling method is used in this research to select answers from respondents visiting Petra. Because of the large population, cost, and time limits, convenience sampling is a method of collecting data from a population that is convenient for the researcher (Sekaran and Bougie, 2013). Visitors who completed their tour to the heritage site (Petra) will be asked whether they would be interested to take part in a questionnaire survey. If they say yes, then they will be asked to fill out a questionnaire survey. Therefore, a team of volunteers was trained on how to communicate with visitors to Petra to help the researchers distribute the questionnaire. The questionnaire was distributed for three consecutive days at the entrance to Petra near the Visitor Center. The minimum sample size has been calculated using the G*Power software (Faul et al., 2007). This study required a minimum sample size of 128 based on the calculations. Therefore, to achieve the purpose of the study, a total of 250 respondents will be targeted in this study.

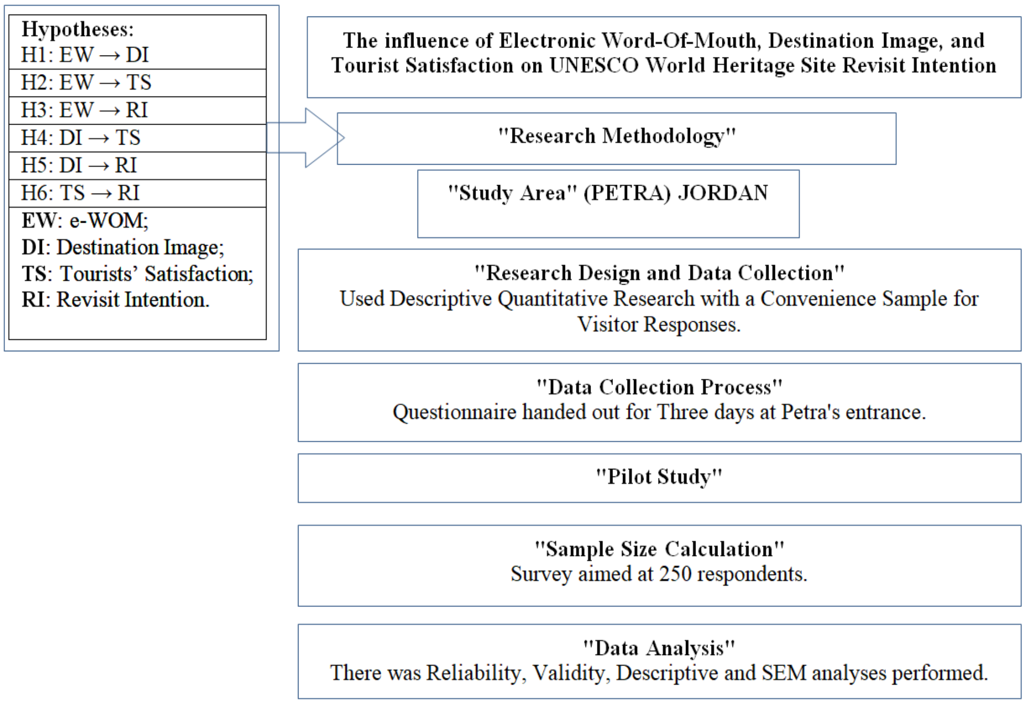


Figure 2. Flowchart representing the methodology of data acquisition and processing (Source: Prepared by authors)

3. Research Instrument

The questionnaire items were customized and created based on past research on e-WOM, destination image, tourist satisfaction, and intention to revisit. A six-item scale based on the research of Harahap and Dwita (2020) and Ishida et al. (2016). The variable destination image was measured using a six-item scale modified by Beerli and Martin (2004). The variable of tourist satisfaction was measured with seven items from Janchai et al. (2020) and Mehta (2021). Adapted from Hamid et al. (2021), six items were utilized to gauge return intent.

The survey was composed in both English and Arabic. It contained three portions. Using nominal and ordinal scales, Section (A) covers demographic information such as gender, age, marital status, and education level. With 19 items, Section (B) focuses on the independent variables (E-WOM, destination image, and tourist satisfaction). Section (C) contains six items for the dependent variable (intention to revisit). All major scale items were scored using a five-point Likert scale ranging from (1) strongly disagree to (5) strongly agree.

4. Pilot Study

Pilot research will be done to examine the efficacy of the survey instrument, following the recommendations of Cargan (2007), Johanson and Brooks (2010), and Ruel et al. (2015). Pilot studies are frequently recommended to allow the researcher(s) to examine a wide range of issues. These components make up an early stage of a scale or instrument design. When carrying out a pilot study, specific aspects such as item complexity, item discrimination, internal reliability, participation rates, and parameter estimation, in general, are all considered to be of utmost importance (Johanson and Brooks, 2010). The pilot study will involve 25 Jordanians. The pilot study will be carried out using a convenience sample method (Gravetter and Forzano, 2012). Following the pilot, some minor adjustments to the survey instrument will be made to accommodate feedback from pilot research participants.

5. Data Analysis

The Smart PLS v.4.0.7 computer software will be used to analyze the data using the Partial Least Squares-Structural Equation Modeling (PLS-SEM) method. The reason for choosing this method is that it can measure the relationships between variables at the same time, which is a technological advantage (Hair et al., 2019).

DATA ANALYSIS AND RESULTS

Reliability and validity analyses were carried out to look into the correlations between the study variables, which were assessed using a 5-point Likert scale. Additionally, descriptive analysis was used to characterize the characteristics of the sample and the questionnaire replies. The study hypotheses were also tested using SEM analysis. Table 1 displays the measured constructs as well as the items used to measure each construct.

Table 1. Constructs and Measurement Items (Source: Prepared by authors)

Constructs		Measurement items
E-WOM (E-W)	E-W1	I frequently read internet evaluations of travel tours to see what other people thought of the places they visited.
	E-W2	I frequently study internet travel evaluations to make sure I have the correct holiday destination.
	E-W3	To assist me identify intriguing places, I frequently seek advice from other people's travel evaluations.
	E-W4	Before visiting particular tourist places, I frequently gather information from internet travel evaluations written by other visitors.
	E-W5	I'm concerned if I don't read about other people's vacation experiences online.
	E-W6	I'm more inclined to visit these tourist places after reading online travel evaluations.
Destination Image(DI)	DI1	It is a historical and cultural place.
	DI2	It has a beautiful and rich nature.
	DI3	It has different lifestyles and traditions.
	DI4	It has fresh and oxygen-rich air.
	DI5	It has hospitable residents.
	DI6	It has attractive cultural events.
Tourist Satisfaction (TS)	TS1	I was pleased with the information offered on this UNESCO website.
	TS2	I was pleased with the services I obtained from this website.
	TS3	I appreciated the management's efforts to make this site more interesting and amusing.
	TS4	I had a great time there.
	TS5	I've gained a lot of experience.
	TS6	Visits went better than anticipated.
	TS7	Overall, I was pleased with my trip to this UNESCO site.
Revisit Intention (RI)	RI1	This place would be on my list of places to return to soon.
	RI2	I want to come back to this site again.
	RI3	I'll return to this location in the future.
	RI4	It's likely that I'll return to this location in the future.
	RI5	This location is always my first pick for my upcoming trip.
	RI6	I firmly intend to return to this location.

1. Respondents' profile

Demographic characteristics are used to describe basic information about respondents. Figure 3; Table 2: shows that males account for around 40.1 percent of all responses, while females account for 59.9 percent. Participants between the ages of 55 and 64 made up 43.2 percent of the responses in this age group.

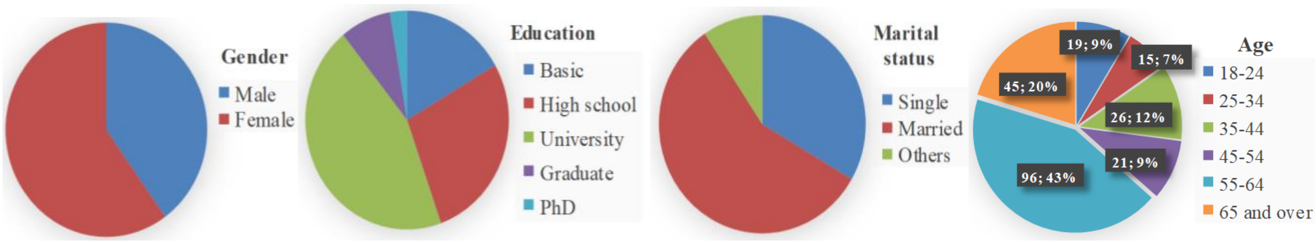


Figure 3. Demographic Profiling (Graphical Representation)

Table 2. Description of the Respondents' Profiles (n= 222) (Source: Primary Data)

Category	Category	Frequency	Percentage%
Visited **How frequently have you been to Petra?**	1 Time	189	**85.1**
	2 Time	28	**12.6**
	3 Time	5	2.3
	More than 3 times	0	0
Sources **What sources did you use to learn about this UNESCO site?**	Friends & Relatives	28	12.6
	Internet	106	**47.7**
	Media	21	9.5
	Book & guides	18	8.1
	Travel agency	49	**22.1**
Spent money **My total expenditure during my visit to this UNESCO site was.**	Less than 10 JD	0	0
	11-20 JD	1	.5
	21-50 JD	0	0
	51-100 JD	58	**26.1**
	More than 100 JD	163	**73.4**
Spent on **During my visit, I spent money on....**	Entrance Fees	19	8.6
	Food & beverages	69	**31.1**
	Souvenirs	97	**43.7**
	Tourist guide	12	5.4
	Other things	25	11.3

It is followed by the 65-and-up age group, which accounted for 20.3 percent of all respondents. In terms of marital status, the data show that 57.2 percent were married, 33.3 were single, and 44.6 percent were university students, and

27.9 were high school students. In response to the question " How frequently have you been to Petra?" the answers show that 85.1 percent have only visited once, while 12.6 percent have visited twice. Regarding the participants' Sources Questions "What sources did you use to learn about this UNESCO site?". The statistics show that 47.7 percent came from the internet, while 22.1 percent came from travel agencies. Concerning my total expenditure during my visit to this UNESCO site was, the results show that 73.4 percent of respondents spent more than 100 JD, while 26.1 percent spent between 51 and 100 JD. Concerning the money spent during my vacation, the statistics show that 43.7 percent of respondents spent it on souvenirs, while 31.1 percent spent it on food and beverages.

2. Descriptive Analysis

By estimating the mean and standard deviation for each question in the survey, researchers can gain insights into the overall trends and variability of participants' responses and attitudes. This information helps to understand the central tendency of the data and how much individual responses deviate from the average (Pallant, 2005; Sekaran and Bougie, 2013). In other words, a low standard deviation for a set of values indicates that they are closely packed around or around the mean. To calculate the level of each item, the following formula was used: (5-1)/5=0.80, where (1-1.80) denotes "very low," (1.81-2.60) represents "low," (2.61-3.40) represents "moderate," (3.41-4.20) represents "high," and (4.21-5) represents "very high." The findings are shown in Tables 3 and 4.

Table 3. Descriptive Statistics M, SD; n= 222; V.H: Very high, H: High, M: Moderate, L: Low, V.L: Very low (Source: SPSS, by authors)

E-WOM(E-W)	**Mean**	**SD**	**Level**	**Order**
E-W1	4.4279	.80256	V.H	3
E-W2	4.3288	.85880	V.H	5
E-W3	4.5405	.80478	V.H	2
E-W4	4.5495	.75194	V.H	1
E-W5	4.3829	.81406	V.H	4
E-W6	4.3198	.78531	V.H	6
Destination Image(DI)	**Mean**	**SD**	**Level**	**Order**
DI1	4.6757	.48809	V.H	1
DI2	4.4099	.63708	V.H	5
DI3	4.5135	.63623	V.H	2
DI4	3.7297	1.16079	H	6
DI5	4.4234	.74966	V.H	4
DI6	4.4640	.67002	V.H	3
Tourist Satisfaction(TS)	**Mean**	**SD**	**Level**	**Order**
TS1	4.7568	.55005	V.H	1
TS2	4.5541	.66200	V.H	2
TS3	4.3378	.80626	V.H	6
TS4	4.3604	.63521	V.H	5
TS5	4.4279	.60296	V.H	3
TS6	4.1892	.79607	H	7
TS7	4.3694	.65809	V.H	4
Revisit Intention(RI)	**Mean**	**SD**	**Level**	**Order**
RI1	4.4324	.69415	V.H	5
RI2	4.4910	.65730	V.H	3
RI3	4.5360	.60620	V.H	2
RI4	4.5991	.58379	V.H	1
RI5	4.4865	.69079	V.H	4
RI6	4.3604	.75857	V.H	6

Table 4. Overall (M, SD) of the study's variables (Source: SPSS, Prepared by Authors)

Type of Variable	**Variables**	**M**	**(SD)**	**Level**	**Order**
Independent Variables	**E-WOM(E-W)**	4.4249	.44858	Very high	-
Mediating Variable	**Destination Image(DI)**	4.3694	.35799	Very high	2
	Tourist Satisfaction(TS)	4.4279	.42467	Very high	1
Dependent Variable	**Revisit Intention(RI)**	4.6306	.51102	Very high	-

3. Measurement Model

A confirmatory factor analysis (CFA) was performed. To generate a better-fitting measurement model, eight items were deleted. (EM2 = 0.039, EM3 = 0.048, DI1 = 0.127, DI2 = 0.263, DI4 = 0.166, TS5 = 0.386, TS7 = 0.329, and RI1 = 0.377). Table (5) reveals that all of the indices of factor loadings are above 0.50. While the assessment achieved convergent validity at the item level since all of the factor loadings were greater than 0.50, all of the composite reliability values were greater than 0.60, indicating a high level of internal consistency for the latent variables. Furthermore, because each value of (AVE) was above 0.50, convergent validity was proven. Furthermore, as shown in Table 6, as a consequence of the measurement results, this study exhibited appropriate levels of convergent and discriminant validity, where the diagonal elements shown in the following table are the average variance extracted for each of the four constructs and the off-diagonal elements are the squared correlations between the constructs.

Table 5. Properties of the final measurement model (Source: SPSS, Prepared by Authors)

Constructs and Indicators	Factor Loadings	Std. Error	Square Multiple Correlation	Error Variance	Cronbach Alpha	Composite Reliability*	AVE**
E-WOM					0.76	0.83	0.86
EM1	0.534	0.000	0.285	0.458			
EM4	0.666	0.176	0.444	0.313			
EM5	0.732	0.201	0.536	0.306			
EM6	0.708	0.190	0.501	0.306			
Destination Image (DI)					0.59	0.76	0.81
DI3	0.678	0.000	0.460	0.218			
DI5	0.541	0.139	0.293	0.396			
DI6	0.546	0.122	0.208	0.354			
Tourists' Satisfaction (TS)					0.74	0.88	0.90
TS1	0.729	0.000	0.532	0.141			
TS2	0.538	0.121	0.290	0.310			
TS3	0.785	0.150	0.616	0.249			
TS4	0.512	0.116	0.170	0.333			
TS6	0.685	0.146	0.469	0.335			
Revisit Intention (RI)					0.72	0.86	0.88
RI2	0.633	0.000	0.400	0.258			
RI3	0.570	0.123	0.325	0.247			
RI4	0.717	0.127	0.514	0.165			
RI5	0.654	0.135	0.208	0.376			
RI6	0.619	0.157	0.383	0.354			

4. Structural Model

Amos 20 was used to test the study hypotheses, and the results of the direct effects are shown in Table 7. E-WOM positively and significantly impacted Destination Image, Tourists' Satisfaction, and Revisit Intention; thus, H1, H2, and H3 were accepted; besides, Destination Image did have influences on Tourists' Satisfaction (β = 0.452); consequently, H4 was accepted. However, destination image did not impact revisit intention, while tourists' satisfaction did. As a result, H5 was rejected, whereas H6 was accepted. Furthermore, the coefficients of determination (R2) for the research endogenous variables Destination Image, Tourist Satisfaction, and Revisit Intention were 0.228, 0.328, and 0.378, respectively, indicating that the proposed model significantly accounts for variance.

Table 6. AVE and square of correlations between constructs (Source: SPSS, Prepared by authors)

Constructs	EM	DI	TS	RI
EM	0.93			
DI	0.780	0.90		
TS	0.505	0.814	0.94	
RI	0.471	0.514	0.729	0.94

Table 7. Summarizes the hypotheses that were tested (Source: SPSS, Prepared by Authors)

Summary of proposed results for the theoretical model. Research Proposed Paths	Coefficient Value	t-alue	p-value	Empirical Evidence
H1: EM → DI	0.399	8.083	0.000	**
H2: EM → TS	0.151	2.933	0.003	**
H3: EM → RI	0.124	2.659	0.008	**
H4: DI → TS	0.452	7.351	0.000	**
H5: DI → RI	0.037	0.605	0.545	
H6: TS → RI	0.513	8.569	0.000	**
EM: E-WOM; DI: Destination Image; TS: Tourists' Satisfaction; RI: Revisit Intention. ****:** Supported				

DISCUSSION AND CONCLUSION

This study is conducted to try to show the impact of the e- Word of Mouth on the tourist's intention to re-visit, the extent of the effect of the image of the tourist destination, and the extent of the tourist's satisfaction with the previous experience on this relationship. The study also aimed to find out if there is a relationship between the image of the tourist destination and the tourist's satisfaction and the effect of each of them on the tourist's intention to repeat the visit.

The results of the descriptive analysis of the variables of the independent study showed that customer satisfaction received the highest evaluation, as tourists expressed their satisfaction with the information provided by the heritage site of Petra. Tavares et al. (2018) confirmed that the results indicated that the most visited tourist sites are those about which sufficient information is available. Their study also confirmed that information about the tourist destination is considered one of the basic components of tourist satisfaction. Edwin et al. (2019) also assured the importance of Information quality affects tourists' perceptions of a destination's image. In addition, part of tourists' satisfaction appears through the services provided by the site and the wonderful experience they gain from visiting the site. The results of this study support the results of the Singh (2021) study about the tourist experience at the site o Jaisalmer Fort, a UNESCO World Heritage Site in India. The results show that there is a strong positive relationship between experience, satisfaction, and intention principle. In addition to this, the facilities offered to visitors of the site were very significant. These results are also emphasized by the study of Wang et al. (2021) who assured that facilities are the core of tourism development in heritage sites. Then the e-word variable came in second in terms of tourists' evaluation of the study variables, as they indicated that they gather information from internet travel evaluations written by other visitors before visiting particular tourist places, and to assist them in identifying intriguing places. They revealed that they frequently seek advice from other people's travel evaluations. These results are compatible with those of Setiawan (2014), who assured that e-WOM can also affect tourist satisfaction when getting information about a research facility. Also, they frequently read internet evaluations of travel tours to see what other people thought of the places they visited. Then the image of the destination comes as a significant independent variable where the respondents classified Petra as a historical and cultural place, with different lifestyles and traditions, and with attractive cultural events. These results were consistent with the study of Benhaddou and Al-Dhmour (2011) that Petra has a global image as a tourist destination and that its image is positive before the visit and becomes more positive after the visit due to its archaeological monuments and provision of public safety and good hospitality, and they will recommend it to their relatives and friends to visit it. The items in the dependent variable show that the respondents rate there is a possibility that they will visit this place in the future, and they are interested in re-visiting this place again, and consider this place as the first choice for the next visit as the most important items.

The results of the model show that there is a strong relationship between e-WOM and revisit intention. This indicated the importance role of social media on tourist intention to revisit the destination. Harahap and Dwita (2020) confirmed that e-WOM influences the second visit of tourists. This relationship is also mediated by the destination image and tourist satisfaction. Also, results reveal that there is a strong relationship between destination image and tourist satisfaction. This provides conclusive evidence to the institutions responsible for managing and marketing Petra globally of the importance of social media in quickly transmitting information, in addition to the great dependence of tourists on smart devices to obtain information and the absolute belief that tourists have about the impression they leave on them. Leave. The experiences and opinions of others about their visit to a tourist site have become important in forming the mental image of the tourist site.

Moreover, results of the research model show a strong relationship between tourist satisfaction and their intention to revisit. These are compatible with those of Abubakar and Ilkan (2016) asserted that tourist satisfaction with the current visit influences their intention to re-visit. Meanwhile, results show that destination image doesn’t have any impact or relationship on tourist revisit intention. The results of this study contrast with that of Phi et al. (2022) who asserted that the destination image of sites plays a crucial role in tourist re-visitation. Perhaps the rationale for this is that the study site (Petra) is a World Heritage Site, which is a brand with a proven image and cannot be compared to other unclassified tourist sites. This requires conducting more research on more samples to confirm or deny this result, and this may be due to the expansion of the city of Petra, as it requires the tourist to spend several nights in order to be able to explore all its landmarks. We assume that during this period, tourists are satisfied with visiting the Siq, the Treasury, and the amphitheater, due to their proximity to services, and refrain from visiting distant tourist attractions in the Rose City of Petra.

CONCLUSION

This study indicated the importance of current social media in shaping tourists' perception of the city of Petra and its impact on their intention to visit this wonderful tourist site again. Those responsible for managing and promoting the Petra Heritage Site should pay attention to the vital role that social media (e-WOM) plays in tourists' decisions to visit and their intentions to visit the tourist site again. It also showed the role of a successful experience in creating an impression and the tourist’s intention to return. In addition to focusing on the skill of the site administrators in preserving the heritage site and its visitors.

Author Contributions: Conceptualization, K.A. and O.A.; methodology, R.M. and M.K.; software, R.M. and H.S.; validation, H.S. and R.M.; formal analysis, H.S. and R.M.; investigation, K.A. and O.A..; data curation, R.M. and H.S..; writing - original draft preparation, M.K. and K.A.; writing - review and editing, K.A. and M.K.; visualization, O.A. and H.S.; supervision, O.A.; project administration, H.S. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Abubakar, A.M., & Ilkan, M. (2016). Impact of online WOM on destination trust and intention to travel: A medical tourism perspective. *Journal of Destination Marketing & Management*, 5(3), 192–201. https://doi.org/10.1016/j.jdmm.2015.12.005

Alananzeh, O.A., Fahmawee, E., Almuhaisen, F., Jawabreh, O., Ali, B.J., & Ali, A. (2023a). The Impact of Job Stability, Work Environment, Administration, Salary and Incentives, Functional Justice, And Employee Expectation On the Security Staff’s Desire to Continue Working at The Hotel. *Journal of Statistics Applications & Probability*. J. Stat. Appl. Pro. 12(2), 425-439. http://dx.doi.org/10.18576/jsap/120209

Alananzeh, O.A., Masa’deh, R., & Bazazo, I.K. (2023b). *Ebb and Flow Theory in Tourism, Hospitality, and Event Management*. In: Alshurideh, M., Al Kurdi , B.H., Masa’deh, R., Alzoubi , H.M., Salloum, S. (eds) The Effect of Information Technology on Business and Marketing Intelligence Systems. Studies in Computational Intelligence, 1056, Springer, Cham. https://doi.org/10.1007/978-3-031-12382-5_130

Al-mkhadmeh, A.A., Shatnawi, H.S., Alananzeh, O., & Mas’deh, R. (2022). Factors Affecting Performance: Jordanian Hospitality Employees as a Case Study. *Journal of Environmental Management and Tourism*, 13(6). 1759-1769. https://doi.org/10.14505/jemt.v13.6(62).23

Baker, D.A., & Crompton, J.L. (2000). Quality, satisfaction and behavioral intentions. *Annals of tourism research*, 27(3), 785-804. http://dx.doi.org/10.1016/S0160-7383(99)00108-5

Baloglu, S, Busser, J., & Cain, L. (2019). Impact of experience on emotional well-being and loyalty. *Journal of Hospitality Marketing & Management* 28(4): 427–445, https://doi.org/10.1080/19368623.2019.1527269

Baloglu, S., & Love, C. (2005). Association meeting planners' perceptions and intentions for five major US convention cities: the structured and unstructured images. *Tourism Management*, 26(5), 743-752. https://doi.org/10.1016/j.tourman.2004.04.001

Beerli, A., & Martin, J.D. (2004). Factors influencing destination image. *Annals of tourism research*, 31(3), 657-681. https://doi.org/10.1016/j.annals.2004.01.010

Benhaddou, K.S., & Al-Dhmour, H.H. (2011). The Perceived Image of Petra as an International Tourist Destination from Foreign Tourists Perspectives. Dirasat, Administrative Sciences, Volume 38, Issue 1, p.1-20.

Blal, I., & Sturman, M.C. (2014). The differential effects of the quality and quantity of online reviews on hotel room sales. Cornell Hospitality Quarterly, 55(4), 365-375. https://doi.org/10.1177/1938965514533419

Canny, I.U. (2014). Measuring the mediating role of dining experience attributes on customer satisfaction and its impact on behavioral intentions of casual dining restaurant in Jakarta. *International Journal of Innovation, Management and Technology*, 5(1), 25-29. http://dx.doi.org/10.7763/IJIMT.2014.V5.480

Cargan, L. (2007). Doing social research. Rowman & Littlefield Publishers.

Chatterjee, P. (2001). Online reviews: Do consumers use them? Advances in Consumer Research. Association for Consumer Research (U.S.), 28, 129–133.

Che-Ha, N., Nguyen, B., Yahya, W.K., Melewar, T.C., & Chen, Y.P. (2016). Country branding emerging from citizens' emotions and the perceptions of competitive advantage: The case of Malaysia. *Journal of Vacation Marketing*, 22(1), 13-28. https://doi.org/ 10.1177/1356766715586454

Chen, C., &Tsai D.C. (2007). How destination image and evaluative factors affect behavioral intentions? *Tourism Management*, 28(4), 1115–1122. https://doi.org/10.1016/j.tourman.2006.07.007

Cheung, C.M., & Lee, M.K. (2012). What drives consumers to spread electronic word of mouth in online consumer-opinion platforms. *Decision support systems*, 53(1), 218-225. https://doi.org/10.1016/j.dss.2012.01.015

Chi, C. G.-Q., & Qu, H. (2008). Examining the structural relationships of destination image, tourist satisfaction and destination loyalty: An integrated approach. *Tourism Management, 29*(4), 624–636. https://doi.org/10.1016/j.tourman.2007.06.007

Cooper, C., & Hall, C.M. (2008). Contemporary Tourism: An International Approach. Oxford: Butterworth-Heinemann. https://doi.org/10.4324/9780080554990

Di Pietro, L., Di Virgilio, F., & Pantano, E. (2012). Social network for the choice of tourist destination: Attitude and behavioural intention. *Journal of Hospitality and Tourism Technology*, 3(1), 60–76.

Edwin, S.M., Wibowo, W.C., & Shihab, M.R. (2019). The effects of tourism information quality in shaping tourists' visiting interest. IOP Conf. Series: *Journal of Physics*: Conf. Series 1193 (2019) 012011. https://doi.org/10.1088/1742-6596/1193/1/012011

Edwin, M., & Fattahi, M. (2018). eWOM through social networking sites and impact on purchase intention and brand image in Iran. *Journal of Advances in Management Research*, Vol. 15, No. 2, pp.161–183.

Farzin, M. and Fattahi, M. (2018). eWOM through social networking sites and impact on purchase intention and brand image in Iran. *Journal of Advances in Management Research*, Vol. 15 No. 2, pp. 161-183. https://doi.org/10.1108/JAMR-05-2017-0062

Faul, F., Erdfelder, E., Lang, A.G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods*, *39*(2), 175-191.

Gravetter, F.J., & Forzano, L.B. (2012). Research methods for the behavioural sciences 4th ed. Canada: Wadsworth Cengage Learning.

Gupta, P., & Harris, J. (2010). How e-WOM recommendations influence product consideration and quality of choice: A motivation to process information perspective. *Journal of business research*, 63(9-10), 1041-1049. https://doi.org/10.1016/j.jbusres.2009.01.015

Hair, J.F., Risher, J.J., Sarstedt, M., & Ringle, C.M. (2019). When to use and how to report the results of PLS-SEM. European business review, 31(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hamid, A.H.A., Mohamad, M.R., & Suki, N.M. (2021). Tourists' revisit intention to UNESCO world heritage sites in a developing nation: Investigating the mediating role of place dependence. *Journal of Vacation Marketing*, 27(2), 119-132. http://dx.doi.org/10. 1177/1356766720969739

Harahap, M.S., & Dwita, V. (2020). Effect of EWOM on Revisit Intention: Attitude and Destination Image as Mediation Variables (Study in Pasaman Regency Tourism Destinations). In The Fifth Padang International Conference On Economics Education, Economics, Business and Management, Accounting and Entrepreneurship (PICEEBA-5 2020), 599-609, Atlantis Press.

Hawkins, D.I., Mothersbaugh, D.L., & Amit, M. (2010). *Consumer Behavior: Building Marketing Strategy*. 9th ed., McGraw-Hill, Boston.

Hennig-Thurau, T., Gwinner, K.P., Walsh, G., & Gremler, D.D. (2004). Electronic word-of-mouth via consumer-opinion platforms: what motivates consumers to articulate themselves on the internet? *Journal of interactive marketing*, 18(1), 38-52. https://doi.org/10.1002/dir.10073

Hosany, S., Prayag, G., Deesilatham, S., Caušević, S., & Odeh, K. (2015). Measuring tourists' emotional experiences: Further validation of the destination emotion scale. *Journal of Travel Research*, 54(4), 482-495. https://doi.org/10.1177/0047287514522878

Hunt, D.E. (1975). Person-environment interaction: A challenge found wanting before it was tried. *Review of Educational Research*, 45(2), 209-230. https://doi.org/10.2307/1170054

Hwang, J., & Lee, J. (2019). A strategy for enhancing senior tourists' well-being perception: Focusing on the experience economy. *Journal of Travel & Tourism Marketing*, 36(3), 314-329. https://doi.org/10.1080/10548408.2018.1541776

Ishida, K., Slevitch, L., & Siamionava, K. (2016). The effects of traditional and electronic word-of-mouth on destination image: A case of vacation tourists visiting Branson, Missouri. *Administrative Sciences*, 6(4), 1. https://doi.org/10.3390/admsci6040012

Jalilvand, M.R., Ebrahimi, A., & Samiei, N. (2013). Electronic Word of Mouth Effects on Tourists' Attitudes Toward Islamic Destinations and Travel Intention: An Empirical Study in Iran. Procedia: *Social and Behavioral Sciences*, 81, 484–489. https://doi.org/10.1016/j.sbspro.2013.06.465

Janchai, N., Baxter, G., & Srisaeng, P. (2020). The Effects of Destination Image on Tourist Satisfaction: The Case of Don-Wai Floating Market in Nakhon Pathom, *Thailand. Academica Turistica*. 13. 139-151. https://doi.org/10.26493/2335-4194.13.139-151

Jawabreh, O., Al Fahmawee, E., Alshatnawi, E., & Alananzeh, O. (2022). The Importance of Religious Tourism for Development of Sustainable Tourism: The Case of the Baptism Site in Jordan. *Journal of Environmental Management and Tourism*, (Volume XIII), 4(60): 909-924. https://doi.org/10.14505/jemt.v13.4(60).01

Johanson, G.A., & Brooks, G.P. (2010). Initial scale development: Sample size for pilot studies. *Educational and Psychological Measurement*, 70(3), 394–400.

Kiecker, P., & Cowles, D. (2002). Interpersonal communication and personal influence on the Internet: A framework for examining online word-of-mouth. *Journal of Euro marketing*, 11(2), 71-88.

Kotler, P. (2000). *Marketing management: The millennium edition (Vol. 10).* Upper Saddle River, NJ: Prentice Hall.

Kotler, P., & Keller, K.L. (2012). *Marketing management*. Pearson Prentice Hall.

Kozak, M. (2001). Repeaters' behaviour at two distinct destinations. *Annals of Tourism Research*, 28, 784–807.
Kuo, Y.F., Wu, C.M., & Deng, W.J. (2009). The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services. *Computers in human behavior*, 25(4), 887-896. https://doi.org/10.1016/j.chb.2009.03.003
Lamsoo, M.S., Niroomand, M., & Rafsanjani, K.H. (2013). The Role of Marketing on Tourism Industry. *International Research Journal of Applied and Basic Sciences*, 4 (1), 73-80.
Lee, J., & Lee, J.N. (2009). Understanding the product information inference process in electronic word-of-mouth: An objectivity–subjectivity dichotomy perspective. *Information & management*, 46(5), 302-311.
Lee, M., Rodgers, S., & Kim, M. (2009). Effects of valence and extremity of eWOM on attitude toward the brand and website. *Journal of Current Issues & Research in Advertising*, 31(2), 1-11.
Lee, S., Ha, S., & Widdows, R. (2011). Consumer responses to high-technology products: Product attributes, cognition, and emotions. *Journal of business research*, 64(11), 1195-1200.
Litvin, S.W., Goldsmith, R.E., & Pan, B. (2008). Electronic word-of mouth in hospitality and tourism management. Tourism Management, 29(3), 458–468. https://doi.org/10.1016/j.tourman.2007.05.011
Luong, D.B., Vo, T., & Le, K. (2017). The impact of electronic word of mouth on brand image and buying decision: An empirical study in Vietnam tourism. *International Journal of Research Studies in Management*, 6(1), 53-63.
Marinkovic, V., Senic, V., Ivkov, D., Dimitrovski, D., & Bjelic, M. (2014). The antecedents of satisfaction and revisit intentions for full-service restaurants. *Marketing Intelligence & Planning*, 32(3), 311-327. http://dx.doi.org/10.1108/MIP-01-2013-0017
Mayo, E. (1975). Tourism and the national parks: A psychographic and attitudinal study. *Journal of Travel Research*, 14(1), 14-21. https://doi.org/10.1177/004728757501400103
Mehta, K.S. (2021). *Satisfaction of Visitors at UNESCO World Heritage Site*. Jaisalmer Fort, India.
Muskat, B., Hörtnagl, T., Prayag, G., & Wagner, S. (2019). Perceived quality, authenticity, and price in tourists' dining experiences: Testing competing models of satisfaction and behavioral intentions. *Journal of Vacation Marketing*, 25(4), 480-498. https://doi.org/10.1177/1356766718822675
Oliver, R.L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of marketing research*, 17(4), 460-469. https://doi.org/10.2307/3150499
Pallant, J. (2005). *SPSS Survival Manual: A Step Guide to Data Analysis Using SPSS for Windows Version 12*. Chicago, Illinois: Open University Press.
Pandey, A., & Sahu, R. (2020). Modeling the relationship between service quality, destination attachment and eWOM intention in heritage tourism. *International Journal of Tourism Cities*. https://doi.org/10.1108/IJTC-08-2019-0125
Park, D.H., & Kim, S. (2008). The effects of consumer knowledge on message processing of electronic word-of-mouth via online consumer reviews. *Electronic commerce research and applications*, 7(4), 399-410.
Petra Development and Tourism Region Authority ("PDTRA"). (2018). Retrieved from. https://pdtra.gov.jo/default.
Phi, H.D., Quang, T.N., Phuong, T.H.T., & Linh, N.N. (2022). Effects of destination image on revisit intention: The intermediate role of satisfaction & words of mouth (Empirical Evidence in Ho Chi Minh City, Vietnam). *Estudios de economía aplicada*, 40(1), 9. https://doi.org/10.25115/eea.v40i1.5747
Pratminingsih, S.A., Rudatin, C.L., & Rimenta, T. (2014). Roles of motivation and destination image in predicting tourist revisit intention: A case of Bandung-Indonesia. *International Journal of Innovation, Management and Technology*, 5(1), 19. https://doi.org/10.7763/IJIMT.2014.V5.479
Prayag, G., & Ryan, C. (2012). Antecedents of Tourists' Loyalty to Mauritius: The Role and Influence of Destination Image, Place Attachment, Personal Involvement, and Satisfaction. *Journal of Travel Research*, 51(3), 342-356. https://doi.org/10.1177/0047287511410321
Prayag, G., Hosany, S., Muskat, B., & Del Chiappa, G. (2017). Understanding the relationships between tourists' emotional experiences, perceived overall image, satisfaction, and intention to recommend. *Journal of Travel Research*, 56(1), 41-54. https://doi.org/101177/ 0047287515620567
Prayogo, R.R., Ketaren, F.L.S., & Hati, R.M. (2017). Electronic Word of Mouth, Destination Image, and Satisfaction toward Visit Intention: An Empirical Study in Malioboro Street, Yogyakarta. *Advances in Social Science, Education and Humanities Research*, 81(Icosop 2016), 209–218.
Quintal, V.A. (2010). Factors influencing tourists' revisit intentions. *Asia Pacific Journal of Marketing and Logistics*, 22(4), 554–578.
Ren, G., & Hong T. (2017). Investigating Online Destination Images Using a Topic-Based Sentiment Analysis Approach. *Sustainability*, 9(10), 9. https://doi.org/10.3390/su9101765
Rousta, A., & Jamshidi, D. (2020). Food tourism value: investigating the factors that influence tourists to revisit. *Journal of Vacation Marketing* 26(1): 73–95.
Ruel, E., Wagner, W.E., & Gillespie, B.J. (2015). The practice of survey research: Theory and applications. Sage Publications.
Ryu, K., & Han, H. (2010). Influence of the quality of food, service, and physical environment on customer satisfaction and behavioral intention in quick-casual restaurants: Moderating role of perceived price. *J Hospitality & Tourism Research*, 34(3), 310-329. https://doi.org/10.1177/1096348009350624
Sekaran, U., & Bougie, R. (2013). *Research Methods for Business: A Skill-Building Approach*. (6th edition), New York: Wiley.
Sen, S., & Lerman, D. (2007). Why are you telling me this? An examination into negative consumer reviews on the Web. *Journal of Interactive Marketing*, 12(4), 76–94. https://doi.org/10.1002/dir.20090
Setiawan, P.Y., Troena, E.A., & Armanu, N. (2014). The effect of e-WOM on destination image, satisfaction and loyalty. *International Journal of Business and Management Invention*, 3(1), 22-29.
Singh, M.K. (2021). *Satisfaction of Visitors at UNESCO World Heritage Site: Jaisalmer Fort, INDIA*. Unpublished master thesis. International Hellenic University, Greece.
Sparks, B.A., & Brown, V. (2011). The Impact of Online Reviews on Hotel Booking Intentions and Perception of Trust, 32. *Tourism Management*. 1310–23.
Tavares, J., Neves, O., & Sawant, M. (2018). The importance of information in the destination on the levels of tourist satisfaction. *International Journal of Tourism Policy*. 8. 129. https://doi.org/10.1504/IJTP.2018.10013609
Toral, S.L., Martínez-Torres, M.R., & Gonzalez-Rodriguez, M.R. (2018). Identification of the unique attributes of tourist destinations from online reviews. *Journal of Travel Research*, 57(7), 908-919. https://doi.org/10.1177/0047287517724918
Wang, M.; Yang, J.; Hsu, W.-L.; Zhang, C.& Liu, H.-L. (2021). Service Facilities in Heritage Tourism: Identification and Planning Based on Space Syntax. Information. 12. 504. https://doi.org/10.3390/info12120504
Zhang, H., Wu, Y., & Buhalis, D. (2018). A model of perceived image, memorable tourism experiences and revisit intention. *Journal of Destination Marketing and Management*, 8(June): 326–336. https://doi.org/10.1016/j.jdmm.2017.06.004
Zhou, L. (2014). Online rural destination images: Tourism and rurality. *Journal of Destination Marketing & Management*, 3(4), 227-240. https://doi.org/10. 1016/j.jdmm.2014.03.002

Article history: Received: 09.08.2023 Revised: 16.09.2023 Accepted: 23.10.2023 Available online: 04.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1400-1410
DOI 10.30892/gtg.50421-1139

DIGITAL MARKETING FOR PROMOTING YOGA TOURISM ON KHO PHANGAN, THAILAND

Piyabud PLOADAKSORN
Suratthani Rajabhat University, Department of Business Information System,
Faculty of Management Sciences, Surat Thani, Thailand, e-mail: piyabud.plo@sru.ac.th

Kewalin ANGKANANON*
Suratthani Rajabhat University, Department of Business Information System,
Faculty of Management Sciences, Surat Thani, Thailand, e-mail: kewalin.ang@sru.ac.th

Thitimanan DAMRONGSAKMETHEE
Suratthani Rajabhat University, Department of Business Information System,
Faculty of Management Sciences, Surat Thani, Thailand, e-mail: thitimanan.dam@sru.ac.th

Citation: Ploadaksorn, P., Angkananon, K., & Damrongsakmethee, T. (2023). DIGITAL MARKETING FOR PROMOTING YOGA TOURISM ON KHO PHANGAN, THAILAND. *GeoJournal of Tourism and Geosites*, 50(4), 1400–1410. https://doi.org/10.30892/gtg.50421-1139

Abstract: There is a lack of research that focusing on assisting yoga businesses in digital marketing during COVID-19. This research aimed to: 1) investigate the behavior of Thai tourists in purchasing yoga tourism products or services; 2) investigate factors affecting the decision in purchasing a yoga health tourism service in the new normal era; 3) investigate tourists' perspectives on digital marketing to promote yoga tourism; and 4) develop digital marketing media to help promote yoga tourism suitable for Thai tourists in the new normal era. This research is mixed research with both quantitative and qualitative research. Data were collected using questionnaire questions asking 385 Thai wellness tourists. Twenty yoga entrepreneurs were asked to answer interview questions. The samples of both groups were selected using purposive sampling. Data were collected between September 2021 and January 2022. The results found that 1) Thai tourists' behaviors using digital channels had a statistically significant relationship at the .05 level with gender, age, and education level, and careers of tourists. 2) Thai tourists' overall views on yoga digital marketing were at a high level with the highest score on purchasing online yoga courses, followed by customer relations, and store information search. 3) Tourists' perspectives on digital marketing to promote yoga tourism were Product and Service, Price, Place, Promotion, People, Physical Evidence, Process, Productivity and Quality, and Health concern. All scores were at a high level. Females considered pricing strategy more than males. 4) The website, LINE stickers, and animation graphics on Facebook story and Instagram helped promotion for Thai wellness tourists.

Key words: yoga, digital marketing, health tourism, Koh Phangan, COVID-19, Thailand

* * * * * *

INTRODUCTION

Wellness tourism is one of the most lucrative tourism markets in the world and includes travel, incentives to promote well-being, and good health through mental, physical, and spiritual activities. Tourists travel to improve and maintain their quality of life (Lyengar and Rivers-Moore, 1989). Yoga tourism is a part of wellness tourism. Yoga is an ancient Indian culture of 5,000 years ago about union of body, mind, and spirit for personal, physical, emotional, intellectual, and spiritual growth (Lyengar and Rivers-Moore, 1989) and a niche market that is growing rapidly throughout the world and a valuable business in the health tourism industry (Dutt and Selstad, 2021; Dillette et al., 2019). Thailand is the fourth largest health tourism market in Asia after China, Japan, and India and a popular destination for tourists looking to rejuvenate their bodies, minds, and spirits. Many famous tourist destinations in the country have organized yoga sessions festivals or events (Rungsimanop and Ashton, 2021; Global Wellness Institute, 2021; Ali-Knight and Ensor, 2017).

The COVID-19 pandemic had a huge impact on the global economy and tourism industry which causing travel restrictions and closing tourist attractions. In the first quarter of 2020, the number of tourists visiting Thailand decreased by 38.01% from the same period in 2019 (Ministry of Tourism and sports, 2020). In Thailand, during the COVID-19 paradigm, not only yoga business but also entrepreneurs and agencies involved in the tourism business must find solutions to revive the Thai tourism industry. As well as preparing for change, promoting domestic tourism is the focus by using technology and innovation to promote sustainable growth and adaptation to the new normal tourism context (Wongcharoenkul and Suntrayuth, 2023). Digital marketing is very important for business because consumers can easily access various digital media anytime, anywhere (Aaker, 2016; Bostanshirin, 2014).

Travelers are always searching for information and notifications about new travel deals. Digital media can make such information instantly available and searchable (Nofal et al., 2020). Gutierriz et al. (2023) presented a systematic literature review on digital transformation and new integration in tourism. It analyzed 167 studies published between

* Corresponding author

1997 and 2023. Research highlights the importance of digital transformation in the tourism sector. They suggest that adopting existing technology will benefit tourism companies and contribute to the wider economy.

Digital marketing should be strengthened through multi-channel distribution and use of digital assistants. Tracking and engaging with customer feedback on online platforms to build customer trust and loyalty. However, some of the barriers and problems tourism businesses face in using digital marketing include lack of knowledge and training, lack of time, and annoying ads and spam messages (Velentza and Metaxas, 2023). Therefore, a digital marketing strategy is essential for the travel industry to be able to overcome the crisis and can continue in this new normal era.

The researchers had surveyed a situation of yoga tourism in Koh Phangan during COVID-19 for a preliminary study. The results found that from interview results with 20 yoga entrepreneurs in Kho Phangan, business income has declined. Yoga businesses in Kho Phangan, Surat Thani have no problem digital marketing online to foreign tourists, whereas the yoga businesses are not focusing on market to Thai tourists in the past before COVID-19 situation. Some yoga businesses (5%) have changed their strategies and models of marketing, such as price reductions, and teaching online via YouTube, Zoom, Skype, Facebook media and mobile application. Some entrepreneurs (5%) were focused on having SHA safety standards and some entrepreneurs (5%) were provided COVID-19 testing kits for customers to test for COVID-19. Moreover, the interviews with 20 yoga entrepreneurs in Koh Phangan District, Surat Thani found that 100% of yoga establishments have Facebook pages, 90% have websites, 70% have Instagram, and 5% have mobile applications. Unfortunately, from the interviews results found that 80% of the content on the yoga websites is in English only, 15 % of the websites use English and Thai. Moreover, 100% of the yoga Facebook Page content and Instagram content are in Thai.

However, there have been few studies of yoga and wellness tourism market strategies and factors affecting behavior in using yoga tourism services. Wahyuningsih et al. (2022) proposed marketing strategies for developing the tourism industry during the COVID-19 outbreak, to apply the principles of CHSE (Cleanliness, Healthy, Safety, and Environment Friendly) to penetrate the domestic tourist market, segmenting the individual tourist market green marketing, using travel packages, digital marketing, and re-positioning. Cristobal-Fransi et al. (2023) developed an e-commerce website for 106 Spanish health resorts. The study found that many Spanish spa websites lack communication in terms of interactive elements and additional information, such as content sharing, reviews, and ratings. This can be important for customers in terms of credibility and trust in the organization. It is also important to provide information in multiple languages. It is recommended that joint promotional campaigns be organized within the health tourism network to help enhance the image and attraction of both the spa and the destination. It can be concluded that the yoga entrepreneurs are not focusing on marketing to Thai tourists as they should, especially during COVID-19 situation. This is a gap of the research study that the researchers would like to fulfill in this paper.

Therefore, this research will help in planning marketing to meet the needs of Thai tourists and be extremely beneficial to entrepreneurs and aimed to: 1) investigate the behavior of Thai tourists in purchasing yoga tourism products or services; 2) investigate the factors affecting the decision in purchasing a yoga health tourism service in the new normal era; 3) investigate tourists' perspectives on digital marketing to promote yoga tourism and; 4) develop digital marketing media to help promote yoga tourism suitable for Thai tourists in the new normal era.

LITERATURE REVIEW AND RELATED THEORIES

1. Wellness Tourism and Yoga Tourism

Wellness tourists have a variety of services including relaxation and stress relief, physical fitness and sports, meditation, yoga, beauty treatment, weight management, and health-related education. The wellness tourists also include travelers who travel primarily for the purpose of wellness activities, and those planning their trips in wellness activities such as spas, yoga, meditation, and wellness resorts (Lyengar and Rivers-Moore, 1989). "Yoga" in ancient Sanskrit means union, yoke, or connection with himself, others, and his surroundings and has been practiced for thousands of years rooted in Indian culture but began to flourish in Western culture in the 2000s. The Yoga Health Tourism identified four motivations among yoga practitioners: seeking spirituality, enhancing mental well-being and physical well-being (Lehto et al., 2022). Prumarsa (2018) classified the types of yoga according to the practice characteristics and the suitability of each person's body as follows: Hatha Yoga, Anusara Yoga, Ashtanga Yoga, Bigram Yoga, Iyengar Yoga, Kunthali, Iyoga, and Vinyasa Yoga.

2. Factors Affecting the Purchasing Decision of Yoga Courses

The traditional marketing mix consists of four variables (4Ps): Product, Price, Place, and Promotion (Kotler, 2012). In addition, ideas for adjusting the 4Ps marketing mix are presented to reflect changing business models and consumer behavior. Booms and Bitner (1981) adjusted the marketing mix to suit the 7Ps of service businesses by adding 3 variables: People, Physical Evidence, and Process. Moreover, there is also the 8Ps marketing mix that focuses on delivering product and service quality consisting of Product, Price, Place, Promotion, People, Physical Evidence, Process, and Productivity and Quality (Zeithaml et al., 2006). Marketing strategy is the implementation of various forms of marketing activities to achieve organizational objectives (Zhu et al., 2019; Varadarajan, 2010). Consumer behavior is analyzed to find needs and purchasing behavior. Knowing consumer behavior helps entrepreneurs choose the right marketing strategy and satisfy the needs of consumers (Kotler, 2019) and to communicate to customer groups, knowing the marketing format that consumers want, the time and channels for presenting content to create efficiency, increase sales opportunities, competition, and access to consumer groups (Kanket, 2019). Most yoga tourism marketing strategies promote yoga to promote better health, emphasizing yoga awareness for targeting promotional purposes. Most researchers offer physical benefits to health (Telej and Gamble, 2019; Gan and Frederick, 2018; Askegaard and Eckhardt, 2012; Lehto et al., 2006) presenting, promoting, and developing yoga tourism destinations and yoga experiences from their origins or authentic origins (Komeil, 2021; Telej and

Gamble, 2019). Laptawee and Kongsawatkiat (2016) studied the marketing mix that affects the decision to choose yoga services among working women in Bangkok and its vicinity. Most of 400 samples spent a yoga fee between 250-300 baht per hour and practiced a service facility near the workplace. Changsarn and Kaewprommal (2020) showed that consumer behavior in deciding to purchase a yoga course mostly spends 1,001 - 3,000 baht per course.

Data was collected at the beginning of the COVID-19 outbreak. The influential person in purchasing yoga classes is family members. The most practiced form of yoga is Joint Therapy (Laptawee and Kongsawatkiat, 2016). The marketing mix that affects the decision are location, marketing promotion, and personnel. Tanchote (2020) showed that the important characteristics of a yoga teacher are knowledge and ability to teach yoga well, pay attention to students and have a good personality. Wahyuningsih et al. (2022) applied the principles of CHSE to penetrate the domestic tourist market, digital marketing, and re-positioning. Telej and Gamble (2019) found that Indian tourism marketers designed new approaches to promotional strategies specifically related to "authentic" yoga experiences targeted at people searching for an authentic yoga experience and using realistic imagery. Sharma and Nayak (2019) found that yoga tourism marketing promotion should emphasize the special benefits of yoga to stimulate yoga tourism and to increase the flow of tourists in the future. In addition, it will help promote yoga tourism as a unique and differentiated niche tourism market.

3. Digital Marketing

Digital marketing through digital devices and the internet as a medium for communication, promotion, and publicity of goods and services is often referred to in conjunction with Online Marketing (Thewtanom, 2022; Djakasaputra et al., 2021) including Social Media Marketing, Content Marketing, Affiliate Marketing, Search Engine, Influencer Marketing (Zhang et al., 2022). Multi-Chanel Marketing is through email, social media, messages, websites, etc. Results can be seen in real time and can develop direct relationships with consumers or visitors (Zhang et al., 2022; Soluk et al., 2021). Using digital marketing channels in business can help reach a wider audience offering customers multiple options and in-depth information (Thewtanom, 2022; Jarusen, 2021). It also affects image, loyalty, product, and service selection decisions and creates competitive advantage (Zhang et al., 2022; Kerdpitak, 2022) and help tourists choose or purchase travel services more easily. Kaur (2017) stated businesses in the tourism industry can succeed in the digital world with six digital marketing activities: 1) a quality website, 2) SEO, 3) email marketing, 4) social media presence, 5) Content, and 6) Mobile Friendliness. Armutcu et al. (2023) studied the impact of digital marketing and social media on tourist behavior in Turkey, finding that perceptions of online content of tourist destinations directly affect tourists' behavioral intentions and satisfaction. Satisfaction and digital marketing interactions are important determinants of intention to visit attractions and destination selection. Moreover, this research recommends developing strategies to encourage tourists to share their experiences and satisfaction levels through digital marketing channels by improving the quality of products and services.

Thamwiphat et al. (2015) reveled that organizations or companies popularly produce LINE stickers to promote the organization, product, or service to promote corporate communication image and save on advertising costs compared to other forms of media. LINE cartoon style stickers help communicate messages expressing emotions and feelings and can be designed to communicate the perception of brand recognition of users to the organization or business (Lata, 2017). In addition, Liao and Hsu (2020) pointed out the importance of the interaction behavior of LINE stickers and LINE groups in creating links between sticker behavior and business activities. Promoting the visibility of LINE stickers to target consumers plays a role as social media in bridging the gap between organizations and potential customers and enabling them to retain loyal customers. Liu et al (2019) revealed that LINE stickers with product images have an impact on your brand image and a longer period of use can attract consumers better. In this regard, the brand image affects the attitude towards the brand, brand engagement, and product purchase intention. It is in line with Kwangsawad and Jattamart (2022) who stated that developing LINE stickers in an organization creates recognition for the organization. This results in the development of brands that can be used to create value and credibility. Beside, GIFs are great for marketing because they enable natural, real-time responses and can add personality to create a brand identity. It supports storytelling but uses fewer words (Teague, 2023). Using GIFs in your Instagram Story can make your posted content more unique, fun, and catch your audience's attention. Businesses can use GIFs as part of their marketing strategy to make stories posted on Stories more engaging. It also creates more brand recognition (Storrito.com, 2023).

RESEARCH METHODOLOGY

1. Research Participants

The samples used in the study were: 1) 20 yoga entrepreneurs at Koh Phangan District in Surat Thani Province who registered for tax payment with the Koh Phangan District Office during COVID-19 situation. 2) The sample group included 385 Thai tourists. The sample size was calculated by the method of Yamane (1973). The characteristics of the sample were Thai interested in practicing yoga at Koh Phangan District in Surat Thani and willing to provide information. Both group of samples were selected using purposive sampling.

2. Research Tool

There are two types of questions that used as research tools: questionnaire questions and interview questions. The questionnaire was in 6 parts: 1) General information of respondents, 2) Purchasing behaviors of products and services via digital media, 3) Yoga practice behavior, 4) Marketing strategies to promote yoga tourism in the new normal era, 5) Opinions about the digital market for yoga tourism in the new normal era, and 6) Suggestions. The reliability of the questionnaire was determined by Cronbach's reliability Coefficient alpha with a group 30 participants with similar characteristics with the samples (Cronbach, 1951). The reliability of the questionnaires was at 0.947, with a confidence value of 0.7 or higher. Therefore, it can be concluded that these questionnaires are reliable. The interview questions were asked about situation, obstructions of yoga businesses during COVID-19, digital media channels that the yoga entrepreneurs have used. Validity test of the interview questions using three experts with at least 3 years experiences in digital marketing and tourism verified the accuracy of the content (Rovinelli and Hambleton, 1977).

3. Data Collection and Analysis Procedures

The data were collected from three sources: questionnaire questions, interview questions, and document and related works, using a triangulation technique to confirm the data. The online questionnaire was sent via email, LINE, and Facebook Messenger with information sheet, purpose of study, and confirmation of consent. The participants can withdraw at any time. Data collection was conducted between September 2021 and January 2022. This research was approved by the Ethics committee No. SRU-EC2021/065. Quantitative data were analyzed using the SPSS statistical analysis program with statistics includes frequency, percentage, mean, and standard deviation, t-test, F-test, and Chi-Square Test. Qualitative data were collected from 20 yoga entrepreneurs. The data were analyzed using content analyses. The research methodology process is shown in Figure 1.

Analyzing the situation of yoga tourism in Koh Phangan during COVID-19:
1) problems & obstructions
2) exiting digital medias used to promote the businesses

Study and analyze the behavior of Thai tourists in purchasing yoga courses and practicing yoga through digital media:
1) Use of digital channels for tourists
2) Using the device to surf the Internet
3) Frequency of buying yoga courses
4) Price of yoga courses that tourists purchase per time
5) Reasons for choosing a yoga course through digital media

Study and analyze digital marketing strategies for yoga tourism in the new normal era for Thai tourists:
1) Product and Service 2) Price 3) Place 4) Promotion 5) People 6) Physical Evidence 7) Process 8) Productivity and Quality 9) Health Concern

Develop digital marketing channels of yoga tourism in the new normal era that meets the needs of Thai tourists: 1) Yoga website in Thai
2) LINE stickers
3) Graphic animations for Facebook story and Instagram

Figure 1. Research Methodology Steps

RESULTS

The results of the analysis of personal data of 385 respondents found that most Thai tourists are females (60.50%) and males (39.50%). Most Thai tourists are ages between 30-40 years old (31.43%), followed by 41-50 years old (30.40%), and the least 51-60 years old (15.84%). Most Thai tourists had a bachelor's degree (45.71%), followed by had a master's degree (24.16%), and the least had a have a PhD degree (10.39%). Most tourists are self-employed (23.90%), followed by government employees (16.88%), and the least are employees (5.20%). Research results are presented according to objectives in 4 parts as follows:

1. Behavior of Thai tourists towards purchasing yoga health services through digital marketing channels

There are 5 aspects of the behavior of Thai yoga tourists towards purchasing products or services through digital marketing channels: 1) Behavior of using digital channels to buy products and services found that more than half (52%) use Facebook the most, followed by LINE (15%), YouTube (11%) and Instagram (9%) as can be seen in Figure 2.

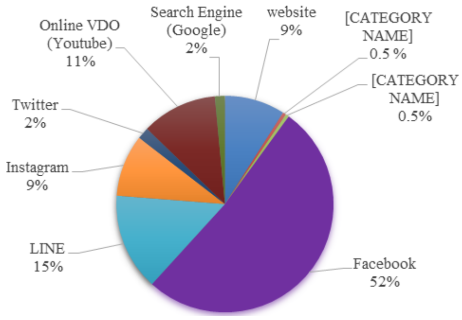


Figure 2. Digital channels that travelers use topurchase products or services

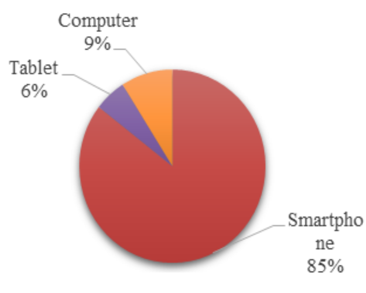


Figure 3. Devices used by tourists for internet use

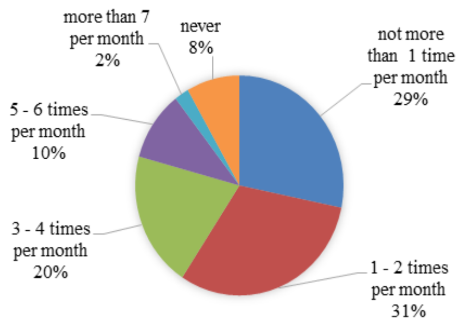


Figure 4. Frequency of purchasing yoga courses via digital channels per month

2) The device used the most for surfing the internet is Smartphone (85%), followed by Computer (9%) and Tablet (6%) as can be seen in Figure 3. 3) 31% purchase a yoga course through digital channels 1-2 times a month, 29% make purchases no more than once per month, and 20% make purchases 3-4 times per month as can be seen in Figure 4. 4) 30% purchase yoga courses under 500 baht, followed by 1,001-1,500 baht (29%), 501-1,000 baht (24%), and more than 1,501 baht (17%) as can be seen in Figure 5. 5). 45% buy yoga courses through digital channels because the courses are cheaper than traditional marketing channels, followed by being able to buy the course 24 hours a day (23%), being able to see reviews and reviews from buyers (17%), and have a variety of products and services (15%)

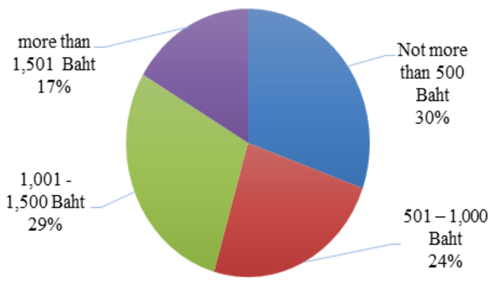


Figure 5. Price of yoga courses that tourists purchase per session

as can be seen in Figure 6. A relationship between behaviors and personal factors is shown in Table 1. The results of the analysis of the relationship between personal factors and consumer behavior in using yoga health tourism services by using the chi-square statistic with Crosstab at the statistical significance level of .05. From Table 1, it was found that tourists' behaviors in using digital channels to purchase products or services have a statistically significant relationship at the .05 level with gender, age, and education level, and careers of tourists. The most used digital channel is Facebook.

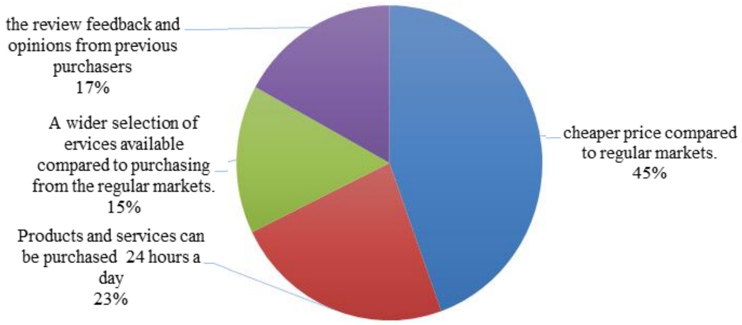


Figure 6. Reasons for purchasing yoga courses through digital marketing channels

Table 1. A relationship between behaviors of Thai tourists in using yoga tourism services and personal factors

Behavior	Gender		Age		Education Level		Income		Career	
* There is a significant relationship at the 0.05 level (P<0.05)	X^2	P	X^2	P	X^2	P	X^2	P	X^2	P
1. Use of digital channels for tourists	38.498	.000*	48.599	.002*	55.119	.000*	30.266	.176	154.425	.000*
2. Using the device to surf the Internet	35.487	.000*	17.066	.009*	9.100	.168	84.286	.000*	6.482	.371
3. Frequency of buying yoga courses	2.681	.749	30.906	.009*	32.102	.006*	30.744	.059	104.917	.000*
4. Price of yoga courses that tourists purchase per time	0.636	.888	30.113	.000*	25.600	.002*	11.507	.243	51.834	.000*
5. Reasons for choosing a yoga course through digital media	7.765	.051	13.613	.137	12.857	.169	14.038	.126	29.777	.040*

Table 2. Thai Tourists' opinion on Yoga Marketing Strategies

No	Marketing Strategies	$\bar{x}$	S.D.	Opinion Levels
	Product and Service			
1	The reputation of a yoga institute is important in practicing yoga.	3.96	0.85	High
2	The variety of courses and equipment are important when deciding to purchase courses.	4.00	0.76	High
3	The reputation of the instructor influences the decision to purchase a yoga course.	3.92	0.81	High
4	Yoga courses offered need to be accredited by a reputable institution.	3.92	0.83	High
	Price			
1	The service price is worth the money spent.	3.95	0.85	High
2	The price is reasonable compared to competitors.	3.88	0.80	High
3	There is clarity in displaying service prices.	3.96	0.79	High
4	There are several levels of service prices to choose.	4.02	0.78	High
	Place			
1	A yoga studio is in an appropriate location and is easily accessible.	3.98	0.79	High
2	There are various channels for distribution.	3.99	0.79	High
	Promotion			
1	There is continuous promotion such as giving discounts and giving away free gifts.	4.06	0.73	High
2	Publicizing the course through various digital media	4.06	0.71	High
3	Advertising through various media and reaching customers	4.09	0.72	High
4	Digital media is easy to use. It is convenient and quick to search.	4.07	0.73	High
5	Digital media is constantly updating information.	4.03	0.76	High
6	Digital medias attract customers and modern.	4.04	0.73	High
7	Salespeople are good at giving information and advice.	4.06	0.73	High
	People			
1	The yoga teacher is knowledgeable and be able to teach yoga very well.	4.05	0.81	High
2	Yoga teachers are attentive to their students.	4.08	0.80	High
3	Yoga teachers have good personalities that help attract people to choose yoga services.	4.10	0.78	High
	Physical Evidence			
1	The yoga studio is clean, well ventilated, and attracts you to choose yoga services.	4.05	0.81	High
2	A yoga studio is beautifully designed and well decorate.	4.02	0.75	High
3	Equipment is cleaned regularly according to SHA standards.	4.06	0.81	High
4	Modern training equipment helps attract you in choosing yoga services.	4.02	0.80	High
	Process			
1	Staff facilitate in ordering and payment.	3.96	0.82	High
2	Employees are notified of expiration and renewal dates.	4.04	0.79	High
3	You can contact the staff easily when every you have a problem.	4.01	0.82	High
	Productivity and Quality			
1	The quality of the service is as expected.	4.00	0.80	High
2	There is differentiation from competitors.	3.98	0.77	High
3	Providing services in line with needs	4.01	0.79	High
4	Satisfied with the quality of service	4.04	0.80	High
	Health Concern			
1	The SHA standard will attract your attention to the yoga studio.	4.03	0.78	High
2	Allowing tourists only for those who have received a COVID-19 vaccine to Come to Koh Phangan helps increase confidence in safety.	4.04	0.83	High
3	There should be continuous public health monitoring of the SHA standards of yoga studios.	4.09	0.81	High

Mostly females, ages between 41-50 years old, and have a bachelor's degree, which is a group of self-employed. Internet surfing device usage behavior was found to have a statistically significant relationship at the .05 level with gender, age, and income. Most tourists use smartphones the most. Most are female, aged 41-50 years, with income between 10,000 -30,000 baht. The frequency of purchasing yoga courses was found to have a statistically significant relationship with age, education level, and occupation. Most of them are ages between 30 and 40 years old and have a bachelor's degree and have a career as a self-employed. The highest frequency of purchasing yoga courses is no more than 2 times per month. The price of yoga courses that tourists bought per time had a statistically significant relationship at the .05 level with age and education level. Most tourists prefer to buy yoga courses priced no more than 500 baht. They are aged between 41 and 60 years old with a bachelor's degree and has a career in government service. The reasons for choosing to purchase a yoga course via digital media have a significant statistical relationship at the .05 level with occupational factors. Most of them are Business owners. They thought that buying a yoga course through digital media was cheaper than the walking in.

2. Marketing Strategies Affecting Decisions for Choosing Yoga Services in the New Normal Era

Yoga tourism marketing strategies in the new normal era in 9 aspects, including 1) Product and Service; 2) Price; 3) Place; 4) Promotion; 5) People; 6) Physical Evidence; 7) Process; 8) Productivity and Quality; and 9) Health. An overall opinion of tourists towards marketing strategies in deciding to use yoga tourism services in the new normal era found average scores at a high level of opinions ($\bar{x}$ = 4.01) on all 9 aspects. The three most important aspects of marketing strategies are People at a high level ($\bar{x}$ = 4.08), followed by Promotion ($\bar{x}$ = 4.06) and Health in the new normal era ($\bar{x}$ = 4.05), respectively. The results of each aspect were shown in Table 2. Table 2 shows that when considering Yoga Marketing Strategies in each aspect, it was found that all scores was at a high level. 1) Product and Service strategy found that most respondents agreed that question 1 had the highest score ($\bar{x}$ = 4.00), followed by questions 3 and 4 ($\bar{x}$ = 3.96), and the least was question 1 ($\bar{x}$ = 3.92). 2) Price strategy found that most respondents agreed that question 4 had the highest score ($\bar{x}$ = 4.02), followed by question 3 ($\bar{x}$ = 3.96), and the least was question 2 ($\bar{x}$ = 3.88). 3) Place strategy found that most respondents agreed that questions 1 ($\bar{x}$ = 3.98) and 2 ($\bar{x}$ = 3.99) was similar score at a high level. 4) Promotion strategy found that most respondents agreed that question 3 had the highest score ($\bar{x}$ = 4.09), followed by question 4 ($\bar{x}$ = 4.07), and the least was question 5 ($\bar{x}$ = 4.03). 5) People strategy found that most respondents agreed that question 3 had the highest score ($\bar{x}$ = 4.10), followed by question 2 ($\bar{x}$ = 4.08), and the least was question 1 ($\bar{x}$ = 4.05). 6) Physical Evidence strategy found that most respondents agreed that question 3 had the highest score ($\bar{x}$ = 4.06), followed by question 1 ($\bar{x}$ = 4.05), and the least were questions 2 and 4 ($\bar{x}$ = 4.02). 7) Process strategy found that most respondents agreed that question 2 had the highest scores ($\bar{x}$ = 4.04), followed by question 3 ($\bar{x}$ = 4.01), and the least was question 1 ($\bar{x}$ = 3.96). 8) Productivity and Quality strategy found that most respondents agreed that question 4 had the highest score ($\bar{x}$ = 4.04), followed by question 3 ($\bar{x}$ = 4.01), and the least was question 2 ($\bar{x}$ = 3.98). Finally, 9) Health strategy found that most respondents agreed that question 3 had the highest score ($\bar{x}$ = 4.09), followed by question 2 ($\bar{x}$ = 4.04), and the least was question 1 ($\bar{x}$ = 4.03).

Table 3. Marketing strategies that are related to the behavior of purchasing products and services through digital media

Marketing strategy	Purchase behaviors of goods and services via digital media									
	Frequency of purchases		Devices		Digital Channels		Prices		Reasons	
	X^2	P	X^2	P	X^2	P	X^2	P	X^2	P
Product & Service	64.514	.322	34.813	.071	94.007	.538	37.936	.381	25.103	.913
Price	51.664	.770	29.835	.190	59.373	.999	30.782	.715	29.211	.781
Service Distribution	33.875	.522	22.817	.063	31.753	.996	19.659	.543	19.941	.525
Promotion	93.352	.251	37.204	.324	121.721	.804	49.853	.519	64.106	.103
People	70.070	.083	35.776	.032*	44.030	.999	43.250	.109	33.037	.465
Physical Evidence	97.461	.006*	25.204	.507	161.928	.000*	36.820	.570	42.671	.316
Process	53.111	.355	43.966	.002*	106.109	.027*	35.374	.229	32.674	.337
Productivity &Quality	81.530	.034*	20.787	.651	146.737	.001*	37.060	.420	22.897	.956
Health	63.924	.089	14.202	.820	149.786	.000*	26.358	.657	35.255	.233

* There is a significant relationship at the 0.05 level ($P<0.05$)

Table 3 shows results of the Chi-Square statistical test using the Crosstab method in the SPSS program at the statistical significance level .05. It found that People strategies had a statistically significant correlation at the .05 level with tourists' behavior in purchasing products and services through digital media in terms of devices used to surf the internet. Physical Evidence strategy had a statistically significant correlation at the .05 level with the purchase behavior of tourists via digital media in terms of frequency of purchase of yoga courses per month and digital channel usage behavior. The process strategy had a statistically significant correlation with the device behavior used in internet usage and behavior in using digital channels. Productivity and efficiency strategies had a statistically significant correlation at the .05 level with tourists' behavior in purchasing products and services via digital media in terms of frequency of purchasing yoga courses per month and the behavior of using digital channels. In addition, it was found that Health strategies in the New Normal era and behavior in using digital channels had a statistically significant correlation at the .05 level. Results of analysis of differences between personal factors on the level of opinions regarding marketing strategies. Table 4 shows results of the analysis of differences between personal factors on the level of opinions regarding marketing strategies found that different genders have different effects on the level of opinions regarding price that are significantly different at the .05 level. Females consider pricing strategies more than males.

3. Tourists' perspectives on digital marketing in deciding to choose yoga tourism services in the new normal era

An overall score of tourists' perspectives on digital marketing for yoga tourism in the new normal era was at a high level ($\bar{x}$ = 3.96). When considering the results of each aspect, it was found that tourists had the highest decision-making perspective on purchasing online yoga courses ($\bar{x}$ = 4.02). This is followed by customer relations ($\bar{x}$ = 3.99), content marketing ($\bar{x}$ = 3.98), social media marketing ($\bar{x}$ = 3.93), and store information search ($\bar{x}$ = 3.91), respectively.

Table 4. An analysis of differences between personal factors on the level of opinions regarding marketing strategies

Marketing strategies	**Genders**		**Ages**		**Education Levels**		**Incomes**		**Careers**	
	t	**sig**	**F**	**sig**	**F**	**sig**	**F**	**sig**	**F**	**sig**
Product & Service	-1.092	.276	1.406	.240	0.896	.443	1.375	.250	1.762	.106
Price	-2.232	.026*	1.006	.390	0.218	.884	0.498	.684	1.277	.267
Service Distribution	-1.724	.086	1.017	.385	0.233	.873	0.351	.789	1.913	.077
Promotion	-1.869	.062	1.388	.246	0.082	.970	0.46	.711	2.396	.028
People	-1.644	.101	1.091	.353	0.144	.934	1.063	.365	1.475	.185
Physical Evidence	-1.353	.177	0.644	.587	0.485	.693	0.604	.613	1.447	.195
Process	-1.336	.182	0.576	.631	0.089	.966	0.906	.438	1.012	.417
Productivity& Quality	-0.727	.468	0.421	.738	0.118	.950	1.728	.161	1.808	.096
Health	-0.833	.405	0.721	.540	0.291	.832	1.656	.176	1.637	.136

* There is a significant relationship at the 0.05 level ($P<0.05$)

Table 5. Tourists' perspectives on digital marketing in deciding to choose yoga tourism services

No	**Marketing Strategies**	$\bar{x}$	**S.D.**	**Opinion Levels**
	Content Marketing			
1	Presenting useful content about products and services	3.98	0.81	High
2	Visual communication or visual storytelling	3.98	0.79	High
3	Short graphic presentation, concise and easy to understand	3.99	0.81	High
4	Presenting content that is both informative and entertaining at the same time.	3.97	0.79	High
	Customer Relationship			
1	Received news or promotions through digital media and was interested.	3.96	0.77	High
2	Received benefits through digital media and was impressed.	4.03	0.79	High
3	Receive information about products and services and purchase products and services through digital media.	3.98	0.76	High
4	Able to communicate with a yoga staff quickly and easily	4.00	0.80	High
	Search Engine Optimization			
1	You often click on yoga name lists that are at the top of the list.	3.90	0.78	High
2	You feel that the yoga names' lists on the front page is trustworthy.	3.97	0.82	High
3	You tend to click on websites with short and descriptive names.	3.89	0.81	High
4	You often click on websites that have ads on Google.	3.88	0.84	High
	Social Media Marketing			
1	You often follow various social media fan pages to receive yoga information.	3.88	0.81	High
2	You feel that social media is a convenient, fast way to update information.	3.98	0.75	High
3	You are interested in advertisements or product promotions on social media.	3.94	0.79	High
4	You often use various social media to find information about a yoga course.	3.93	0.81	High
	Online Purchase			
1	You often use various social media to find information and buy a yoga course.	4.00	0.75	High
2	You compare information about yoga products and services, reliability, price, and promotions to choose the best option.	4.05	0.74	High
3	You choose online channels to purchase products and services because they meet your needs and are convenient.	4.06	0.75	High
4	You often criticize the experiences you receive after purchasing products and services.	3.96	0.75	High

Table 5 shows that when considering tourists' perspectives on digital marketing in each aspect, it was found that all scores was at a high level. 1) Content Marketing found that most respondents agreed that question 3 had the highest score ($\bar{x}$ = 3.99), followed by questions 1 and 2 ($\bar{x}$ = 3.98), and the least was question 4 ($\bar{x}$ = 3.97). 2) Customer Relationship found that most respondents agreed that question 3 had the highest score ($\bar{x}$ = 4.03), followed by question 4 ($\bar{x}$ = 4.00), and the least was question 1 ($\bar{x}$ = 4.96). 3) Search Engine Optimization found that most respondents agreed that question 2 had the highest score ($\bar{x}$ = 3.97), followed by question 1 ($\bar{x}$ = 3.90), and the least was question 4 ($\bar{x}$ = 3.88). 4) Social Media Marketing found that most respondents agreed that question 2 had the highest score ($\bar{x}$ = 3.98), followed by question 3 ($\bar{x}$ = 3.94), and the least was question 1 ($\bar{x}$ = 3.88). Finally, 5) Online Purchase found that most respondents agreed that question 3 had the highest score ($\bar{x}$ = 4.06), followed by question 2 ($\bar{x}$ = 4.05), and the least was question 4 ($\bar{x}$ = 3.96).

Table 6. Chi-Square test of Tourists' perspectives on digital marketing in deciding to choose yoga tourism services

Marketing strategy	**Purchase behaviors of goods and services via digital media**									
	Frequency of purchases		**Devices**		**Digital Channels**		**Prices**		**Reasons**	
	X^2	P	X^2	P	X^2	P	X^2	P	X^2	P
Content Marketing	90.014	.054	29.938	.366	172.441	.000*	49.529	.198	37.155	.683
Customer relations	69.161	.339	28.597	.330	135.239	.021*	39.496	.448	36.941	.564
Searching for store info	74.535	.493	43.191	.056	199.803	.000*	43.959	.516	39.073	.720
Social media marketing	55.106	.804	20.486	.767	86.098	.899	36.814	.570	37.395	.543
Buying an online yoga course	53.933	.696	31.689	.135	54.508	.999	34.687	.531	32.660	.628

* There is a significant relationship at the 0.05 level ($P<0.05$).

Table 6 shows results of the analysis using the Chi-Square test using the Crosstab method in the SPSS program at the statistical significance level of .05. The results found that the behavior of purchasing products and services through digital media in terms of using digital channels has a significant statistical relationship at the .05 level with the content marketing, customer relations, and searching for store information.

4. Digital Marketing Medias Development

The interviews with 20 yoga entrepreneurs found that 80% of content on the yoga websites is in English only, 15 % of the websites use English and Thai which are Ananda Yoga and Detox Center, AUM Sound Healing Center and Orion Healing Center. There is only one website which is Hatha Yoga Academy (5%) where English is used along with Russian. A researcher team had developed a yoga website of Koh Phangan District using WordPress software packages. The website helps promote yoga in Koh Phangan District and attracting more Thai tourists to visit yoga health tourism. The research team used English content information available on the digital media of each entrepreneur to analyze, synthesize and write content in Thai to communicate with Thai tourists. The website "https://yogakohphangan.com" consists of 3 main parts: 1) The homepage consists of a slideshow of 20 yoga establishments (Figure 7). 2) The yoga page (Figure 8) consists of an introduction to 20 yoga establishments by readers interested in the details of each establishment can press a "Read more" button. 3) The tourism page consists of introducing interesting tourist attractions and various activities that they could visit while traveling to Koh Phangan Surat Thani Province. Readers who are interested in the details of each establishment can press the "Read more" button.

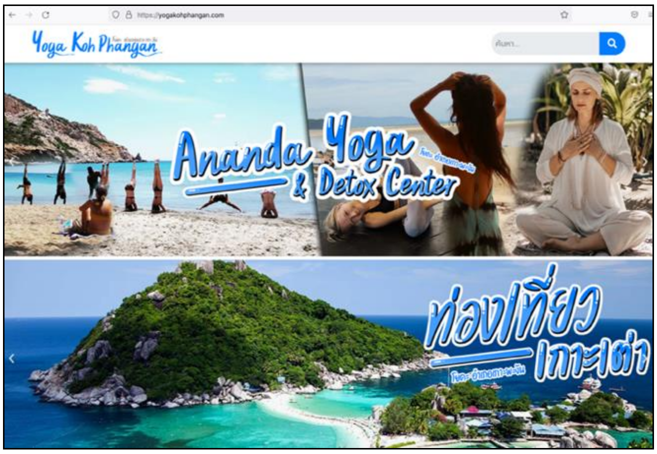


Figure 7. Image slideshow of the yoga establishment (Kho Phangan, 20 November 2021)

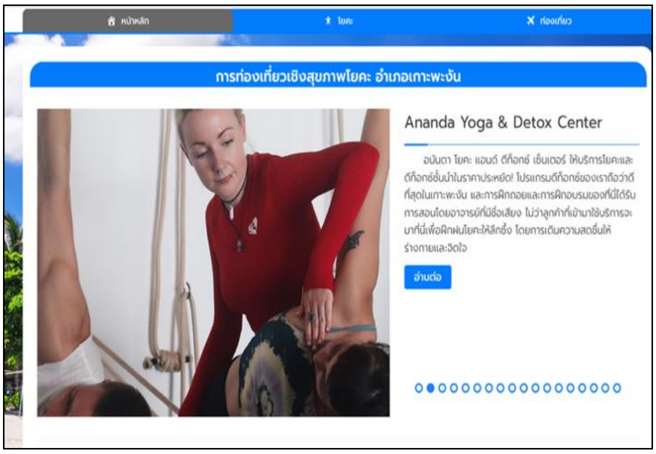


Figure 8. Introduces each yoga establishment (Kho Phangan, 20 November 2021)

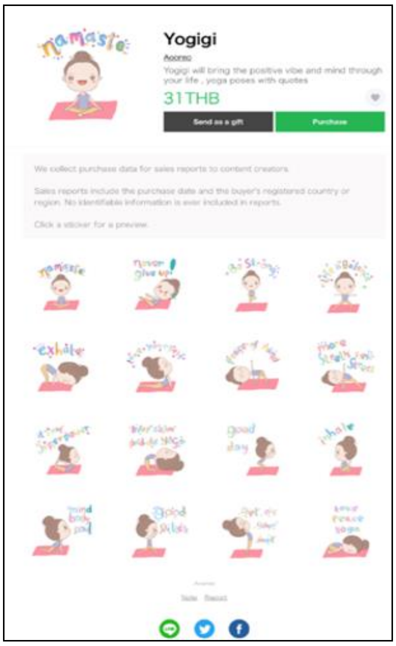


Figure 9. LINE Sticker
Source: authors2023

Figure 10. Animated GIF images
Source: authors 2023

Figure 11. A sample of using GIF image (Kho Phangan, 20 November 2021)

As the results LINE application was the one that Thai tourists use in daily life. Therefore, the research team decided to development a sticker set on the LINE Yoga apparel application, is named "Yogigi", totaling 16 images that have been considered for distribution in the LINE Store (Figure 9). This sticker set uses yoga poses as the highlight of female cartoon characters and use positive verbal messages. To help promote positive energy and a calm mind according to yoga science. Users can download LINE stickers images by searching for the name of the “Yogigi” sticker in the LINE Sticker Shop system or via the link that has provided: https://store.line.me/stickershop/product/19666512/th. Animated .gif images were developed by researchers for use in Stories in Facebook and Instagram applications under a set of images called “Yogakogphangan” where users can call up this set of GIF animations (Figure 10) and apply them to use onto the photo (Figure 11).

DISCUSSION

The behavior of purchasing yoga health products and services through digital marketing channels of Thai yoga health tourists found that most tourists (52%) use Facebook to purchase goods and services, which corresponds to a report on the behavior of internet users in Thailand in 2022 (Ministry of Digital Economy and Society, 2022). It was reported that Facebook is the social media that Thais use the most (95%), followed by LINE (92.8 %) and the device Thais use most to access the internet is a mobile phone. Tourists' behavior in purchasing yoga courses in terms of frequency of purchasing yoga courses found that most purchase yoga courses 1-2 times per month (31%) and purchase yoga courses at a price not exceeding 500 baht per time. This is different from the 1,001 - 3,000 baht found by the research of Changsarn and Kaewprommal (2020) at the beginning of the COVID-19 outbreak. The current study was during the later stages of the COVID-19 outbreak when the economic impact is more pronounced and may result in lower incomes. Most tourists (45%) are of the opinion that buying a yoga course through digital media is cheaper than buying a course in the market. This point can be used to help determine and plan pricing strategies for marketing through digital media in digital channels e.g., Flash Sale, give discount coupons or gift vouchers, etc. The top three important marketing strategies are 1) personnel strategy, 2) marketing promotion strategy, and 3) Health strategy in the new normal era. This may be because important personnel in yoga training centers include yoga teachers who oversee the training and must be reliable, professionalism, have experiences and must have a teaching certificate. This is consistent with Laptawee and Kongsawatkiat (2016) and Tanchote (2020) showed that the important characteristics of a yoga teacher are knowledge and ability to teach yoga well, pay attention to students and have a good personality. In addition, publicizing information and organizing marketing promotional activities to adequately reach Thai tourists will influence tourists' decision to choose services. Moreover, health strategies in the new normal era affect the decision to choose yoga tourism services. Due to the outbreak of COVID-19, tourists must be more mindful of standards for protection and health. Therefore, Health strategy factors in the new normal era are important issues affecting tourists' decision to choose services in the new normal era. In this respect, it differs from existing research. Most research studies yoga marketing strategies during normal situations (Tanchote, 2020; Telej and Gamble, 2019; Sharma and Nayak, 2019; Laptawee and Kongsawatkiat, 2016) that are not during the COVID-19 epidemic.

When planning marketing strategies for yoga tourism marketing, marketers should consider planning and adjusting strategies to suit the situation and period. Tourists have the top three opinions on deciding to use yoga tourism services:

1) deciding to purchase an online yoga course, 2) customer relations, and 3) content marketing.

In digital marketing, it is important to make the decision to purchase a yoga course through online channels because the online channels meet the needs and convenience of consumers. Buyers can compare product and service information, reliability, prices, and promotions to get the best choice. This is consistent with Wahyuningsih et al. (2022) stated that from a traveler's perspective, digital marketing should focus on building relationships with customers. This is because contacting customers and creating good relationships with customers will result in increased sales. Proving easy to understand graphical content and present useful content for products or services, etc. (Tesaniratsai, 2020).

Most of yoga businesses in Koh Phangan have very little publicity in Thai. As a result, yoga information may not be accessible to Thai tourists thoroughly. Therefore, the researchers developed the website in Thai to help promote yoga health tourism in Koh Phangan District, Surat Thani Province. The development of stickers on the LINE application of yoga series is called "Yogigi". In addition, LINE stickers help to promote the corporate communication image. It also saves on advertising costs compared to other forms of media. It is consistent with Liao and Hsu (2020) and Liu et al. (2019) who pointed out the interaction behavior of LINE stickers in creating links between sticker behavior and business activities. LINE stickers play a role as social media in bridging the gap between organizations and potential customers and enabling them to retain loyal customers. LINE stickers with product images have an impact on brand image and a longer period of use can attract consumers better. The brand image affects the attitude towards the brand, brand engagement, and product purchase intention. In addition, animated .gif images were developed for use in Stories in Facebook and Instagram applications under a set of images called “Yogakogphangan”. Users can call up the set of GIF animations and apply them to post on Facebook and Instagram stories. It is in line with Teague, 2023 and Storrito.com , 2023) who revealed that GIFs are great for marketing because they enable natural, real-time responses and can add personality to create a brand identity. The yoga businesses can use GIFs as part of their marketing strategy to make stories posted on Stories more engaging.

CONCLUSION

In summary, yoga entrepreneurs at Koh Phangan District, Surat Thani have no problem marketing online to foreign tourists. However, the yoga entrepreneurs are not focusing on marketing to Thai tourists as they should during COVID-19 situation. Therefore, this research will be extremely beneficial to entrepreneurs helping in planning marketing to meet the needs of Thai tourists. Yoga entrepreneurs could use the results of this study as a guideline to develop marketing strategies and digital marketing that are appropriate and meet the needs of Thai tourists. Thai tourists’ overall perspectives on yoga digital marketing had the highest score on purchasing online yoga courses, customer relations, and store information search, respectively. Digital marketing strategies to promote yoga tourism were Product and Service, Price, Place, Promotion, People, Physical Evidence, Process, Productivity and Quality, and Health concern. A development of “https://yogakohphangan.com” helps promote Thai tourism instead of just waiting for foreign markets. The development of stickers on the LINE application called "Yogigi" was developed by the research team to help promote marketing and reach consumers directly. A development of animated .gif images called “Yogakogphangan” was developed by the research team to help promote marketing on Facebook and Instagram stories. The animated .gif images can add personality to create a brand identity.

IMPLIMENTATION

The yoga entrepreneurs in Kho Phangan could apply the results of behavior of Thai tourists for choosing yoga services to their own yoga activities to meet the exact needs of Thai tourists. The research results help guide the development digital marketing medias to promote yoga tourism for more Thai tourists to practice yoga in Koh Phangan, Surat Thani Province, instead of targeting only foreign tourists. When more tourists come to practice yoga in Koh Phangan, entrepreneurs will have more income, also to distribute income to other businesses on Koh Phangan, such as accommodations, restaurants, etc. Confidence in SHA safety standards result in more tourists who want to come and practice yoga on Koh Phangan.

Author Contributions: Conceptualization, K.A. and P.P.; methodology, P.P. and K.A.; software, P.P. and K.A.; validation, T.D and K.A.; formal analysis, T.D. and P.P.; investigation, T.D., P.P. , K.A.; data curation, K.A., P.P. and T.D.; writing - original draft preparation, K.A. and P.P.; writing - review and editing, K.A. and P.P., T.D.; visualization, T.D. and P.P.; supervision, K.A.; project administration, K.A. All authors have read and agreed to the published version of the manuscript.

Funding: Suratthani Rajabhat University.

Institutional Review Board Statement: This research was approved by the Ethics committee No. SRU-EC2021/065.

Informed Consent Statement: The participants have been asked to read the consent form carefully. If they agreeed with the consent form, then they have asked to sing the form.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research team would like to thank Suratthani Rajabhat University for supporting the research fund for conducting this research. We would like to thank all the contributors for their valuable time in providing valuable information for the research. Thank you to the experts for suggesting this research. Finally, I would like to thank my friends and family for their help in doing research and encouragement all along.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Ali-Knight, J., & Ensor, J. (2017). Salute to the Sun: An Exploration of UK Yoga Tourist Profiles. *Tourism Recreation Research,* 42(4), 484-497. https://doi.org/10.1080/02508281.2017.1327186

Aaker, D. (2016). *The Four Faces of Digital Marketing*. https://www.ama.org/publications/MarketingNews/Pages/the-four-faces-ofdigital- marketing.aspx

Armutcu, B., Tan, A., Amponsah, M., Parida, S., & Ramkissoon, H. (2023). Tourist Behaviour: The Role of Digital Marketing and Social Media. *Acta Psychologica*, 240 (2023) 104025, 1-15. https://doi.org/10.1016/j.actpsy.2023.104025

Askegaard, S., & Eckhardt, G.M. (2012). Glocal yoga: re- appropriation in the Indian consumptionscape. *Marketing Theory*, 12(1), 45-60.

Booms, B., & Bitner, M. (1981). Marketing strategies and organization structures for service firms. (J. G. Donnelly, Ed.) *Marketing of Services*, 47-51.

Bostanshirin, S. (2014). Online Marketing: Challenges and Opportunities. In *Proceedings of SOCIOINT14- International Conference on Social Sciences and Humanities.*

Changsarn, N., & Kaewprommal, C. (2020). *ปัจจัยที่มีผลต่อการตัดสินใจซื้อคอร์สเรียนโยคะของผู้บริโภคในเขตกรุงเทพมหานคร [Factors Affecting Consumers' Decision to Purchase Yoga Courses in Bangkok]. Journal of the Association of Researchers, 25*(3), 147- 161. (in Thai)

Cristobal-Fransi, E., Daries, N., del Río-Rama, M.C., & Fuentes-Tierno, M.G. (2023). The Challenge of Digital Marketing on Health Tourism: The Case of Spanish Health Resorts. Qual Quant. https://doi.org/10.1007/s11135-023-01744-2

Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika* 16, 297–334. https://doi.org/10.1007/BF02310555

Dillette, A.K., Douglas, A.C., & Andrzejewski, C. (2019). Yoga tourism – a catalyst for transformation*?. Annals of Leisure Research,* 22(1), 22-41. https://doi.org/10.1080/11745398.2018.1459195

Djakasaputra, A., Wijaya, O., Utama, A., Yohana, C., Romadhoni, B., & Fahlevi, M. (2021). Empirical study of Indonesian SMEs sales performance in digital era: The role of quality service and digital marketing. *International Journal of Data and Network Science,* 5(3), 303-310. http://dx.doi.org/10.5267/j.ijdns.2021.6.003

Dutt, B., & Selstad, L. (2021). The wellness modification of yoga in Norway. *International Journal of Spa and Wellness*, 5:1, 33-49. https://doi.org/10.1080/24721735.2021.1948274

Gan, L.L., & Frederick, J.R. (2018). The choice of facilitators in medical tourism. *Health Marketing Quarterly,* 35(1), 65-83. https://doi.org/10.1080/07359683.2018.1434891

Global Wellness Institute. (2021). *The Global Wellness Economy: Looking Beyond COVID.* https://globalwellnessinstitute.org/wp-content /uploads/2021/11/GWI-WE-Monitor-2021_final-digital.pdf

Gutierriz, I., Ferreira, J.J., & Fernandes, P.O. (2023). Digital transformation and the new combinations in tourism: A systematic literature review. *Tourism and Hospitality Research,* 0(0), 1-20. https://doi.org/10.1177/14673584231198414

Jarusen, J. (2021). *กลยุทธ์ทางการตลาดของธนาคารพาณิชย์บนบริบทของเทคโนโลยีเพื่อตอบสนองการทำธุรกรรมทางการเงิน [Marketing Strategy of Commercial Bank in Terms of Technology for Financial Transactions].* Journal of Arts Management, 5(3), 544–558 (in Thai).

Kanket, K. (2019). Video marketing Ep.01: *อัปเดตสถิติ Video Marketing สำหรับปี 2019 ที่นักการตลาดไม่ควรพลาด [Video marketing Ep.01: Updated Video Marketing Statistics for 2019 that Marketers Should Not Miss].* (Steptraining.co). https://stepstraining. co/content/video-marketing-ep-01-stat-2019 (in Thai).

Kaur, G. (2017). The Importance of Digital Marketing in the Tourism Industry. *International Journal of Research - GRANTHAALAYAH*, 5(6), 72-77. https://doi.org/10.5281/zenodo.815854

Kerdpitak, C. (2022). Marketing Effectiveness Model of Tourism Business in Thailand. *Journal of Hunan University (Natural Sciences)*, 49(4), 77- 85. https://doi.org/10.55463/issn.1674-2974.49.4.9

Komeil, H.A.M. (2021). Kemetic Yoga Tourism: A study of marketing strategies in Egypt. *Athens Journal of Tourism* 8(3), 193–212. https://doi.org/10.30958/ajt.8-3-4

Kotler, P., & Armstrong, G. (2012). *Principles of Marketing* 14thed. Prentice-Hall.

Kotler, P., Kartajaya, H., & Setiawan, I. (2019). Marketing 3.0: From Products to Customers to the Human Spirit. In: *Kompella, K. (eds) Marketing Wisdom. Management for Professionals. Springer*, Singapore. https://doi.org/10.1007/978-981-10-7724-1_10

Kwangsawad, A., & Jattamart, A. (2022). **การศึกษาปัจจัยต่อการสื่อสารทางการตลาดออนไลน์ผ่านแอปพลิเคชันไลน์ที่ส่งผลต่อการตัดสินใจซื้อสินค้าโอทอป** *[The Study of Factors Influencing Online Marketing Communication via Line Application to OTOP Products Purchasing Decisions]*. *Journal of Yala Rajabhat University*, 17 (1), 20-28 (in Thai).

Laptawee, N., & Kongsawatkiat, K. (2016). ***พฤติกรรมและส่วนประสมทางการตลาดบริการที่ส่งผลต่อการเลือกใช้บริการโยคะของเพศหญิงวัยทำงานในเขตกรุงเทพมหานครและปริมณฑล*** *[Behavior and Marketing Mix that Influence Service Selection of Yoga. Of the Female Working Age in Bangkok Metropolitan Region]*. *Journal of Management Science*, Nakhon Pathom Rajabhat University, 3(1), 80-90 (in Thai).

Lata, S. (2017). *The Design and Development of Sticker Lines to Public relations for Maha Sarakham Province*. Rajabhat Maha Sarakham University. (in Thai). http://research.rmu.ac.th/rdi-mis//upload/fullreport/1607007103.pdf

Lehto, X.Y., Brown, S., Chen, Y., & Morrison, A.M. (2006). Yoga Tourism as a Niche Within the Wellness Tourism Market. *Tourism Recreation Research*, 31(1), 25-35. https://10.1080/02508281.2006.11081244

Liao, S.H., & Hsu, S.Y. (2020). Big Data Analytics for Investigating Taiwan Line Sticker Social Media Marketing. *Asia Pacific Journal of Marketing and Logistics*, 32(2), 589-606. https://doi.org/10.1108/APJML-03-2019-0211

Liu, S.F., Liu, H.H., Chang, J.H., & Chou, H.N. (2019). Analysis of a New Visual Marketing Craze: The Effect of LINE Sticker Features and User Characteristics on Download Willingness and Product Purchase Intention. *Asia Pacific Management Review*, 24,(3), 263-277. https://doi.org/10.1016/j.apmrv.2018.10.001

Lyengar, B.K., & Rivers-Moore, D. (1989). The tree of yoga: Yoga Vṛkṣa. Boston: Shambhala.

Ministry of Digital Economy and Society. (2022). ***รายงานผลการสำรวจพฤติกรรมผู้ใช้อินเทอร์เน็ตในประเทศไทย*** *ปี 2565 [Thailand Internet User Behavior 2022]*. (in Thai). https://www.etda.or.th/getattachment/78750426-4a58-4c36-85d3-d1c11c3db1f3/IUB-65-Final.pdf.aspx

Ministry of Tourism and Sports. (2020). *COVID-19 กับผลกระทบต่อการท่องเที่ยวไทย [COVID-19 and the Impact on Thai Tourism]*. https://www.mots.go.th/(in Thai).download/TourismEconomicReport/4-1TourismEconomicVol4.pdf (in Thai)

Nofal, M.I., Al-Adwan, A.S., Yaseen, H., & Alsheikh, G.A.A. (2020). Digital marketing effect to intention to domestic tourism during COVID-19 in Jordan. *Periodicals of Engineering and Natural Sciences*, 8(4), 2471–2483. https://doi.org/10.21533/pen.v8i4.1754

Rovinelli, R.J., & Hambleton, R.K. (1977). On the Use of Content Specialists in the Assessment of Criterion-Referenced Test Item Validity. *Tijdschrift Voor Onderwijs Research*, 2, 49-60.

Rungsimanop, P., & Ashton, A.S. (2021). The influence of the components of yoga destination development toward tourist satisfaction and revisit intention. *Journal of Tourism, Hospitality & Culinary Arts*, 13(3), 158-179.

Sharma, P., & Kumar Nayak, J. (2019). Examining event image as a predictor of loyalty intentions in yoga tourism event: A mediation model. *Journal of Convention & Event Tourism*, 20(3), 202-223. https://doi.org/10.1080/15470148.2019.1633721

Soluk, J., Miroshnychenko, I., Kammerlander, N., & De Massis, A. (2021). Family influence and digital business model innovation: the enabling role of dynamic capabilities. *Entrepreneurship Theory and Practice*, 45(4), 867-905. https://doi.org/10.1177%2F10422587 21998946

Storrito.com. (2023). *Instagram Stories: Why businesses should start including GIFs in their stories now*. https://storrito.com/resources/instagram-stories-gifs/

Tanchote, A. (2020). ***ปัจจัยส่วนประสมทางการตลาดที่มีผลต่อการตัดสินใจเลือกใช้บริการสถานประกอบการกิจการด้านการออกกำลังกายเพื่อสุขภาพ*** *[Marketing mix factors influencing the decision of fitness center for health]*. *Journal of Graduate Studies and Social Sciences*, Uttaradit Rajabhat University, 10(2), 119-135 (in Thai).

Teague, L. (2023). *The Ultimate Guide to Using GIFs in Marketing. convinceandconvert.com*. .https://www.convinceandconvert.com/content-marketing/how-to-use-gifs-in-marketing/

Telej, E., & Gamble, J.R. (2019). Yoga wellness tourism: a study of marketing strategies in India. *Journal of Consumer Marketing*, 36(6), 794-805. https://doi.org/10.1108/JCM-07-2018-2788

Tesaniratsai, W. (2563). ***กลยุทธ์ทางการตลาดเพื่อรองรับมาตรฐาน ไทยแลนด์*** *4.0 [Marketing Strategies to Support Thailand 4.0 Standards]*. Western University Research Journal of Humanities and Social Sciences, 6(2), 232- 243 (in Thai).

Thewtanom, T. (2022). The Effective of Digital Marketing to SMEs Business in Thailand. *Asia Pacific Journal of Religions and Cultures*, 6(1), 79-93. https://so06.tci-thaijo.org/index.php/ajrc/article/view/256354

Wahyuningsih, W., Suparman, S., Bachri, S., & Muzakir, M. (2022). The marketing strategy for tourism industry post Covid-19 pandemic. *Proceedings of the 2021 Tadulako's International Conference on Social Sciences (TICoSS 2021)*, 674 (TICoSS 2021), 1–4. https://doi.org/10.2991/ assehr.k.220707.001

Varadarajan, R. (2010). Strategic marketing and marketing strategy: domain, definition, fundamental issues and foundational premises. *J. of the Acad. Mark. Sci*, 38, 119–140. https://doi.org/10.1007/s11747-009-0176-7

Velentza, A., & Metaxas, T. (2023). The Role of Digital Marketing in Tourism Businesses: An Empirical Investigation in Greece. *Businesses*, 3(2), 272–292. https://doi.org/ 10.3390/businesses3020018

Wongcharoenkul, S., & Suntrayuth, S. (2023). Tourism Service Management and Senior Foreign Travelers's Behavior in Thailand. *Rajabhat Chiang Mai Research Journal*, 24(1), 52-71. https://doi.org/10.57260/rcmrj.2023.260674

Yamane, T. (1976). *Statistics an introductory analysis* (2nd ed.). New York: Harper & Row.

Zhang, D., Saengon, P., Pungnirund, B., & Kortana, T. (2022). Influence of Digital Marketing, Image, and Decision Making on the Loyalty of Chinese Tourists Visiting Thailand. *Journal of Positive School Psychology*, 6(2), 2982–2998. https://journalppw.com/index.php/jpsp/article/view/2026

Zeithaml, V.A., Bitner., M.J., & Gremler., D.D. (2006). *Services Marketing: Integrating Customer Focus Across the Firm*. McGraw-Hill/Irwin.

Zhu, B., Kowatthanakul, S., & Satanasavapak, P. (2019). Generation Y consumer online repurchase intention in Bangkok: based on Stimulus-Organism- Response (SOR) model. *International Journal of Retail & Distribution Management*, 48(1), 53–69. https://doi.org/10.1108/IJRDM-04-2018-0071

Article history: Received: 11.08.2023 Revised: 17.09.2023 Accepted: 24.10.2023 Available online: 04.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1411-1429
DOI 10.30892/gtg.50422-1140

TOWARDS THE DEVELOPMENT OF ECOTOURISM IN THE OULED-NAIL MOUNTAINS: A CASE STUDY OF THE DJELFA MUNICIPALITY IN ALGERIA

Sami Ahmed RABEHI*

USTHB (HouariBoumediene Sciences and Technology University), Department of Geography and Territorial Planning, Geomorphology &Geohazards Laboratory (G&G), Algiers, Algeria, e-mail: rsamy2007@yahoo.fr /srabehi@usthb.dz

Mohamed A. REZZAZ

USTHB (HouariBoumediene Sciences and Technology University), Department of Geography and Territorial Planning, Geomorphology &Geohazards Laboratory (G&G), Algiers, Algeria, e-mail: drezmas@yahoo.fr

Louardi KHERROUR

USTHB (HouariBoumediene Sciences and Technology University), Department of Geography and Territorial Planning, Cities, Regions & Territorial Governance Laboratory, Algiers, Algeria, e-mail: louardi.kherrour@yahoo.fr

Khalil SOUIHER

University of Sciences and Technologies HouariBoumediene, Department of Geography and Spatial Planning, Laboratory of Geomorphology and Geohazards, Algiers, Algeria, e-mail: khalidip@live.com

Citation: Rabehi, S.A., Rezzaz, M.A., Kherrour, L., & Souiher, K. (2023). TOWARDS THE DEVELOPMENT OF ECOTOURISM IN THE OULED-NAIL MOUNTAINS: A CASE STUDY OF THE DJELFA MUNICIPALITY IN ALGERIA. *GeoJournal of Tourism and Geosites*, 50(4), 1411–1429. https://doi.org/10.30892/gtg.50422-1140

Abstract: Algeria's tourism sector plays a critical role in its economy, especially as the country faces an economic crisis due to its reliance on fossil fuels. However, despite its potential, the tourism industry has remained limited to coastal and desert tourism in the north and south, respectively. Therefore, diversifying the tourism product by exploring inland regions is necessary to restore regional balance and create geographical homogeneity. Djelfa, a city located in the central highlands of the Atlas Mountains, offers unique natural resources and cultural heritage, making it an ideal destination for ecotourism. This study evaluates the potential of Djelfa for tourism planning purposes, using scientific documentation, field survey techniques, and analytical methods like SWOT analysis. In addition, a survey was conducted amongst tourists to collect their opinions on the city's attraction characteristics. The data was processed using principal component analysis (PCA) in SPSS software. The study emphasizes the importance of tourism planning in the area and proposes suitable tourism projects for ecotourism and investment in the Senelba forest site. These projects will positively influence the environment, local population, and lead to real development at the local and national levels while preserving the area's cultural and natural heritage.

Key words: Djelfa, Senalba forest, ecotourism, desert regions, natural and cultural heritage, local development, tourism development

* * * * * *

INTRODUCTION

Tourism is considered one of the fastest-growing industries in the world, as it is among the most vital economic sectors that contribute to providing hard currency and enhance local development by creating job opportunities and attracting investors (Boulhila et al., 2022). The interest in this activity has increased because of competition between tourist destinations, technological development, transportation development, and the reduction of effort and time. Tourism faces issues due to its incompatibility with the local environment and communities (McCool, 1995). Based on the report of United Nation World Tourism Organization, ecotourism covers 10-15% of the tourism industry share (Nigatu and Tegegne, 2021).

By its nature ecotourism relied on natural resources and the driving force of environmental education, conservation of local culture and natural environment, ensure economic benefit of the local and the sustainable development of the areas (Golubeva et al., 2016). Ecotourism is essential for developing countries as it generates income and protects the environment and cultural heritage (Tardif, 2003). It is considered one of the most important forms of modern tourism and makes up about 20% of international tourism (Self et al., 2010). Ecotourism activities can be conducted through individual visits to geological sites or guided tours (Newsome and Dowling, 2010), as well as geotourism itineraries (Newsome et al., 2012). Geosites represent a valuable asset for local communities, providing them with opportunities to enhance their economy by capitalizing on their geodiversity, biodiversity, and culture (Lazzari et al., 2014). Algeria possesses a strategically important geographical location due to its proximity to all global and European destinations, and it has many natural resources such as mountains, deserts, and cultural characteristics that enable it to become an excellent ecotourism destination. Moreover, Algeria has shown interest in promoting ecotourism by establishing natural reserves and joining numerous international agreements and organizations that support this sector. Despite being ranked as the fourth tourist

* Corresponding author

destination in Africa, according to the World Tourism Organization's report for 2014, it is only ranked 111th in the global tourism industry (Belkhiri, 2018). Djelfa Province is in central Algeria and has the fourth-highest population in the country.

It connects the north and south and has 36 municipalities, including Djelfa municipality, known as the capital of the desert. The region has forests that help combat desertification, and it's home to diverse plant and animal life, including the largest national sheep population. Djelfa is famous for its hospitality, openness, and cultural festivals. However, providing alternative income sources has been a challenge due to cultural and spiritual reasons (Michaelidou et al., 2002). Djelfa has archaeological sites, rock stations, and important structures, making it an ideal destination for ecotourism. Despite recording 31,604 overnight stays in hotels in 2011, including 346 by foreigners, the tourism industry has not flourished.

Most visits are for work, trade, livestock markets, or medical treatment, with few tourists visiting the region's attractions, mainly university students and researchers. This article aims to transform Djelfa from a business area with weak tourism activity to a sustainable and responsible destination that supports other economic sectors. It evaluates the region's potential and explores opportunities to address deficiencies hindering tourism. The focus is on creating a local model for ecotourism, which balances economic development and natural resource preservation (Aneseyee et al., 2022).

Ecotourism is a potential approach for addressing environmental and economic issues in many destinations (Sahani, 2019). Developing ecotourism in Djelfa can preserve its resources, protect its fragile ecosystem, and conserve its cultural heritage. In summary, this article attempts to create an organized, sustainable, responsible, and complementary tourism industry in Djelfa. Developing ecotourism is a key strategy for achieving this transformation and ensuring real sustainable development at the local and regional levels. The aim of this study is to highlight the importance of developing ecotourism in the municipality of Djelfa, by proposing strategies and guidelines for the development of this type of tourism, and achieving a balance between the exploitation of natural resources and the preservation of environmental diversity and cultural heritage. This is intended to have a positive impact on the environment and the local population, with the goal of ensuring economic sustainability and achieving genuine tourism development.

LITERATURE REVIEW

1. The role of mountain ecotourism in local development

Algeria is implementing major projects to revive its tourism industry and increase non-oil export earnings. Properly planned and managed, tourism can play a crucial role in the economic development of countries; contribute to sustainable development, environmental protection, poverty reduction, and rural exodus (UNEP Tourism, 2007). It is increasingly used as a sustainable development strategy to improve the social and economic well-being of the poorest mountainous populations and preserve cultural and natural heritage (Asker et al., 2010). Territorial communities in France have developed new forest spaces that are highly appreciated by residents(Pascal and Dodier, 2011). Encouraging community participation in development processes (Idziak et al., 2015). In 2019, the global ecotourism sector was valued at 181.1 billion US dollars. It was projected that the industry would reach 333.8 billion US dollars by 2027, with a compound annual growth rate of 14.3% (Rajashree and Madhusmita, 2023). Developing ecotourism can be an effective strategy for preserving natural resources, improving economic opportunities for local communities, and promoting sustainable development.

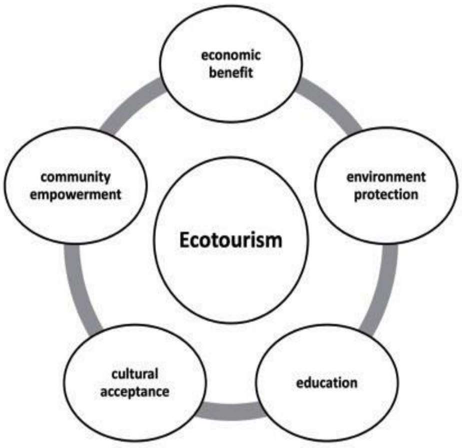


Figure 1. Five core elements of ecotourism (Source: Ties, 2012; Honey, 2008)

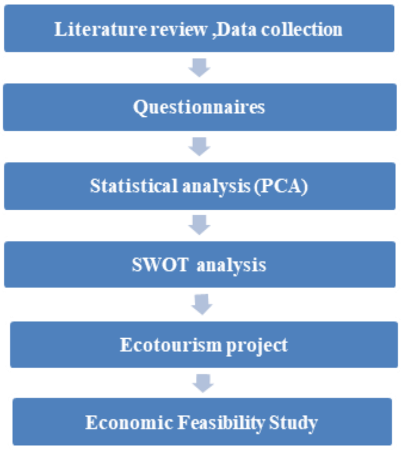


Figure 2. Flowchart illustrating the methodology adopted in this research. (Source: Authors, 2023)

2. Ecotourism in the mountains as a model for a new economic resource for the Djelfa municipality

Ecotourism involves travel and visitation for enjoying nature and culture while respecting the environment and promoting conservation (Freude, 2019). It represents a set of interests based on environmental, economic, and social concerns (Baksir, 2010). The Global Environment Facility defines it as "travel to natural areas that are not polluted and have not been disrupted in their natural balance, in order to enjoy their scenery, plants, wild animals, and civilizations of the past and present" (Blamey, 2001). Algeria is expected to direct its tourism offerings towards ecotourism, especially in mountainous areas. Ecotourism represents more than 20% of the global tourism market, but it is new to Djelfa province (SDATW, 2013). Developing ecotourism in the Senalba forest can provide employment opportunities for local people and improve their living conditions (FAO, 2013). Ecotourism links investment and productive projects with the protection of the environment, biodiversity, and culture of tourist areas. It emphasizes creative and entertaining tourist practices without affecting the environment (Temar and Kerrouche, 2020). Ecotourism aims to make various resources beneficial and useful as an economic return (Kaymaz et al., 2021). Ecotourism has emerged as a crucial element in the tourism industry for increasing environmental awareness, reducing negative effects of tourism and ensuring sustainable use of natural and cultural tourism assets (Kaymaz et al., 2021). The main aspects of ecotourism are based on five fundamental elements (Figure 1) environment protection, economic benefit, community empowerment, education, cultural acceptance (Ties, 2012; Honey, 2008).

METHODOLOGY AND OBJECTIVE OF THE STUDY

This study aims to develop ecotourism in Djelfa by highlighting its cultural and natural heritage while ensuring preservation (Julie, 2013). The goal is to revitalize tourism, enhance Djelfa's image as a destination, and protect certain areas while involving local populations (Das and Chatterjee, 2015). The study involved literature review, data collection, field visits, questionnaires, personal interviews, and gathering documentary research from various departments. We used the SWOT analysis method to assess the quantitative and qualitative potential of the study area for ecotourism (Valentin, 2001). Field surveys of tourists and visitors identified attraction characteristics and their evolution. Statistical analysis using Principal Components Analysis showed a positive relationship between ecotourism development and availability of tourism services, emphasizing the need to develop infrastructure and services (Kherrour et al., 2018). We proposed an ecotourism project for Senalba forest using ArcGIS, AutoCAD, Google Earth, and GIS Geographic Information System to ensure sustainable local and regional development. This study aims to answer the following questions:

1- How can the existing tourism potential in the Djelfa region be improved and enhanced to develop ecotourism and achieve sustainable local development?

2- What are the suitable tourism projects and facilities to develop ecotourism in the region?

1. Study area

The Djelfa municipality is located on the slopes of the Saharan Atlas in the central highlands of Algeria. It is bordered by several municipalities and is crossed by National Highway (N 1), which connects the north and south of the country. The municipality covers an area of 514.58 square kilometers and is located 300 km south of Algiers, 100 km north of laghouat, and 100 km west of Boussaada (Figure 3).

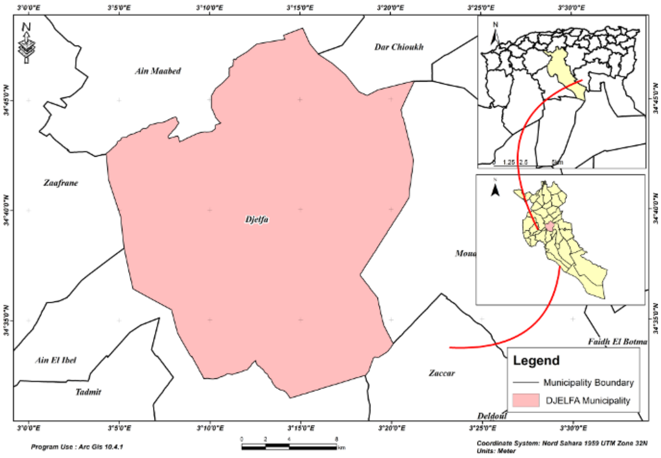


Figure 3. Location of Djelfa municipality in Djelfa Province (Source: Authors, 2023)

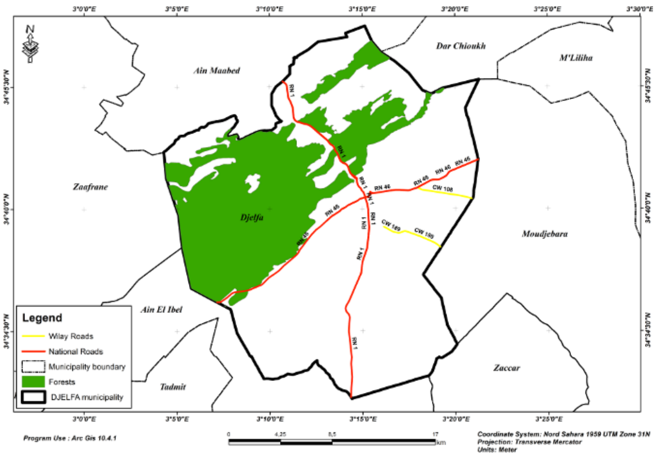


Figure 4. Forest sites in the territory of the municipality of Djelfa (Source: Authors, 2023)

Figure 5. The forest of the Senalba a – d (Source: DTA)

2. Tourism Resources of the Djelfa Municipality (2023.DTA)

A. Natural Resources

Forest Wealth: The Djelfa province has significant forest wealth, which plays a crucial role in protecting against desertification and pushing the desert northwards (Bencherif, 2010). The Senalba forest in Djelfa municipality is one of the most prominent forests in the area (Figure 4). Senalba Forest: The Senalba forest, located approximately 5 km northwest of Djelfa city, covers an estimated area of 19,500 hectares on the slopes of Mount Senalba, the primary incline of the Saharan

Atlas Mountains (Bencherif, 2010). The forest is characterized by a semi-arid zone with a cold climate, dominated by Aleppo pine, green oak, and juniper vegetation cover (Figure 5). The forest is an ideal environment for sports, relaxation, and entertainment (Figure 4.d). It was officially designated as an expanded tourist area in 1988 (Decree No. 88/232 on November 5, 1988), covers an area of 12.5 hectares, and is home to diverse wildlife, including wild boars, gazelles, rabbits, insects, reptiles, foxes, and eagles. Mount Hadjar Al-Maleh: rock salt mountain is a major géotourism attraction, featuring the world's third-largest salt mountain, towering at 100 m (Figure 6). Located approximately 30 km north of Djelfa city and 15 km from the Zahrz Plateau in the Ain Maabed municipality, it holds significant geological importance.

The site offers a captivating visual spectacle with salt formations amidst the rocky continental landscape, transitioning in colors from yellow to green, purple, and occasionally red, making it a unique destination for tourists (Figure.7)

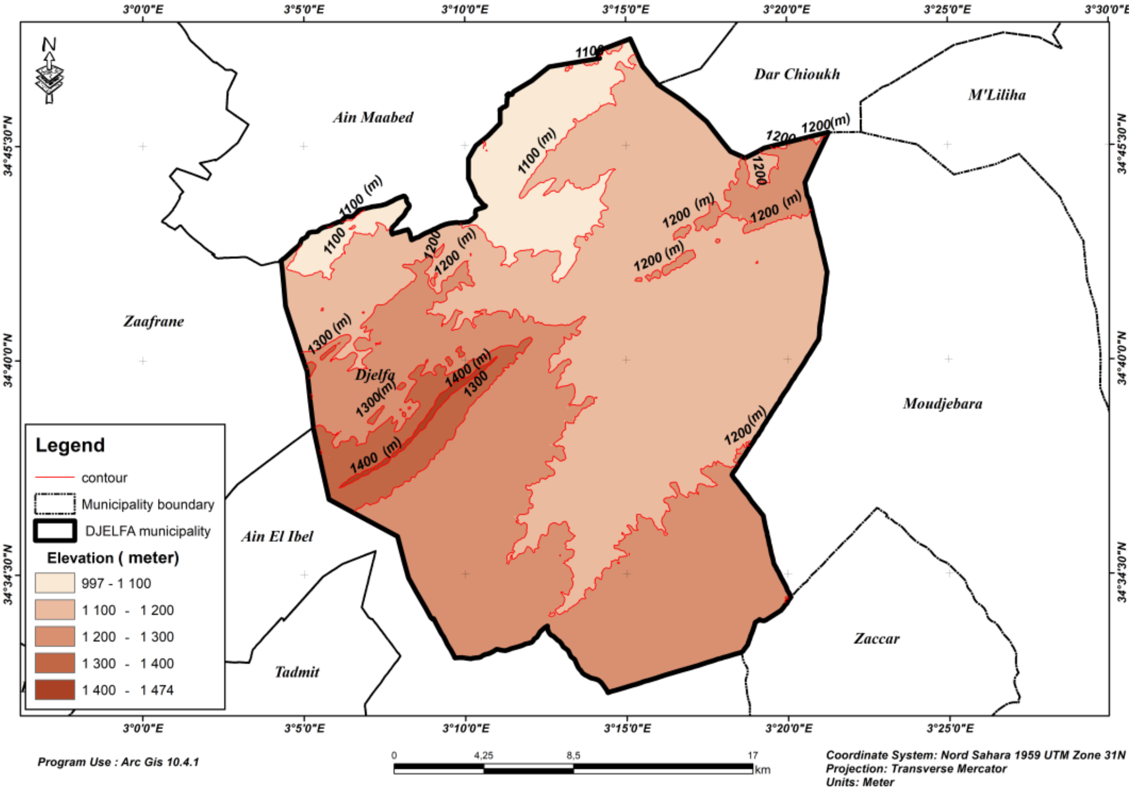


Figure 6. Elevation Map (Source: Authors, 2023)

Figure 7. Rock salt mountain (geosite), located 30 km north of Djelfa, Coordinates: 3°05'37"E34°50'00"N (Source: Authors, 2023)

Figure 8. Sand Dunes Strip (geosite), located 40 km north of Djelfa, Coordinates: 3°06'47"E34°55'12"N (Source: DTA)

Sand Dunes Strip: The Sand Dunes Strip in Djelfa is a popular destination for desert tourism, located just 250 km from the capital and conveniently adjacent to National Road N 01 (Figure 8). Situated 40 km north of Djelfa city, the sand dunes offer accessible pathways for exploration and a vast expanse of sand dunes, epitomizing the grand essence of the Sahara. Visitors can also enjoy sand baths, which offer relaxation and potential medicinal benefits for rheumatism.

The Wetland

Areas: The Eastern Chott and Western Chott are two natural wetland regions located approximately 25 km north of Djelfa city, designated as Ramsar sites in 2003 to ensure their permanent protection and preservation of their crucial roles in the economy, culture, science, and tourism. Hot Springs: Djelfa province has three notable hot springs, with Hammam Charef being the primary one located 50 km west of Djelfa city and 7 km east of the Charef municipality. Situated at an altitude of 1150 meters above sea level, it exhibits chemical and therapeutic qualities that effectively treat conditions such as rheumatism, nerve diseases, and skin ailments. This hot spring has a flow rate of 70 liters per second and maintains a water temperature of 42°C. Hunting Reserve: The hunting reserve in Djelfa is located 20 km north of Djelfa city and encompasses the Ain maabed and Dar Chioukh municipalities. Its establishment was formalized by decree No. 116/83 on February 5, 1983. The reserve covers a vast expanse of 31,886.25 hectares, comprising both natural forest and afforestation areas. Its primary purpose is to protect and conserve endangered animal species, monitor and preserve animals, conduct wildlife inventories, and undertake research and experimentation concerning predators. Visitors can immerse themselves in the reserve's natural wonders and encounter rare animal species, making it an ideal destination for ecotourism.

B. Cultural potential

Historical and Civilizational Elements: The Djelfa region is rich in historical and civilizational elements, particularly from the prehistoric and early history eras, evident through its numerous archaeological sites and rock art stations. The region has been continuously inhabited since the earliest migrations of ancient humans to North Africa during the ancient Stone Age, as documented by a substantial number of archaeological sites (Aberkane and Belkacemi, 2016). The area has 37 locations showcasing rock art, displaying remarkable diversity with a prominent focus on rock art found in the Ouled Nail mountains and its surrounding areas. Many of these sites and stations have been designated as national heritage sites due to their significance. The Ain El Naga Site: is a national heritage site classified since 1979 (Figure 9a), located approximately 33 km southeast of the provincial capital. It is in close proximity to the urban area of Ain El Naga village, which falls under the administrative jurisdiction of the El Moudjbara ebrah municipality. This site is home to six remarkable mural paintings and a collection of 71 rock engravings.

Zaccar Site: The Zaccar Site, also known as Deir El Dqawen, is a national heritage site classified since 1982 (Figure 9b). It is located 33 km southeast of the provincial capital and 2km southeast of the Zakar municipality. This site takes the form of a rock shelter, showcasing a magnificent artistic panel depicting a hunting scene. The artwork vividly captures the dynamic relationship between predator and prey, with a lion chasing a deer. Additionally, a variety of animals, including ostriches, elephants, rhinoceroses, cattle, and a pregnant sheep, are depicted. The Zaccar Site features 37 rock engravings. The Kheng El Hilal Site (Figure 9c) is located 40 km southwest of Djelfa city, within the Ain El Ibel municipality. It is also known as Kheng Guelen and features a sizable vertical rock mural adorned with seven rock engravings depicting a group of animals.

Figure 9. Rock art from prehistoric eralocated south of Djelfa, Ain El Naga Site (a), The Zaccar site(b), Kheng El Hilal Site(c) (Source: DTA)

Sidi Bou Bakr Site: is located 35 km from Djelfa city within the Ain El Ibel municipality, approximately 1.2 km northeast of the El Amara village. This site is characterized by a large mushroom-shaped rock mural with rock engravings on all four of its faces. In total, there are 25 rock engravings at this site.

Berber Presence: The Djelfa region has a long history of human settlement by Berber tribes dating back to 1500 BC to 1000 AD. Among the tribes that resided in the area was the "Al-Jitoul" tribe.

Roman Presence: The Roman presence in Djelfa was concentrated in specific areas, marked by fortifications and palaces erected for defense against external threats. Numerous Roman structures, including palaces and remnants of cities, have been discovered between Ain Melh and Djelfa. Islamic Presence: The Djelfa region witnessed the arrival of Arab Muslim tribes, such as the Bani Hilal, who embraced Islam in 704 AD. However, they were later displaced by the Ouled Nail tribe, as they were unable to remain in Ain El Rich, the place where their ancestors had lived.

Ottoman Presence: The Beylik of Tiaret was established in 1547 by Hassan Pasha Ben Khairuddin, and its borders expanded to encompass the laghouat region in 1727. During this period, the Ouled Nail tribe paid taxes after each wheat purchase and a collective annual tax. Some remnants from this period include the Turkish fortress in Ain El Ibel and the dome of Sidi Mohammed Ben Ali in the northern part of Jebel Sahari Wad Boustania.

French Colonial Presence: Djelfa, the capital of the Ouled Nail tribes, was established in 1852 as a military site during the French colonial period and officially founded in February 1861 under the rule of Napoleon III. Despite its relatively young age, Djelfa boasts a rich heritage comparable to that of ancient cities throughout Algeria. The city's historical significance is evident in several well-preserved buildings, including the town hall (1860), the church (1861), the eastern fortress, the powder magazine (1872), the guesthouse (1863), the northern fortress (Gaffarilli) which presently houses Ben Ayad High School, the gendarmerie barracks (1873), the mosque in Al-Burj neighborhood (1874), the weather station (1874), the railway station (1921), the post office and telecommunications center (1936), and the southern tower (built in 1952 and currently serving as military barracks). These buildings serve as tangible evidence of Djelfa's rich history and cultural significance.

C. Traditional Industry and Handicrafts (2013 SDATW)

Handicrafts in the Djelfa region are a family activity that utilizes raw materials produced by the families themselves, such as wool, camel hair, and skin. This traditional craft is not only a source of livelihood but also holds immense cultural significance. It highlights the history and daily life of the local population and is deeply intertwined with the regional and national cultural heritage. This makes it an integral part of the rich tapestry of the community's traditions and customs. Weaving is of paramount importance in the Djelfa region, particularly as a women's activity, as depicted in (Figure 10b,c) Carpets are the predominant craft, featuring intricate patterns composed of geometric figures primarily in two dominant colors: dark red and black. These colors symbolize the renowned hospitality of the Ouled Nail community. Artisans in the region employ natural dyes in their weaving process, favoring them over chemical alternatives. For instance, they extract yellow hues from tea and saffron, obtain black shades from juniper bark, and derive orange tones from henna. The emphasis on natural dyes adds an authentic touch to the carpets, further displaying the artisan's dedication to their craft.

Flat-woven carpets are a specialty of the entire Djelfa region, with the best produced in Djelfa and Charef. Another notable traditional craft is the nomadic tent, also known as "Beit El Hamra," which is typically red and black, symbolizing the nomads of the Ouled Nail of Djelfa and their legendary hospitality. These tents can accommodate 5 to 10 people, and larger tents can hold over a hundred people, making them ideal for festivals, weddings, and other gatherings. The Flidj is a woven strip on a fixed meter on the ground, made of goat hair and wool. It is a specialized craft in the nomadic environment and can be modernized for use as a carpet in halls, corridors, and even hotels. Ferache is a type of carpet from Djebel Amour, while Ferachia is a smaller carpet used for daily use and decorated with different colors. Hayek is a fine woolen covering usually in white and blue, while El Hanbel is a woolen cover characterized by its thickness and floral and striped decoration. These crafts showcase the region's rich cultural heritage and are a testament to the artisans' dedication and skill.

D. CLOTHING PIECES

The camel hair burnous: The camel hair burnous is a highly sought-after specialty of the Messaâd region, as shown in (Figure 10a). Crafted primarily by women, this traditional craft is renowned for its exceptional quality, exquisite finesse and is exclusively practiced by women (Figure 10c). The burnous serves as a shield against the cold and a statement of the wearer's individuality. Weighing no more than 900 grams, the "camel hair" burnous is meticulously woven with finesse and is recognized and cherished by connoisseurs. White burnous: In the northern part of Wilaya, particularly in Zaccar, Hassi Bahbah, and AinOussera, artisans produce the white burnous using white wool and embellishing it with delicate strips of white or bluish silk. Originally, a traditional garment, the white burnous has been transformed into a fashionable women's garment that rivals the elegance of its wear with its originality. Its distinct style captivates attention and adds a touch of chic to the wearer's attire, showcasing the region's rich cultural heritage. Other traditional crafts in the Djelfa region are mainly intended for local consumption. Kechabia is a traditional attire for men woven from wool or Ouber (Figure 10 c, 10 d), while the haik is a very fine covering sometimes of a solid color such as ochre, white, or blue. The djellabas are a more elaborate form of clothing than the burnous and can be made of wool or camel hair (kachabia). The H'mel is a large hanging used to divide the tent between the part reserved for women and the part reserved for men, while RoubetArbi is a long, wide, and opaque dress also called the "Naili dress" used by women until now. Djelfa's agro-pastoral region allows for the emergence of leather processing trades such as traditional tannery, shoe manufacturing, leather belts, and horse saddle making. Traditional shoes such as El Taobi, El Megroune, etc. are mainly made in Djelfa and Messaâd and are intended for nomadic customers (Figure 10e).

Figure 10. Traditional Industry and Crafts: (a) The camel hair burnous,
(b) Kechabia, (c, d) Weaving, (e) The traditional "Taobi" shoes (Source: DTA)

Basketry and pottery are produced by women who make the tagine - a plate with raised edges used for baking bread. Two types of tagine are available: one with a bottom for everyday bread, and the other with a smooth bottom that allows the "baghrir" (pancake-like bread) to be cooked for holidays and ceremonies.

Traditional Jewelry: The jewelry industry in Djelfa is characterized by unique designs, particularly in silver products, giving traditional jewelry an artisanal and aesthetic value for women, as depicted in Figure 11.

Figure 11. Traditional jewelry (Source: DTA)

Local Traditions

The Naili Dance is a renowned dance in Djelfa known for its graceful and synchronized movements, including various types such as El Saadaoui, El Hal, El Rechk, El Fouroussia, and El Komri. The Naili Song emerged in the latter half of the 19th century and derives its name from the Ouled Nail tribe present in M'sila, Djelfa, Laghouat, and partially in Biskra.

Traditional music instruments: Djelfa preserves its Bedouin heritage through featuring simple instruments such as El Kasba, Eldef (El Bendir), El Ghayta, El Oud, and Violant. These traditional musical instruments reflect the region's cultural heritage as an extension of the Algerian Sahara. Proverbs and poetry, such as Chiîr El Melhoun, have long been used by the inhabitants of Djelfa to express and address social concerns, maintaining their significance even today.

Popular games such as El Sik, El Kharbka, El Sibak, Ghomaida, and TilaTila contribute to a sense of unity among the community. Folk tales, passed down through generations, play a vital role in preserving customs and traditions among both Bedouins and city dwellers. Popular poetry: El Chiir El Malhoun, a prevalent form of popular poetry in Djelfa, explores themes related to horses and Bedouin culture, often expressing the hardships and melancholy associated with long journeys, differing from the poetry of nomadic peoples in the South and the North.

El Tksad is a local heritage rooted in Madih El Dini and the resonant sound of the large drum (Bandir).

Fantasia: Hospitality and warmth epitomize the spirit of the Ouled Nail people, while the ancient fantasia embodies a true "warrior ritual" practiced by ancestors to celebrate religious or civil festivals (Figure 12a, 12b).

Culinary art in Djelfa incorporates high-quality ingredients such as cereals, farm produce, countryside products, and sheep meat, with specific culinary specialties such as Chakhchoukha, couscous, Méchoui, and El Khobze (figure 12e).

Hunting with Sloughi dogs and birds of prey is a cherished tradition, and the Feast of the Sheep, a symbolic festival for the region, has not been celebrated since 2005 (Figure 12c).

Figure 12. Local traditions: (a), (b) Fantasia, (c) Hunting, (d) The hospitality of the Ouled Nail, (e) Culinary art (Source: SDATW, 2013)

3. The Status of Hotel Institutions in the Municipality of Djelfa

Djelfa municipality has six hotels, all located in the urban area of Djelfa city, offering 264 rooms and 578 beds. This indicates that tourism in Djelfa mainly focuses on urban and business activities, with limited hotel options for the region.

Unfortunately, most tourism projects in Djelfa prioritize urban hotels, neglecting the potential for rural, environmental, mountainous, and climate-related tourism. Consequently, tourism offerings in these areas are perceived as limited, disorganized, and underdeveloped (SDATW, 2013). Additionally, a significant portion of the remaining hotels in Djelfa is not officially classified, leading to a decline in the quality of tourism services and the overall image of the tourism sector. During summer, there is a shortage of accommodation due to the influx of residents from the southern Sahara states, leading to families renting houses as an alternative accommodation option.

4. The Evolution of Tourist Flow in the Municipality of Djelfa

The tourist influx to the municipality of Djelfa has experienced significant growth in both classified and unclassified hotels. The following table provides relevant data. Table 1 indicates that there was a notable increase in the number of Algerian tourists visiting Djelfa in 2022, with over 24,388 recorded during the COVID-19 pandemic period. However, the number of foreign visitors remained relatively low, with only 106 recorded, mainly engaged in business tourism. This suggests that Djelfa has yet to achieve a satisfactory level of foreign tourism, likely due to a lack of diversification in its tourism offerings.

Table 1. Tourist flow at accredited hotel establishments in the municipality of Djelfa for the year 2022 (Source: DTA, 2022)

Total flow	Algerian visitors		Foreignvisitors		Total	
	arrivals	nights	arrivals	nights	arrivals	nights
The flows to classified hotels	13715	15171	93	119	13808	15290
The flows to non-classified hotels	10673	10673	13	13	10686	10686
Total touristsinflow	24388	25844	106	132	24494	25976

RESULTS AND DISCUSSIONS

The aim of this research is to conduct a comprehensive study of the tourism potential in the municipality of Djelfa, with a focus on promoting environmental tourism in the region. This study will assess the attractiveness of tourist sites, accessibility, available facilities and activities, infrastructure, and tourism services. The ultimate goal is to develop economically viable environmental tourism projects in the region. Currently, the existing plans for tourism development are not feasible, and tourism is still in its early stages in the area. Previous research has emphasized that the absence of prior studies on tourism demand is a significant factor in the failure of environmental tourism initiatives. These studies help identify the underlying issues that hinder the growth of this economic activity, despite the existence of the tourism development plan (SDATW, 2013) for the Djelfa province. However, due to the limited availability of recent statistical data from tourism authorities such as the Tourism and Traditional Industries Directorate and the Planning and Budget Monitoring Directorate for Djelfa, questionnaires were distributed to tourists to gather relevant information.

The questionnaires were distributed to tourists both on-site during their visits to the Senalba forest and through social media platforms. The objective was to gather information on the social and demographic profile of tourists, their reasons for visiting the area, the duration and level of accommodation during their stay, their level of satisfaction, and any challenges or issues they encountered. Additionally, the questionnaires aimed to gain insights into the demands of the tourism market and categorize them accordingly.

1. Study Sample

To address the lack of statistical information on tourism activity in the municipality of Djelfa, a survey was conducted using a convenient sampling method. The survey targeted tourists and visitors in various tourist areas within the municipality, including the Senalba forest, nearby forests, and the prominent Prince Hotel. The survey was also extended to university students and researchers, and questionnaires were distributed through social media platforms from August 20, 2022, to September 30, 2022. Out of the 540 questionnaires distributed, 535 were retrieved, resulting in a confidence level of 99%. After discarding four questionnaires due to incomplete or unserious responses, 531 surveys were eligible for the study. The survey was structured into three sections: gathering demographic information, capturing details about the purpose and motivations behind the visit, and assessing the current state of tourism in Djelfa using the Principal Component Analysis (PCA) method. The PCA method involved obtaining opinions from tourists and visitors and measuring their satisfaction levels using 14 variables or questions, covering aspects such as natural and cultural attractions, environmental factors, general infrastructure, tourism infrastructure, and available services and amenities.

2. Description of the Demographic Characteristics of the Study Sample

Descriptive statistics were used to analyze the demographic characteristics of the study sample. Figure 12a shows that 77% of the sample comprised males, while females accounted for 23%, indicating a higher participation of men in tourism activities within the area. The age distribution was divided into two categories: 31-50 years old, representing 49%, and 19-30 years old, representing 32%, with the latter category consisting of young and curious individuals, as depicted in Figure 12 (b).In terms of education level, the majority of the study sample, 56.5%, possessed a university education level, as illustrated in Figure 12a. Approximately 21.3% had a secondary education level, suggesting that educational attainment contributes to an increased openness and tourism culture among individuals. Figure 12 (e) shows that 44% of the study sample were employed with their families, possibly due to their financial stability; desire to escape work routines, particularly on weekends, and access to private transportation. Students accounted for 25% of the sample, falling within the aforementioned youth category, characterized by enthusiasm, a penchant for exploration, and engagement in sports activities in neighboring forests. Self-employed individuals accounted for 13% of the sample, while 10% were retirees and 8% were unemployed.

The Sanalba Forest, located just a 5-minute drive from Djelfa city, is a popular destination for visitors seeking serene natural landscapes and an escape from urban noise. It is particularly favored as an ideal destination for holiday retreats. As shown in (Figure 14), our analysis indicates that 64% of tourists prefer forests and mountains, appreciating their tranquil beauty. Additionally, 16% show interest in cultural sites, while 13% enjoy exploring craft exhibitions. Moreover, 30% of tourists actively engage in sports activities within forests and mountains. Our analysis also reveals that 46% of tourists, particularly those originating from southern region, choose to spend their summer holidays in the municipality of Djelfa. This preference is driven by the region's moderate summer climate, its location at an altitude exceeding 1200 meters above sea level, and the abundance of dense forests surrounding the area.

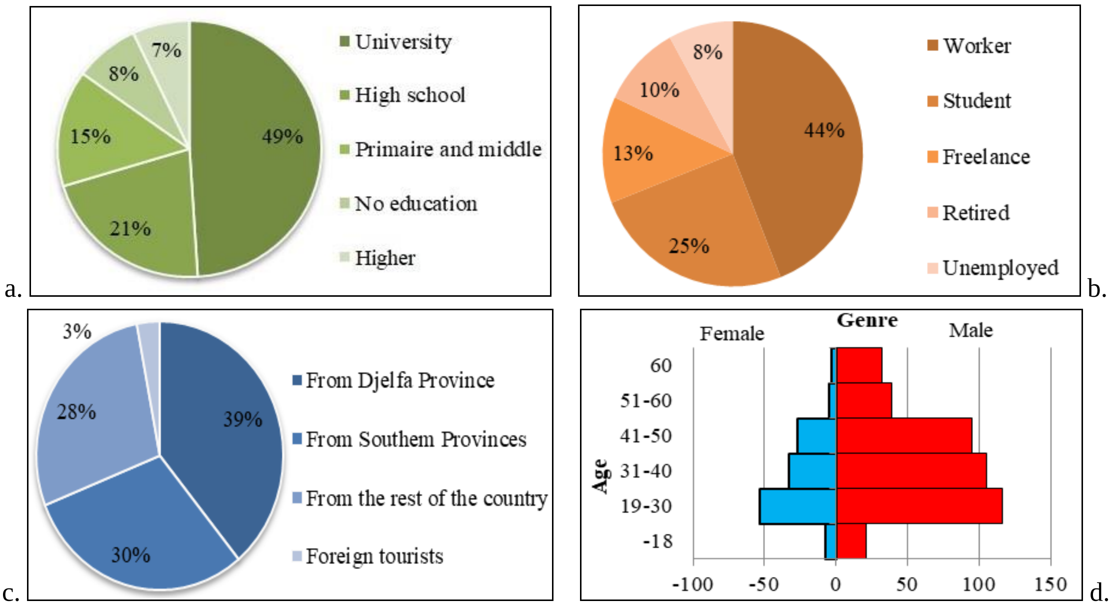


Figure 13. The demographic characteristics: (a) educational level, (c) origin of tourists (b) occupation, (d) gender male/female (Source: Authors)

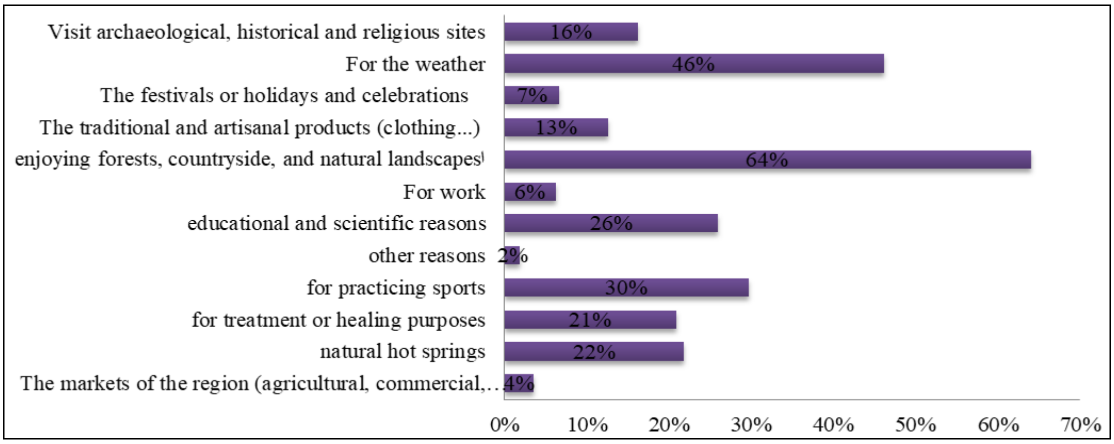


Figure 14. Tourists motivation to visit Djelfa (Source: Authors)

3. Evaluation of Tourism reality using the principal component analysis (PCA) method

To assess the state of tourism in the municipality of Djelfa, the opinions of tourists and visitors were collected, and their level of satisfaction was measured using a set of 14 questions or variables. These variables covered various aspects such as natural attractions, cultural sites, environmental conditions, general tourism infrastructure, diverse services, and available amenities. To effectively analyze and summarize the gathered information, Principal Component Analysis (PCA) was employed. PCA is a valuable tool for condensing and interpreting large sets of quantitative data (Guerrien, 2003). It proves particularly beneficial when dealing with extensive data that requires processing and comprehension. Thus, utilizing PCA as a method to evaluate the tourism reality in the Djelfa region based on the opinions and satisfaction levels of tourists and visitors is a sound approach. By examining the relationships between the different variables, including the latent dimensions of natural, cultural, environmental, general tourism infrastructure, services, and amenities, we can gain valuable insights into the overall tourism experience in the municipality (Beguin and Pumain, 2010).

A. Study Tool Reliability

It is good to know that the reliability of the research instrument was assessed using the Cronbach's alpha coefficient to examine the correlation between the variables in the questionnaire. The Cronbach's alpha coefficient provides an overall measure of the internal consistency or reliability of the scale. A value of 0.861 was obtained for the study axes, which exceeds the accepted threshold of 0.60 for reliability, indicating a satisfactory level of reliability for scientific research purposes. This suggests that the fourteen variables in the questionnaire effectively measure the same construct, indicating the stability and dependability of the questionnaire in the field application of the study.

B. Correlation matrix

The results obtained from the SPSS program and presented in Table 2 (appendix) indicate that the correlation coefficients between the selected variables are strong, with an average of over 0.5. This suggests a high degree of association between the variables, where changes in one variable are likely to be accompanied by changes in the other variable. The strong correlation between the variables will aid in the formation of factor axes, with their direction and significance interpreted based on their relationships with each variable. As a result, we are motivated to proceed with the principal component analysis (PCA) method to analyze the data and gain insights into the tourism experience in the municipality of Djelfa.

Table 2. Correlation matrix (Source: Authors)

		V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14
Correlation	V1	1.000	.561	.724	.021	.080	.629	-.061	.016	.011	.205	.183	.272	.103	-.014
	V2	.561	1.000	.664	.025	.320	.425	.039	.029	.135	.394	.364	.511	.276	-.105
	V3	.724	.664	1.000	.179	.259	.732	.039	.021	.042	.295	.309	.408	.183	-.028
	V4	.021	.025	.179	1.000	.627	.252	.529	.132	.430	.246	.251	.156	.563	.523
	V5	.080	.320	.259	.627	1.000	.246	.440	.192	.460	.256	.336	.316	.664	.428
	V6	.629	.425	.732	.252	.246	1.000	.160	-.004	.109	.268	.329	.341	.164	-.001
	V7	-.061	.039	.039	.529	.440	.160	1.000	.035	.677	.638	.566	.437	.516	.545
	V8	.016	.029	.021	.132	.192	-.004	.035	1.000	.031	.011	.015	.048	.118	.064
	V9	.011	.135	.042	.430	.460	.109	.677	.031	1.000	.624	.541	.429	.496	.302
	V10	.205	.394	.295	.246	.256	.268	.638	.011	.624	1.000	.764	.736	.500	.251
	V11	.183	.364	.309	.251	.336	.329	.566	.015	.541	.764	1.000	.743	.478	.272
	V12	.272	.511	.408	.156	.316	.341	.437	.048	.429	.736	.743	1.000	.450	.137
	V13	.103	.276	.183	.563	.664	.164	.516	.118	.496	.500	.478	.450	1.000	.625
	V14	-.014	-.105	-.028	.523	.428	-.0001	.545	.064	.302	.251	.272	.137	.625	1.000

C. Suitability of data measure using KMO indicator and Bartlett's test

The KMO (Kaiser-Meyer-Olkin) test results, as presented in (Table 3), show a value of 0.81, which exceeds the threshold of 0.5 and is considered excellent (Kaiser and Rice, 1974). This suggests that the correlations between the variables are of high quality. In addition, the results of the Bartlett's test of sphericity are significant (P<0.005), consistently at a highly significant level (0.001 > p). As a result, we can reject the hypothesis of no correlation, indicating that not all correlations are zero. This confirms the suitability of conducting factor analysis for the study, without the need to exclude any variables from the analysis. Hence, the application of the principal component analysis (PCA) method is deemed appropriate for the study.

Table 3. KMO index and Bartlett's test (Source: Authors)

KMO index and Bartlett's test		
Kaiser-Meyer-Olkin index for measuring sampling quality		**0.810**
Bartlett's test of sphericity	approximate chi-square	4795.498
	Ddl	91
	Significance	0.000

D. Determining the Principal Components (Explained Total Variance)

Data analysis was conducted using SPSS, and it is worth noting that no measurement units needed to be eliminated since they were homogeneous. To reduce the information matrix, the 14 variables were converted into two main axes, as shown in (Table 2), which provides an overview of the principal components, their respective variances, and the proportion of information explained by each component. The number of principal components selected aimed to minimize information loss while adhering to the Kaiser criterion. Following the Kaiser criterion, we selected the first three factors whose eigenvalues exceeded one (1) from the 14 variables obtained through PCA, as shown in (Table 4). By retaining these primary axes, as depicted in (Figure 15), it became essential to interpret them economically in relation to the amount of information they encompass. This interpretation is crucial for gaining valuable insights into the underlying dimensions of the tourism experience in the municipality of Djelfa.

Table 4. Explained total variance (Extraction method: Principal component analysis - PCA) (Source: Authors)

component	initial eigenvalues			sums extracted from the squared loadings			sums of the rotated squared loadings		
	Total	% of the variance	% cumulative	Total	% of the variance	% cumulative	Total	% of the variance	% cumulative
1	5.322	38.011	38.011	5.322	38.011	38.011	3.660	26.143	26.143
2	2.730	19.500	57.511	2.730	19.500	57.511	3.126	22.329	48.472
3	1.516	10.831	68.343	1.516	10.831	68.343	2.782	19.871	68.343

E. The component matrix after rotating the axes:

The component matrix, obtained after rotating the axes, provides valuable insights into the economic interpretation of the components by examining the correlations among the variables within each factor. The correlation matrix presents values that elucidate the connections between variables, enabling us to understand the relationships between them. In addition to the component matrix and correlation matrix, the correlation circle, also known as the variable plot, is a useful tool for illustrating the correlations between the components and the original variables. This circle provides a visual representation of the interrelationships between variables and their association with each component. It is possible to include additional variables as vectors in the representation, which can provide further insights into the underlying dimensions of the tourism experience in the municipality of Djelfa. In the working plan, Figure 16 displays the correlation circles between variable 1 and variable 2, as determined by STATISTICA PCA, which encompass a cumulative energy of 58%. Geometrically, the correlation coefficient between variables is represented by the angles specified between each variable pair. We can observe three distinct scenarios:

- There are three groups, each containing variables with angles close to zero, indicating a strong positive relationship within each group.
- The angle between group (G1) and group (G3) is approximately 90°, suggesting a lack of correlation between the two groups.
- The angle between group (G2) and groups (G3) and (G1) is close to zero, indicating that the variables in-group (G2) progress similarly to those in groups (G1) and (G3), strengthening the repulsive relationship among them.

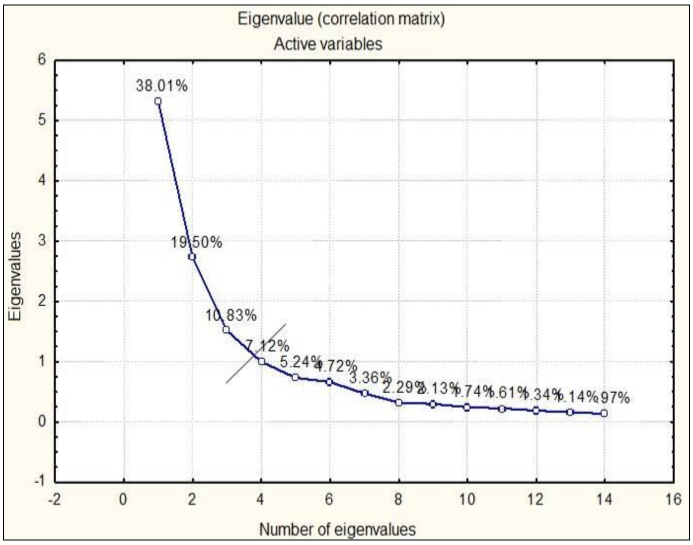


Figure 15. Graphical representation of eigenvalues using Kaiser's method (Source: Authors)

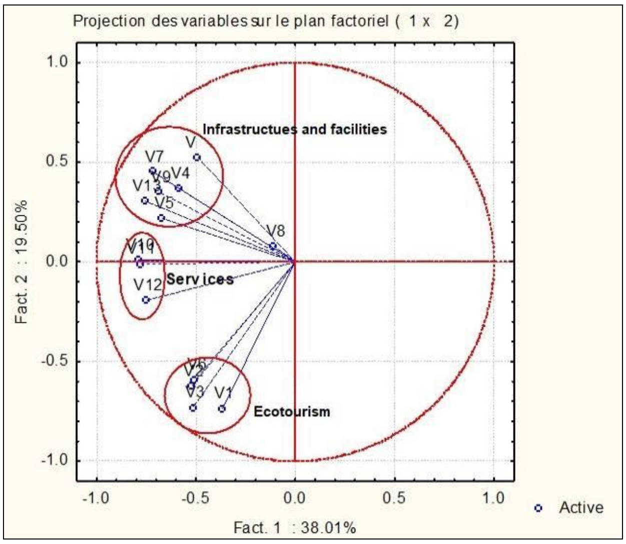


Figure 16. The correlation circle of PCA (graph of variables) eigenvalues (Source: Authors)

Based on the observations from the correlation circles, we can conclude that group (G1) comprises variables related to ecological or environmental tourism, which is the main focus of the study. This group shows a strong positive correlation with group (G2), which consists of tourism service variables directly associated with the development of environmental tourism in the municipality of Djelfa. Furthermore, we can observe that worker 1 (G1) is completely independent of variable 3, representing infrastructure (G3). This suggests that enhancing infrastructure and resources alone may not have a significant impact on the growth and development of environmental tourism in the municipality of Djelfa. Instead, it is important to focus on developing tourism services that are directly related to environmental tourism, as these variables are strongly correlated with ecological or environmental tourism (G1). These insights can be useful in developing effective strategies for promoting and developing eco-tourism in the municipality of Djelfa. To effectively promote and foster the environmental tourism sector in Djelfa, it is crucial to carefully consider the development of the group encompassing tourism service variables (G2) and align it positively with variable 3 representing infrastructure (G3). This strategic approach will facilitate the growth and development of environmental tourism in the municipality of Djelfa. To achieve this objective, it is recommended to propose tourism investment projects in tourist sites such as the Senalba Forest site, located west of the city of Djelfa. These projects should focus on developing tourism services that are directly related to environmental tourism (G1) and aligning them with the necessary infrastructure and resources (G3) to support their growth and development. By doing so, it will be possible to create a positive impact on the local economy while also promoting sustainable tourism practices.

4. Assessment of the tourism potential of the municipality of Djelfa using the SWOT analysis tool

The SWOT analysis tool was employed to assess the tourism potential of the municipality of Djelfa, as shown in (Table 5). This four-fold analysis provided a valuable framework for devising future strategies and evaluating the area's developmental prospects. The aim was to conduct a comprehensive diagnosis of the tourist destination to formulate an effective strategy that capitalizes on strengths and opportunities, while mitigating weaknesses and threats that impede tourism growth. The SWOT analysis is a widely recognized analytical tool utilized by managers and strategic planning experts to assess various aspects of a given situation (Valentin, 2001).

5. Recommendations and necessary measures to revive environmental tourism in Djelfa:

• Emphasize the development and enhancement of high-quality tourism elements, such as improving infrastructure including roads, water supply, electricity, sanitation, and various tourism services in key tourist areas like the Senalba Forest site. This should involve constructing facilities for sports activities, establishing campsites, and actively engaging local residents in all environmental tourism projects. It is crucial to provide education and training programs to equip them with the necessary skills to cater to this type of tourism while respecting their customs and traditions.

Table 5. Evaluation of Djelfa tourism potential using SWOT analysis

Strengths	**Weaknesses**
• Djelfa municipality is strategically located in the Atlas Saharan mountains, in the middle of the country, and is intersected by National Road Number 1, a major transportation artery that connects the northern and southern regions of Algeria. • Djelfa's forest wealth, especially the Senalba forest, is considered one of the most important high plateau forests in the country and serves as a vital shield against desertification. • Djelfa offers unique natural destinations for pastoral desert regions, with diverse plant and animal life, and is home to the largest national wealth of sheep. • The local community in Djelfa is renowned for its hospitality, openness, and welcoming attitude towards visitors. • Djelfa is famous for its weaving industry, which produces brown and white blankets and carpets from camel hair, as well as leather goods such as belts, horse saddles, and other products that are nationally and internationally renowned. • The availability of raw materials from wool and leather has led to the development of a thriving leather industry in the region, with craftsmen producing a variety of leather products, including "Taa'bi" shoes, clothes, hunting gear, embroidered horse saddles, and other leather goods. • Djelfa is home to several important historical landmarks, including archaeological sites and rock stations. • The city of Djelfa has a rich cultural heritage reflected in the buildings that preserve its essence and bear witness to the city's history. • Djelfa and its surroundings offer a diverse range of tourist attractions, including relaxation and medical Hammam sources, the geotouristic site of the Salt Rock Mountain, sandy dunes reminiscent of the great Saharan race, wet areas (Zahrez East and West) classified under the Ramsar Convention, and caves.	• The forests in the region are not fully utilized for tourism purposes, and their potential remains largely untapped. • Infrastructure, services, and tourism facilities in ecotourism areas, especially the Senalba forest, are weak and inadequate. • Citizens lack information and awareness regarding environmental protection, preservation, and cultural heritage. • Tourist destinations in the region are inadequately promoted, resulting in lower visitor numbers. • Despite the organization of many diverse cultural festivals, media coverage of the region is weak, which limits its exposure to potential visitors. • Investments in the tourism sector are very low, which hinders the development of necessary infrastructure and services. • Road signs directing tourists to destinations are absent, which makes it difficult for visitors to navigate the region. • Professional services at tourist sites, as well as professional guides, are lacking, which limits the quality of the visitor experience. • The maintenance of Hammam sources is neglected, and they are not exploited in a traditional manner. • Transportation to tourist sites, especially those outside the city, is inadequate and needs improvement. • The absence of an airport in the region limits accessibility for tourists arriving by air. • The majority of demand is directed towards urban areas, and tourists have a short stay duration, making the region primarily a transit area. • Local tourism agencies primarily issue rather than receive tourists, and the products offered are geared towards foreign countries, which limits the region's appeal to domestic visitors. • Sectorial coordination between tourism, environment, forests, culture, transportation, and properties is weak, which hinders the development of a cohesive tourism strategy. • The decline in handicraft activity in the region is attributed to the lack of tourism activity, which reduces the demand for locally crafted products.
Opportunities	**Threats**
• Djelfa Province has a guidance plan for tourism development (SDATW, 2013) to better direct tourism activities and stakeholders. • Djelfa benefits from the duplication of the national road number 1, which crosses it and connects the north to the south, facilitating transportation and accessibility. • The municipality of Djelfa has important infrastructures such as classified hotels, the headquarters of the Tourism and Environment Directorates, the Forest Conservation Department, the Regional Radio Station, the Cultural Center, the Municipal Museum, the Regional Theater, the National Directorate for the Management and Exploitation of Protected Cultural Properties, the High Commissioner for the Development of Steppes, and the Algerian-Cuban Eye Hospital, which provide necessary support for tourism activities. • Djelfa has a monitoring station for the National Observatory for Environment and Sustainable Development, which helps to monitor and manage the impact of tourism on the environment. • Djelfa has a large national wealth of sheep, with 3 million heads, which has created markets for livestock with a national character, providing opportunities for tourism activities such as agricultural tourism. • The region has distinctive natural destinations for pastoral regions with diverse plant and animal life, making it an attractive destination for eco-tourism. • Djelfa is known as a commercial area and has services that are compatible with its position as a transit point, which provides convenience for tourists and visitors. • The railway line can be utilized to revive tourism when the project is completed, which will enhance transportation and accessibility. • There is a need for new branches for tourism training to meet the demand for tourism jobs, which will help to develop the sector and provide employment opportunities. • Djelfa has a regional bus station that records the second-highest passenger demand nationally after the capital station, which provides necessary transportation infrastructure for visitors. • Djelfa benefits from several financial and tax incentives to	• There is a lack of information and awareness campaigns aimed at citizens regarding environmental protection, conservation of cultural heritage, and preservation of the environment, which hinders their participation in conservation efforts. • The desert regions are in an advanced state of deterioration and are characterized by the fragility of their ecological system, which poses a threat to biodiversity and tourism potential. • Endangered animals such as gazelles and hyenas are at risk due to habitat destruction and human activities. • The environmental condition in the city and its surroundings is continuously deteriorating due to the presence of random dumps of human waste, especially in forests and some tourist sites, which poses health and environmental risks. • The forest wealth in the area is exposed to many human and natural threats due to the fragility of its environmental system. Although ecotourism contributes significantly to forest sustainability and has a positive impact on economic aspects, there are disadvantages that have shown that the unrestricted dependence of local populations on forests threatens to harm biodiversity conservation in them (Bhandari and Jianhua, 2010). • Activities and tourism investments in natural areas such as the Senalba forest must comply with environmental protection principles and applicable regulations. • The lack of professional guides limits the quality of the visitor experience and hinders the development of tourism in the region. • The appearance of new chaotic buildings on the outskirts of the Senalba forest in the western part of the city (Wad al-Hadid area) threatens the city's encroachment towards it, which poses a threat to the environment and tourism potential. • Local cultural heritage is not listed or registered, which limits its recognition and protection. • Uncontrolled grazing in forests, particularly the Ouled Nail sheep variety, poses a threat to forest sustainability and biodiversity conservation.

support tourism investment, which will attract investors and enhance the development of the sector. • The region witnesses the organization of many diverse cultural festivals such as Eid Al-Adha and the Ouled Nail singing festival, which provide opportunities for cultural tourism. • There is potential for creating mountain hiking trails through organizing summer and spring trips, picnics, missions, and stays, which will enhance the development of adventure tourism in the region. Implementing tourism projects such as recreational forests and camps.	• The phenomenon of tree cutting by the timber mafia poses a threat to forest sustainability and biodiversity conservation. • The recording of many forest fires poses a threat to the environment and tourism potential in the region. The lack of organization and preparation of recreational, sports, and parking areas inside the Senalba forest, especially sports fields, creates an atmosphere of chaos, which hinders the development of tourism in the region

• Take measures to preserve the SenalbaForest and prevent the encroachment of Djelfa city into its surroundings. Erecting a protective barrier, particularly on the eastern side of the forest (Figure 17), is essential.

• Recognize the significance of transportation as a fundamental component of the tourism system and incorporate it into development policies. Governments should prioritize transportation modes that facilitate accessibility to neighboring destinations (Kelfaoui et al., 2021).

Figure 17. Construction progress towards Senelba Forest (Source: 17a: Authors, 2023; 17b: Googlemaps, 2023)

• Design distinctive tourist structures that showcase local and traditional architectural styles, providing a unique and culturally immersive experience for visitors.

• Address the limited investment in natural tourist sites and the obstacles hindering investments within major cities. Efforts should be made to overcome these challenges and attract more investment to promote sustainable tourism development.

• Provide training opportunities for local residents to work in various tourism roles, thereby supporting the local economy and fostering positive interactions between tourists and locals. Managing tourism demand in a manner that respects the interests of both residents and visitors is essential (Pathmanandakumar et al., 2023).

• Conduct tourism education programs for residents, focusing on the principles, regulations, and challenges of tourism. Additionally, raise awareness about current development policies and tourism plans across different regions. Utilize various media channels to familiarize residents with the values, customs, and traditions of visiting tourists for fostering tourism awareness.

• Remove barriers and create an enabling environment for tourism development, encouraging private sector investment across various tourism sectors. Facilitating access to government support and funding for local and foreign individuals interested in investing in tourism infrastructure, along with providing short and medium-term tax benefits, is recommended (Souiher and Rezzaz, 2020).

• Prioritize qualification and professionalism within the tourism sector, ensuring that all workers, including tour guides and travel agencies, receive proper training. Launch public awareness campaigns and integrate tourism education into educational programs to foster a culture of eco-tourism and build its foundations.

• Consider the carrying capacity of tourism projects in environmentally sensitive areas like the Senalba Forest. This refers to determining the maximum number of tourists or users an area can sustain without causing negative impacts on its resources. Practicing eco-tourism requires understanding and respecting the hosting site's capacity while establishing effective planning and monitoring systems (Lequin, 2001).

• Highlight the environmental dimension in marketing tourism services and raise awareness among tourists and tourism operators about the importance of maintaining cleanliness and responsibly using natural resources.

• Encourage investors and tourism industry workers to adopt environmentally friendly practices in waste management, waste treatment, and reducing greenhouse gas emissions. Promote the use of alternative energies and showcase excellence in sustainable practices.

• Utilize environmental tourism marketing through attractive websites that showcase future tourism opportunities and projects. Engage the press by organizing events (sports, cultural, scientific) and inviting foreign journalists to cover or prepare reports about the region (Kelfaoui et al., 2021).

• Foster collaboration between the public and private sectors in tourism project development while maintaining ongoing communication. This collaboration is crucial to avoid tourism expansion that harms the environment, disrupts ecosystems, reduces biodiversity, or spoils the natural beauty of the region.

• Ensure that meeting tourism needs does not harm the social and economic interests of local communities, natural resources, or historical and cultural sites at tourism destinations, both locally and internationally.

• Take concrete steps to implement agreements and recommendations issued by the World Tourism Organization and international bodies to protect the environment.

• Embrace new information and communication technologies in tourism activities, encouraging all stakeholders in the local tourism sector and residents to utilize online services, which have become popular booking tools among tourists.

• Establish new academic programs and training courses in colleges, institutes, and training centers specifically focused on environmental tourism.

• Conduct a thorough inventory and documentation of the country's tourism resources and assets in various regions. Create an information database to promote these resources locally and internationally.

• Develop a comprehensive tourism guide and maps that provide detailed information on climate, biodiversity, flora, fauna, and tourist sites. These resources will assist visitors in navigating and exploring the destination.

• Encourage the diversification of tourism products and direct investments towards eco-tourism in mountainous regions, forests, rural areas, and areas with pristine natural environments. This approach will help promote sustainable tourism practices and protect the natural heritage of these regions.

6. Development perspectives and proposals for developing eco-tourism projects in the municipality of Djelfa

Djelfa has gained recognition as a remarkable recreational tourist destination, drawing visitors from nearby regions, particularly the southern areas. Its proximity to forests and picturesque countryside, combined with its agreeable climate and fresh air, make it an attractive option for nature enthusiasts. In response to the increasing demand for green spaces in close proximity to urban areas, several communities in Djelfa are transforming forest areas on the city outskirts into suburban "parks" that emphasize recreational activities rather than production functions (WIAT, 2008).

The development of commercial and craft activities within Djelfa city and its surrounding markets has played a significant role in revitalizing the region's economy. The marketing of locally produced goods with unique features has contributed to economic growth. The region's connection to its forest environment has the potential to further stimulate the economy through tourism activities. This development can create new job opportunities, both directly and indirectly. However, it requires the encouragement of tourism investment and the provision of necessary infrastructure such as roads, electricity, drinking water, sewage, and telecommunications. Achieving successful and sustainable tourism development in Djelfa requires genuine consultation among all stakeholders involved in the tourism sector. This approach enables the involvement of various actors in decision-making processes related to development and preservation of tourism potential and regional values in this mountainous area (Kherrour, et al., 2018).

To promotes sustainable tourism, investment projects in eco-tourism that align with the area's characteristics should be proposed, with a focus on resource management and rational utilization. The implementation of fair tourism, which preserves nature, respects the community, preserves traditions and cultures, and contributes to desired local development, is crucial. This approach can help to ensure that tourism development aligns with the interests and needs of the local community while preserving the region's natural and cultural heritage.

Figure 18. The proposed project site located at Senelba forest (Source: Authors, 2023)

The Senalba forest is a nationally recognized tourist area with significant scientific and environmental importance. It attracts families throughout the year for hiking, sports, and exploration. To maximize its potential, the construction of recreational centers and sports facilities is recommended (SDATW, 2013). This initiative can generate employment opportunities and improve the local population quality of life. However, the environmental impact of tourism projects should be carefully studied and evaluated before their execution to mitigate any negative consequences. Tourism projects serve as a fundamental element of development and a crucial source of income. They contribute to an improved standard of living by creating both direct and indirect employment opportunities. Additionally, tourism-based development has a positive ripple effect on other economic sectors, including services, construction, transportation, commerce, and agriculture (Kherrour et al., 2020). Given the significance of tourism planning, we propose the establishment of a sports training center through private and suitable investment in eco-tourism, specifically within the Senalba forest site (Figure18).

Figure 19. Proposed project for a sports training center in England (Source: leicestermercury, 2018)

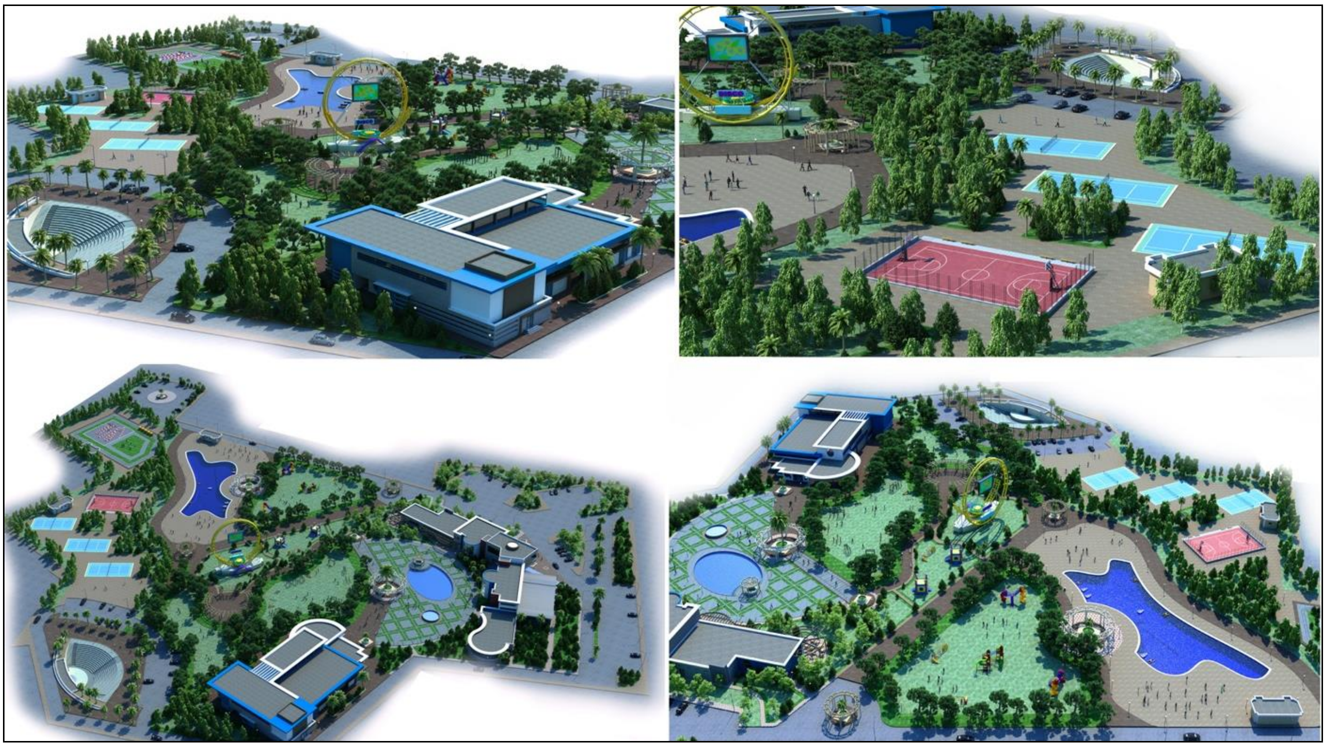


Figure 20. Development of the Senelba site for the creation of the eco-sport and entertainment village (Source: Authors, 2023)

Figure 21. Development of ecological accommodations of a sports training center in the Senelba site (Source: Authors, 2023)

The center can include sports fields and halls (Figure 19 and 20), accommodation facilities (Figure 21), recreational areas for families and children, an outdoor theater, hiking and running trails, horseback riding and racing training and mountain biking (VTT) Furthermore, promoting investment decision-making in tourism infrastructure should involve financial analysis based on the economic feasibility and financial profitability of the tourism project (Souiher and Rezzaz, 2020).

6.1 Economic Feasibility Study for a Sports Training Center Project

A. Preliminary Project Study Phase

The initial phase of the project study focuses on the economic feasibility and its role in supporting the investment decision for the tourism project. It involves identifying the total investment cost for the hotel, restaurant, conference hall, swimming pool, sports hall, eco-complex for sports teams, and parking lot. Based on this, we evaluate the project's financial returns over a period of 5 years.

Project Type: The project falls under the category of a touristic investment project.

Project Classification:

- Ownership: the project is owned by the private sector but serves a public need by providing services to various segments of tourists, visitors, or sports teams.
- Size: A tourism development project capitalizes on Djelfa's historical and cultural aspects. It requires:
- Self-financing by the investor; External financing through borrowing from a bank; High expertise in the tourism field.
- Economic Activity: The project is classified as a commercial service project since it includes commercial facilities and offers tourism services.
- Project Identification: The project must have the following resources:
- Human resourcesp; Financial resources; Material resources

Figure 22. The forest is a real sports field in the Senelba site a Djelfa (Source: Authors, 2023)

B. Project Study Stages

- Market Study: A comprehensive analysis of the market is conducted to determine the demand for the project. Tourism consumption is influenced by factors such as income, culture, traditions, and competition.
- Technical Study: The necessary technical requirements for the tourism project are identified based on its scale and aligned with the available resources. The project location is determined.
- Financial Study: This involves assessing the financial feasibility of the project by examining its cash inflows and outflows.
- Legal Study: All legal aspects related to the project are examined.

In the financial feasibility study, various financial criteria and indicators are evaluated, including:

- Net Present Value (NPV); - Profitability Indicator; - Payback Period. The project may also be accepted based on political or strategic considerations, such as alignment with the National Tourism Development Plan (SDAT 2035).

C. Financial Feasibility Study

The economic value of the investment project is derived from its impact on cash flows. Before evaluating the project, an estimation of all cash flows resulting from its implementation is necessary. It is economically logical to select investment projects that optimize the use of available financial resources based on the defined objectives.

I0: Amount of the investment = 95,000,000,000 Algerian Dinar (DZD) = (95,000,000 DZD) [1000]i: Discount factor = 10%.

Table 6. The study office's estimates for the cash inflows, with updating factors for the project, are for a period of five years (Source: Authors)

Years	2022	2023	2024	2025	2026
(CFt) 1000	25 000 000	28 000 000	30 000 000	35 000 000	38 000 000
Coefficient (1+i) -n	0.909	0.826	0.751	0.683	0.62
New (CFt) 1000	22725000	23128000	22530000	23905000	23560000
Σ (NewCFt) 1000	115848000				

Therefore, each project is evaluated to determine its expected net benefit before accepting or rejecting it.The project relies on criteria that consider the element of time. These criteria take into account or are adjusted to the timing aspect in the evaluation process, as shown in (Table 6).

Net Present Value (NPV) (VERNIMMEN, 2010)

The net present value (NPV) is a financial metric calculated at a specific time point, usually starting from the first year. It represents the sum of future net cash flows (inflows minus outflows) that the project is expected to generate by the end of the fifth year. The NPV is adjusted by a discount factor, which accounts for the cost of capital or the minimum required rate of return on investment. In this project, the discount rate is set at 10%.

Where: • ΣCFt: Total new cash inflows; • NPV=ΣCFt-I0; • I0: Represents the capital of the invested project (technical and economic study office of Algiers); • i: Represents the discount factor (update); • -n: Number of years.

NPV (Net Present Value) = ΣnewCFt (Total new cash inflows) - I0 (The capital of the invested project)

NPV = {(25,000,000 DZD) ^{1000} x (1+10%)-1 + (28,000,000 DZD) ^{1000} x (1+10%)-2 + (30,000,000 DZD) ^{1000} x (1+10%)$^{-3}$ + (35,000,000 DZD) ^{1000} x (1+10%)$^{-4}$ + (38,000,000 DZD) ^{1000} x (1+10%)$^{-5}$} - (95,000,000 DZD) ^{1000}

NPV = {(115,848,000 DZD) ^{1000} - (95,000,000 DZD) ^{1000}} = 20,848,000 DZD.

Investment Decision Rule: If the net present value (NPV) is greater than the amount of investment, it means that the inflows of cash are greater than the investment cost, and therefore the project is accepted.

Indicator Profitability (IP) (VERNIMMEN, 2010): IP = ΣnewCFt (Total new cash inflows) / I0 (The capital of the invested project); IP = (115,848,000 DZD) x 1000 / (95,000,000 DZD) x 1000; IP = 1.22

Investment Decision Rule: If the result is greater than one, it means that the project is profitable and therefore economically acceptable. Payback Period (PP) (VERNIMMEN, 2010):

PP = I0 (The capital of the invested project) / MCFtnet (median net cash flow of the project); MCFtnet = ΣnewCFt (Total new cash inflows) / N (The number of years); MCFtnet = (115,848,000 DZD) x 1000 / 5; MCFtnet = 23,169,600 DZD; PP = (95,000,000 DZD) x 1000 / 23,169,600 DZD; PP = 4.100.10 x 12 months = 1.2 months; 1.2 months x 30 days = 36 days. Investment Decision Rule: If the payback period is less than the typical period (5 years), then the project is acceptable. In this project, the payback period is estimated to be 4 years and 36 days (i.e., on June 6, 2026).

D. Financial Analysis Results

The financial analysis conducted on the tourism project indicates its feasibility and profitability. The positive net present value (NPV) indicates that the project's cash inflows exceed its investment cost. Additionally, the profitability indicator, with a value of 1.21, confirms that the project is economically profitable and financially viable. Furthermore, the payback period, which is 4 years and 36 days, is considered favorable for the project. Based on these evaluations, it is recommended to proceed with the implementation of the project. All of the aforementioned evaluation criteria provide valuable information for decision-makers in investment. While each criterion carries its significance, it is important to consider all of them collectively during the decision-making process. Different criteria may hold varying weights depending on the specific circumstances, but it is crucial not to disregard the insights provided by other criteria.

CONCLUSION

The municipality of Djelfa possesses a rich regional heritage consisting of natural, cultural, climatic, and historical elements. These elements define its image, attractiveness, and tourist value. The municipality has the potential to become a prominent tourist destination in the near and medium term due to the beauty and allure of its regional and national tourist resources. However, there is a disparity between the strong appeal and value of these tourism potentials and the inadequate provision of various tourist services and infrastructure, both in terms of quantity and quality.

Therefore, it is crucial to take effective measures and implement them to overcome or minimize the obstacles hindering tourism development. The significance of forests in society is increasingly evident, as demonstrated by the number of visitors they attract. Considering forests is essential for promoting sustainable development within the community, a concept embraced in the late twentieth century. In this regard, ecotourism can play a crucial role in revitalizing the local economy, particularly in the underutilized Senalba forest, which has yet to undergo tourism development efforts to establish it as a distinguished tourist destination. To contribute to local development in the area, it is necessary to preserve existing environmental systems, diversify tourist products, promote them effectively, and enhance infrastructure by providing complementary tourist services. It is also vital to carefully select suitable tourism projects for the region, with emphasis on conducting economic feasibility studies. Furthermore, this study can serve as a valuable reference model for sustainable tourism development in similar regions.

Author Contributions: Conceptualization, R.S.A. and R.M.A.; methodology, R.S.A. and R.M.A.; software, R.S.A. and S.K.; validation, R.S.A. and R.M.A.; formal analysis, R.S.A. and K.L. and S.K.; investigation, R.S.A. and R.M.A.; data curation, R.S.A. and R.M.A.; writing - original draft preparation, R.S.A. and R.M.A.; writing - review and editing, R.S.A. and R.M.A.; visualization, R.S.A.; supervision, R.S.A. and R.M.A; project administration, R.S.A. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Aberkane, K., & Belkacemi, S. (2016). Les fondements des premières recherches préhistoriques en Afrique du Nord, la région de Djelfa comme model. *Revue d'études archéologiques*, 14(2), 23-28. https://www.asjp.cerist.dz/en/downArticle/210/14/2/15236

Aneseyee, A.B., Abebaw, A., & Haile, B.T. (2022). Identification of suitable sites for the community-based ecotourism developments in Abijiata-Shalla Lakes National Park, Ethiopia. *Remote Sensing Applications: Society and Environment*, 26, 100750. https://doi.org/10.1016/j.rsase.2022.100750

Asker, S., Boronyak, L., Carrard, N., & Paddon, M. (2010). *Effective Community Base Tourism: A Best Practice* Manual. APEC Secretariat: APEC Publication, Singapore. https://doi.org /10.13140/RG.2.2.20523.44321

Baksir, B. (2010). *Management of Small Islands for the Utilization of Sustainable Ecotourism in the Districts of South Morotai and South Morotai*. Dissertation. Bogor Agricultural University Postgraduate School. https://repository.ipb.ac.id/handle/123456789/26712

Belkhiri, A. (2018). Study of the role of local actors in the development of local tourism. Case of the city of Bejaia (Algeria*). Journal of Economics, Management and Commercial Sciences*, 11(02), 507-519, (in French). http://dspace.univmsila.dz:8080/ xmlui/bitstream/handle/123456789/12465/33. pdf?sequence=1&isAllowed=y

Beguin, M., & Pumain, D. (2010). *La représentation des données géographiques: statistique et cartographie*, Paris, Armand Colin.

Bencherif, K. (2010).Carte des unités physionomiques de la forêt Senalba Chergui (Djelfa - Atlas saharien, Algérie). *Science et changements planétaires / Sécheresse*, 21(3), 179-186. https://doi.org /10.1684/sec.2010.0250

Bhandari, D., & Jianhua, Z. (2017). Household dependency on buffer zone community forest and its implication for management of Chitwan National Park, Nepal. *International Journal of Sciences*, 3(03), 68-80. https://doi.org/10.18483/ijsci.1214

Blamey, R. K. (2001). *Principles of ecotourism*. In D. B. Weaver (Ed.), *The encyclopedia of ecotourism*. CABI. https://doi.org/10.1079/9780851993683.0005

Boulhila, S., Alouat, M., Rezzaz, M.A., & Schmitz, S. (2022). Towards a development model of local cultural tourism through the involvement of local actors (province of constantine, algeria). *GeoJournal of Tourism and Geosites*, 40(1), 9–19. https://doi.org/10.30892/gtg.40101-797

Das, M., & Chatterjee, B. (2015). Ecotourism: a Panacea or a Predicament? *Tourism Management Perspect*, 14(1), 3-16. https://doi.org/10.1016/j.tmp.2015.01.002

Freude, T. (2019). Ecotourism and Sustainable Development. Decent Work and Economic Growth. *Encyclopedia of the UN Sustainable Development Goals*. Springer, Cham, 335-346

Golubeva, E.I., Tulskaya, N.I., Tsekina, M.V., & Kirasheva, N.I. (2016). Ecological tourism in protected natural areas of Russian arctect: prospects and challenges. Арктика и Север/arctic and north, 23, 66-79. https://doi.org/10.1723/ISSN 2221-2698

Guerrien, M. (2003). L'intérêt de l'analyse en composantes principales (ACP) pour la recherche en sciences sociales. Présentation à partir d'une étude sur le Mexique. *Cahiers des Amériques latines*, (43), 181-192. https://doi.org/10.4000/cal.7364

Honey, M. (2008). *Ecotourism and sustainable development*: *Who owns paradise*? (2nd ed.). Washington, DC: Island Press.

Idziak, W., Majewski, J., & Zmyślony, P. (2015). Community participation in sustainable rural tourism experience creation: a long-term appraisal and lessons from a thematic villages project in Poland. *Journal of Sustainable Tourism*, 23(8–9), 1341–1362. https://doi.org/10.1080/09669582.2015.1019513

Julie, A. (2013). Archaeological Heritage, Tourism and attractiveness of territories.

Kaiser, H., & Rice, J. (1974). « Little Jiffy Mark 4 », Educational and Psychological Measurment, 34, 111-117.

Kaymaz, Ç.K., Çakır, Ç., Birinci, S., & Kızılkan, Y. (2021). Gis-fuzzy dematelmcdamodel in the evaluation of the areas for ecotourism development: A case study of "Uzundere", Erzurum-Turkey. *Applied Geography*, 136. https://doi.org/10.1016/j.apgeog.2021.102577

Kelfaoui, A., Rezzaz, A.M., & Kherrour, L. (2021). Revitalization of mountain rural tourism as a tool for sustainable local development in kabylie (algeria). The case of yakouren municipality. *GeoJournal of Tourism and Geosites*, 34(1), 112–125. https://doi.org/10 .30892/gtg.34115-626

Kherrour, L., Hattab, S., & Rezzaz, M.A. (2020). Archaeological sites and tourism: protection and valorization, case of timgad (batna) algeria. *GeoJournal of Tourism and Geosites,* 28(1), 289–302. https://doi.org/10.30892/gtg.28123-470

Kherrour, L., Rezzaz, M.A., & Hattab, S. (2018). Rehabilitation of geographical areas for a tourist development the case of batna region's mountains (algeria). *GeoJournal of Tourism and Geosites*, 22(2), 455–469. https://doi.org/10.30892/gtg.22215-302

Lazzari, M., & Aloia, A. (2014). Geoparks, geoheritage and geotourism: Opportunities and tools in sustainable development of the territory. *Geojournal of Tourism and Geosites*, 13(1), 8-9. http://gtg.webhost.uoradea.ro/2014_1_vol_13.html

Lequin, M. (2001). *Écotourisme et gouvernance participative, Québec.* Presse de l'Université du Québec, Collection « Temps Libre et culture », 234

McCool, S.F. (1995). Linking Tourism, the Environment, and Concepts of Sustainability: Setting the Stages. Dans: McCool, S. F. Et Watson, A.E. *Linking Tourism, the Environment and Concepts of Sustainability*. Rapport technique INT-GTR-323. Department of Agriculture, Forest Service-Intermountain Research, Ogden, Utah

Michaelidou, M., Decker, D., & Lassoie, J. (2002). The interdependence of ecosystem and community viability: A theoretical framework to guide research and application. *Society and Natural Resources*, *15*(7), 599–616. https://doi.org/10.1080/08941920290069218

Newsome, D., & Dowling, R. (2010). *Setting an agenda for geotourism, 4,* Good Fellow Publishers: Oxford.

Newsome, D., Dowling, R., & Leung, Y.F. (2012). The nature and management of geotourism: A case study of two established iconic geotourism destinations. *Tourism Management Perspectives*, 2–3, 19–27. https://doi.org/10.1016/j.tmp.2011.12.009

Nigatu, T.F., & Tegegne, A.A. (2021). Potential resources, local communities' attitudes and perceptions for outdoor recreation and ecotourism development in urban fringe harego and bededo conserved forest, south wollo zone, ethiopia. *GeoJournal of Tourism and Geosites*, 39 (4spl), 11421–1429. https://doi.org/10.30892/gtg.394spl13-786

Papillon,P., & Dodie, R. (2011). Les forêts périurbaines: des usages récréatifs à l'espace prophylactique. *Revue de géographie alpine*, 99(3). https://doi.org/10.4000/rga.1562

Pathmanandakumar, V., Goh, H.C., & Chenoli, S.N. (2023). Identifying potential zones for ecotourism development in batticaloa district of srilanka using the gis-based ahp spatial analysis. *GeoJournal of Tourism and Geosites*,46(1), 252–261. https://doi.org/ 10.30892/gtg.46128-1022

Rajashree, S., & Madhusmita, D. (2023). Ecotourism, biodiversity conservation and livelihoods: Understanding the convergence and divergence. *International Journal of Geoheritage and Parks*, 11(1), 1-20. https://doi.org/10.1016/j.ijgeop.2022.11.001

Sahani, N. (2019). Application of analytical hierarchy process and GIS for ecotourism potentiality mapping in Kullu District, Himachal Pradesh, India. Environment. *Development and Sustainability*. https://doi.org/10.1007/s10668-019-00470-w

Self, R.M., Self, D.R., & Bell-Haynes, J. (2010). Marketing Tourism In The Galapagos Islands: Ecotourism Or Greenwashing?. *International Business & Economics Research Journal (IBER)*, 9(6). https://doi.org/10.19030/iber.v9i6.590

Souiher, K., & Rezzaz, A.M. (2020). Rehabilitation of infrastructure in urban tourist areas (province of Algiers, Algeria). Loisir et Société/Society and Leisure, 43(3), 393-406. https://doi.org/10.1080/07053436.2020.1849159

Tardif, J. (2003). Écotourisme et développement durable. *VertigO*, 4(1). https://doi.org/10.4000/vertigo.4575

Temar, T., & Kerrouche, A. (2020). The role of ecotourism in achieving the dimensions of sustainable rural development: a theoretical approach. *Development Journal of Applied Economics*.https://www.asjp.cerist.dz/en/downArticle/463/4/2/134182

TIES (2012). What is Ecotourism?, Retrieved from http://www.ecotourism.org/what-is-ecotourism (June 14th 2012).

Valentin, E.K. (2001). Swot Analysis from a Resource-Based View. *Journal of Marketing Theory and Practice*, 9(2), 54-69. https://www.jstor.org/stable/40470032

Vernimmen, P. (2010). Finance d'entreprise, 8e édition par Pascal Quiry& Yann Le Fur. *Paris: Dalloz.*

*** DTA. (2023). Direction du tourisme et d'Artisanat de la wilaya de Djelfa. Tourism and HandicraftsbDirectorate. Djelfa province, Algeria. https://djelfa.mta.gov.dz/fr/

*** FAO. (2013). Food and Agriculture Organization of the United Nations. Atelier pour définir et adopter une méthodologie commune pour les analyses de vulnérabilité des sites pilotes du projet ffem présentation du site pilote massifs des senalba(Algérie) *Optimiser la production de biens et services par les écosystèmes boisés méditerranéens dans un contexte de changements globaux* Mai 2013 https://www.fao.org/forestry/39547-0cbea7463f1af8e1cfb70c504393d0328.pdf

*** FAO. (2016). Food and Agriculture Organization of the United Nations. Rapport Technique Analyse De Vulnérabilité Au Changement Climatique Du Couvert Forestier Forêt De Senalba (Algérie) Novembre 2015 Optimiser La Production Des Biens Et Services Par Les Ecosystèmes Boiséshttps://www.fao.org/documents/card/es/c/ec67e70f-40a0-4d1d-ba46-4742001ba64e/

*** SDATW. (2013). Le schéma directeur d'aménagement touristique de la wilaya de Djelfa (Thewilaya of Djelfa by the numbers).phase 3, Wilaya of Djelfa, 76-95.

*** SDATW. (2013). Le schémadirecteurd'aménagementtouristique de la wilaya de Djelfa (Thewilaya of Djelfa by the numbers).phase 4, Wilaya of Djelfa, 74-81.

*** SDATW. (2013). Le schémadirecteurd'aménagementtouristique de la wilaya de Djelfa (Thewilaya of Djelfa by the numbers).phase 5, Wilaya of Djelfa, 158,168.

*** UNEP (2007). United Nations Environment Program annual report 2007. https://wedocs.unep.org/rest/bitstreams/11459/retrieve

*** WIAT.(2008). – Woods In and Around Towns, Phase II, Edinburgh, Forestry Commission Scotland

Images Sources: Figure 19. (leicestermercury.2018) https://www.leicestermercury.co.uk/news/leicester-news/gallery/amazing-images-lcfcs-new-100m-1720315

Article history: Received: 21.07.2023 Revised: 02.10.2023 Accepted: 25.10.2023 Available online: 06.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1430-1438
DOI 10.30892/gtg.50423-1141

THE DIGITAL DEVELOPMENT OF EU MEMBER STATES AND ITS EFFECT ON ESPORT PERFORMANCE

Anikó MOLNÁR*
University of Debrecen, Faculty of Economics and Business, Institute of Sportseconomics and Management, Debrecen, Hungary, e-mail: molnar.aniko@econ.unideb.hu

Anetta MÜLLER
University of Debrecen, Faculty of Economics and Business, Institute of Sportseconomics and Management, Debrecen, Hungary, e-mail: muller.anetta@econ.unideb.hu

Citation: Molnár, A., & Müller, A. (2023). THE DIGITAL DEVELOPMENT OF EU MEMBER STATES AND ITS EFFECT ON ESPORT PERFORMANCE. *GeoJournal of Tourism and Geosites*, 50(4), 1430–1438. https://doi.org/10.30892/gtg.50423-1141

Abstract: The examination of sports performance in relation to various macroeconomic variables has long occupied researchers in the field of sports economics. Similar interest surrounds esports, which has become one of the fastest developing types of "new media" in recent years. In esports, as well as in the video game industry besides creative content production, technology and digitization play a decisive role. In our research, we draw a parallel between digitization, the economy and sports performance in an area researched by relatively few. Based on the Digital Society and Economy Composite Index (DESI) published annually by the European Commission, we examine the digitization of the Member States of the European Union and whether a link can be found between esports performance and the digital development of each Member State. In the first part of the research cluster analysis was used in order to map the pattern of digital development across the EU, where four main direction was found, based on which four groups, namely “digital winners”, “digital laggards”, “technology-“ and “user focused” states were identified. After which regression analysis was used in order to examine whether digital development has any effect on esports performance.

Key words: EU, European Union, Digital development, digital divide, esport

* * * * * *

INTRODUCTION

The sporting achievements accessible at the Olympics, which are considered the pinnacle of traditional sports, have been receiving significant attention from researchers and analysts in sports economics for over four decades (Rosas et al., 2019; Andreff and Andreff, 2015; John Manuel and Fadal, 2011; Bernard and Busse, 2004; Vagenas and Vlachokyriakou, 2012; Bian, 2005). The early theories of research focusing on the comparison of nations' sporting performance were grounded in the premise that attainable medals, titles, podium finishes, etc. constitute a closed function, considering the fact that an increase in the number of medals obtained by one nation logically results in an equivalent decrease in the total number of medals that can be acquired by all other participating nations. Therefore, comprehending the sporting performance of a given nation must occur within these constraints, taking into account all participating nations (Andreff and Andreff, 2015).

Research on the subject paints a diverse picture, including the examination of factors such as a country's geographical location, average temperature, evolution of its religions, or even the development of its media landscape (Andreff, 2013; Kovács et al., 2017). During Parshakov’s (2019) systematic literature analysis, for instance, over 25 variables were identified that have been studied in relation to sporting achievements over the years. The analysis of medal counts, which serves as a measure of success, mostly involves evaluating the participating countries' political, social, economic, and demographic profiles, both as explanatory and predictive factors. Nevertheless, the prediction of sporting performance is commonly examined along the lines of various macroeconomic indicators. This can be traced back to the theory proposed by Shughart and Tollison (1993), which posits that the issue of sporting achievements is economic in nature, assuming a balance between expected benefits (number of medals) and costs (sports financing). Therefore, the understanding of this phenomenon is best achieved through theoretical-based, moderately complex macroeconomic specifications (Stevens, 1996: 78; Studenmund, 2001: 167, 171). An example of such a moderately complex model is the approach developed by Andreff, et al. (2008), which successfully integrated population and per capita GDP with political regime, the effect of the host country or the "home advantage," and cultural differences among countries in various regions of the world.

In our research, we introduce a novel framework by combining these approaches that intertwine sporting performance and economic aspects, and examine the evolution of esports performance at the European Union level, drawing parallels between digitalization, economy, and sporting achievements. With a focus on the strong digital nature of esports, our preliminary hypothesis was as follows. Given that esports is fundamentally surrounded by robust technology and digitalization, the digital performance of specific countries, and consequently their digital advancement, impacts the development of esports, as well as the achieved successes in the realm of esports.

* Corresponding author

Based on these considerations, our aim was to examine the digitalization of European Union Member States along the lines of the Digital Economy and Society Index (DESI), annually issued by the European Commission. We aimed to investigate whether a connection exists between esports performance and the digital performance and advancement of individual Member States. The relevance of this topic stems from the fact that, similar to traditional sports, the esports performance of a given nation significantly influences the international allocation of resources. A nation's success in esports can have substantial positive externalities on the development of domestic departments, clubs (and leagues), and potentially related industries (Sugden and Tomlinson, 1998; Hoffmann et al., 2002). Therefore, understanding how the digital societal and economic development of a nation affects esports performance holds paramount importance.

In this manuscript, we have undertaken a two-fold approach. Firstly, we analyzed and organized the pertinent secondary literature and key international models as part of a secondary research effort. This was done with the aim of establishing a logical correlation between various aspects of digitalization and esports performance. Secondly, employing the DESI composite index, we conducted a categorization of European Union member states into homogeneous groups. This categorization provided insight into the prevailing digital "power dynamics" and the current state of the "digital divide" within the EU, as well as patterns characteristic of individual member states and different groups. Subsequently, we examined the existence of a significant correlation between the two factors through a correlation analysis, specifically employing regression analysis. As mentioned before, in terms of existing literature it can be said that researches focusing on sports performance and their economic predictors paint a diverse picture. Interest regarding the subject still engages researchers. This is well illustrated by the multitude of studies conducted in recent years (Asadizadeh and Askarian, 2019; Andreff and Scelles, 2021; Makiyan and Rostami, 2021; Fahlevi et al., 2023). However, it is hard to compare these results to esports because of its distinction from traditional sports, and its intense digital and technological nature as well. In terms of esports, we found significantly less available body of work. Similar research was conducted by Parshakov and Zavertiaeva (2018) in which traditional economic and social predictors like GDP, population etc. was used. Researches focusing on digital development and its aspects winding in the different field of economy and society still case to exist.

MATERIALS AND METHODS

In the course of our research, following the conventional scholarly model, we relied on the research triad, encompassing theoretical grounding, data collection and observation (measurement), and subsequent data analysis (interpretation). As such, we employed both primary and secondary methods, enabling us to examine the extent, dimensions, and characteristics of digitalization in individual EU Member States. Thus, our research drew upon two pivotal sources of data. We analyzed the digital performance of European Union member countries for the year 2022, utilizing the scores of the Digital Economy and Society Index (DESI). The European Commission established the DESI in 2015 to originally measure the progress of the European Digital Agenda (though the initiative and data collection commenced in 2014), and since then, the Union has been annually releasing the digital performance indicators of member states (European Commission, 2022; Bajnai and Kakas, 2021). The reports include country profiles each year, aiding member states in identifying priority areas for action, as well as thematic chapters that provide EU-level analysis on key digital policy domains. In our research, the dimensions measured by the index, particularly focusing on the four major policy advance dimensions aligned with the "2030 Digital Compass," took central prominence (Table 1).

Table 1. The main dimensions of DESI (Source: Own edition, based on European Commission, 2022)

Dimension	Description
Human capital	Models the characteristics of internet users in a given country, encompassing fundamental digital competencies, internet user knowledge, advanced skills, as well as education in the field of Information and Communication Technology (ICT).
Connectivity	Measures the varying coverage of broadband and mobile broadband in member states, indicating the quality of network infrastructure, as well as the broadband coverage price index, which assesses the cost of utilization.
Integration of digital technology	Models the digital intensity of member states by measuring the presence and utilization of various technologies available to the business sector. This dimension also encompasses modeling various indicators of e-commerce.
Digital public services	The dimension categorizes the evolution of various electronic public services accessible to the population and classifies the proportion of their utilization per capita.

The DESI reports enable various analyses, including overall performance assessment, zooming-in, tracking progress, and comparative analysis. In our research, two of these play a significant role. Firstly, through the overall performance assessment, we aimed to examine the digital situation of member states. Secondly, within the framework of comparative analysis, we endeavored to categorize and compare member states according to their index scores and their corresponding levels of digital development. In order to comprehensively examine the relationship between digitalization and esports within their contexts, beyond measuring digital performance, we required a database that tracks data related to the esports performance of member states. For this purpose, the only such source available was the database found on the Esports Earnings website. Esports Earnings compiles and manages data from 57,634 tournaments, 123,430 players, and 1,690 teams across more than 600 games. In addition to game, league, team, and tournament-level statistics, the website also provides country-specific breakdowns (Esportsearnings.com, 2023), from which we analyzed the global esports scene based on 2022 data and rankings.

Our research can be divided into three significant pillars (Figure 1). The first and foremost segment involved reviewing domestic and internationally recognized theoretical models. This aimed not only to lay the foundation for subsequent stages of the research but also to identify and systematize factors influencing sports and esports performance and align them with the relevant dimensions of DESI. This process aimed to demonstrate the potential correlations between the indicators and the evolution of esports performance. We accomplished this from three perspectives. We examined research focusing on factors influencing traditional sports performance, research investigating factors influencing esports performance, and research addressing digital development. In the second phase of our operational work, we employed multivariate statistical procedures to establish clusters based on the primary dimensions of DESI indicators. The aim was to group observation units (EU Member States) into as homogeneous clusters as possible, according to the variables we aimed to include. The correlation between dimensions was verified using Spearman's rank correlation coefficients (own result: r <0.786; recommendations: r <0.9 (Sajtos and Mitev, 2007; Hair et al., 2014)), leading us to incorporate all four dimensions into the analysis. Outliers were addressed using the Single Linkage method, resulting in the selection of Romania for removal.

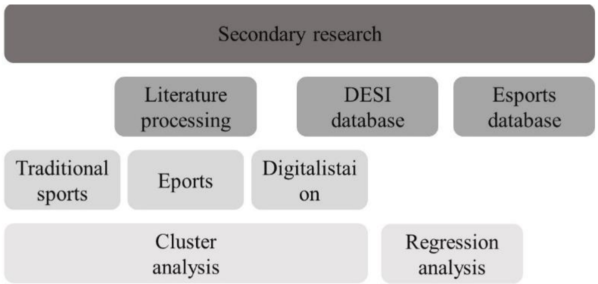


Figure 1. Research methodology (Source: Own editing, 2023)

According to the schema of cluster analysis, we have selected the distance measure used, which was the Square of the Euclidean Distance (SED). The reason for this choice stems partly from the fact that SED is one of the classical and commonly used methods for distance measurement. Because of the squaring, larger distances are emphasized more. Furthermore, both the Centroid and Ward methods among cluster methods require this distance measure (Sajtos and Mitev, 2007; Hair et al., 2014). Primarily, we have chosen the Ward method among cluster methods. The reason for this choice was to mitigate information loss during group mergers. The Ward method, as a space-preserving procedure, aims to carry out cluster mergers with minimal information loss (within-group variance) (Kovács and Balogh, 2007). The essence of the Ward method is to calculate the average for the observation units within a cluster, as well as the sum of their squared deviations from the average. It always merges the observation unit or cluster into the larger cluster formation with the smallest increase in the sum of squared deviations (Backhaus et al., 2006), thus striving to minimize the internal heterogeneity of the clusters.

To examine the reliability and validity of the established clusters, I conducted variations in cluster methods, distance measures, and cluster numbers (Ward; Complete; Centroid; K-means with cluster centers calculated based on Ward; 3-4-5 cluster solutions). After comparing the different approaches and considering professional criteria (e.g., elbow criterion based on coefficients), I ultimately selected the solution with four clusters created using the Ward method. In the final phase of the research, the investigation of the actual relationship between digitalization and esports performance was conducted, employing correlation studies, specifically Linear Regression Analysis, to examine the possible relationship within this context. This was done, after ensuring that all assumptions for the use of linear regression analysis were fulfilled (no outlier in the sample, the model has no autocorrelation as the value of the Durbin-Watson statistic was 1.87, no multicollinearity was detected in the sample, and homoscedasticity was given as the value of the Breusch - Pagan test was Sig. 0.119).

RESULTS AND DISCUSSION

1. Relevant Variables

Human capital and digital skills. This dimension of DESI encompasses sub-dimensions and indicators that measure the internet usage skills and digital competencies of a country's population. This includes assessing basic to advanced digital skills, as well as professionals within the IT field. Additionally, it measures educational and training performance within the IT sector. The significance of this dimension can be traced to the simple fact that the adaptation of digitalization and confident, seamless integration of it into our daily lives assume at least a basic level of digital literacy (Hsieh and Rai, 2008). This narrative is also emphasized by several studies that draw parallels between lower levels of skills and knowledge and the lag in the adoption and utilization of digitalization and ICT (Hargittai, 1999; Kiiski and Pohjola, 2002; Pohjola, 2003; Chinn and Fairlie, 2007; Dewan et al., 2009; Chinn and Fairlie, 2010; Happ and Horváth, 2020).

If we seek the point of connection between research endeavors examining dimensions of digital competencies and those modeling athletic achievements, including esports performance, the most direct approach is to identify it primarily through the population as an influencing factor. Indeed, the literature indicates that alongside GDP, population serves as a significant explanatory variable for the success of countries in traditional sports. This is due to the fact that it reflects the demographic strength of a given nation and, consequently, the number of potential athletes (Lozano et al., 2002; Rathke and Woitek, 2007; Wu et al., 2009). This viewpoint is also emphasized in the study by Emrich (2012), wherein the argument is made that population is a fundamental determinant of Olympic success. A large population expands the pool of potential athletes and talents. The resultant highly competitive selection process implies that athletes from larger countries (measured by population) tend to achieve more success in international competitions, such as the Olympic Games.

Although esports is not closely tied to physical fitness, we cannot disregard the fact that a larger population size enhances the likelihood of identifying talented esports players within a given country. Returning to the dimension of the DESI that measures digital competencies, it is essential to mention that due to the robust technological and digital nature of esports, the confident and consistent application of digital knowledge and skills significantly augments the number of users who engage in esports activities. Consequently, this enlarges the community of individuals active in esports who have the potential to emerge as competitive talents on an international scale.

At this juncture, we would also like to underscore Green's (2005) theory of sports systems, in which she highlights that alongside improving the quantity and quality of competitive opportunities for athletes, a fundamental aspect of sports systems' development is the substantial increase in the number of participants (Shilbury et al., 2008). Connectivity or internet access. In this dimension, as implied by its name, we encounter the scores of sub-dimensions and indicators that model various forms of wired and mobile broadband coverage with different speeds and capacities. Additionally, the methodology includes the broadband price index, reflecting the cost of access. The percentage of households using the internet and the extent of broadband coverage are the most common variables in research assessing digital development and the digital divide (Cuervo and Menéndez, 2006; Cilan et al., 2009; Vicente and López, 2010; Chinn and Fairlie, 2010; Brandtzæg et al., 2011). Having adequate digital user skills is not sufficient. The availability of appropriate infrastructural conditions would play a determining role in increasing the number of potential users and, consequently, competitive talents. These variables express the levels of a country's connectivity in terms of ICT infrastructure.

In addition to coverage, it is important to consider internet costs, as literature concurs that this factor exhibits a strong negative correlation with the level of digital development (Kiiski and Pohjola, 2002; Unwin et al., 2009; Dewan et al., 2009). These assertions are comprehensively summarized by Dewan et al. (2009), who draw attention in their research to the substantial lag of developing countries in the process of digital development. Nevertheless, with facilitation of computer and internet access, coupled with cost-reduction policies and the establishment of fundamental infrastructural prerequisites, the digital development process could be significantly accelerated.

Research examining factors influencing traditional sports delves into these training methods, more advanced sports facilities, and the array of sports equipment available to athletes. This is manifested along the axis of more sophisticated infrastructure and sports apparatus, as they result in enhanced preparation and consequently improved performance, whether in football or the multitude of sports encompassed by the Olympic program (Hoffmann et al., 2002; Bernard and Busse, 2004; Yamamura, 2009; Emrich et al., 2012). This logic is echoed in the research spotlighting esports performance by Parshakov and Zavertiaeva (2018). Their study attributes the growth of technological and digital infrastructure, alongside accessibility, to an increase in users and thereby potential talents, leading to more effective preparation and superior performance. It is equally noteworthy that the development of digital infrastructure reflects resources that can be utilized for athlete training, acquisition, and maintenance of facilities and equipment that facilitate their training regimen, and additionally, for the development of novel training approaches aimed at enhancing performance (Rathke and Woitek, 2007).

The integration of digital technologies encapsulates sub-dimensions that express the digital intensity of EU Member States or the digital technologies accessible and utilized by businesses. The indicators of this dimension follow the logic derived above, albeit from different perspectives. The level of digital development within specific countries is not solely manifested in individuals' digitization and technology adoption, but also in the extent of integration of digital technologies within the economic and societal landscape. It can be asserted that countries characterized by a more digitally intensive environment, based on penetration and exposure, not only reinforce digital competencies and everyday usage but also yield appropriate infrastructural foundations. Hence, the level of integration of digital technologies within specific countries can be an important indicator for forecasting esports performance. The last major dimension of the DESI index encompasses indicators measuring digital public services. The elevation of these indicators in research is crucial, as they provide an opportunity to extract additional information beyond the mere adoption of ICT by assessing how we utilize these advanced services. Therefore, the dimension offers the potential to gain insights into individual usage patterns (Hsieh et al., 2008). As a result, the percentage of the population utilizing digital public services has also been incorporated into the analysis.

In this phase of our research, our aim was to explore international literature models and approaches in the domains of both traditional sports and e-sports, as well as digital development. By acquainting ourselves with these models, we further aimed to draw parallels along the trajectory of digital development between research examining factors influencing traditional sports performance and the evolution of esports. Guided by this framework, we can assert that theoretically, a logical correlation can be posited between digitalization metrics and the requisite condition framework for esports development and success. This places a direct emphasis on investigating the existence of a real relationship.

1. Digital Map of the European Union

We complemented the method of processing relevant literature with cluster analysis to gain initial insights into the digital dynamics of European Union member states before delving into correlation examinations. The aim of cluster analysis was to categorize the member states into relatively homogeneous groups based on the main dimensions of the DESI. In conducting the clustering and determining the number of clusters, we strived to

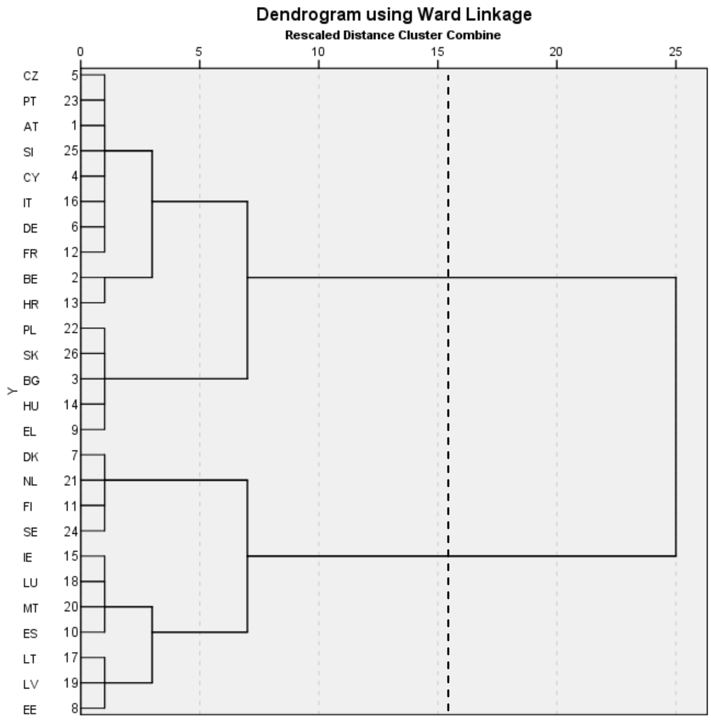


Figure 2. The dendogram of the Ward method (Source: Own editing, 2023)

consider the "trade-off" effect. This involves finding an optimal quantity of clusters that reduces the complexity of our data structure while maintaining homogeneity within each group, thus ensuring that merging distant observational units does not compromise intra-group cohesion (Malhotra, 2001). As a result, we successfully delineated four clusters, which were formed based on the index scores of the main dimensions of DESI as follows. The dendrogram of the Ward's method, as depicted in Figure 2 below, reveals that at an appropriate level, four well-defined clusters emerged.

Furthermore, for the purpose of labeling cluster assignments, an additional variable was saved. Subsequently, we analyzed the group means obtained as a result of the conducted trial concerning the examined variables (Table 2).

Table 2. Cluster Analysis Group Means by Variables(Source: Own editing, 2023)

Cluster	**Human capital**	**Connectivity**	**Integration of digital technology**	**Digital public services**
(n=10; 38%)	(-) 0,115110	(**0**) 0,140010	(**0**) 0,094750	(-) 0,159760
(n=5; 19%)	(--) 0,096160	(--) 0,127120	(--) 0,057240	(--) 0,128220
(n=4; 15%)	(++) 0,159800	(++) 0,167500	(++) 0,140875	(++) 0,210675
(n=7; 27%)	(+) 0,131729	(-) 0,138371	(**0**) 0,094457	(+) 0,209957
Total (n=26; 100%)	0,122815	0,141319	0,094554	0,175042

0: Around average; -- Well below average; - Slightly below average; ++ Well above average; + Slightly above average

Based on the above results, it can be concluded that the Member States belonging to Cluster 1 (n=10) performed slightly below average in two dimensions, "*Human Capital*" and the area of "*Digital Public Services*" accessible and used by citizens. They demonstrated average performance in the dimensions of "*Connectivity*" and "*Integration of Digital Technologies*". It is evident that rather than focusing on users, this group is characterized by technological development. Therefore, this group was labeled as the cluster of "Technology-oriented" Member States. Countries belonging into this cluster are: Austria, Belgium, Cyprus, Czech Republic, France, Croatia, Germany, Italy, Portugal, Slovenia (Figure 3). For Cluster 2 (n=5), according to cluster averages, it is apparent that they significantly underperformed in all four dimensions of digital development. Thus, the members of this cluster are facing substantial shortcomings in their digital performance across all areas, resulting in the categorization of this cluster as "Digital Laggards". Countries belonging into this cluster are: Greece, Bulgaria, Poland, Hungary, Slovakia (Figure 4). Based on the DESI index score and digital performance, Romania, previously treated as an outlier and excluded, would also belong to this group, thus constituting a contiguous Eastern bloc. This Eastern lag is not a surprising result, considering the fact that multiple studies emphasize the significant presence of the "digital divide" in Eastern European countries (Cruz-Jesus et al., 2012; Quintá and Arce, 2013). Furthermore, the existence and impact of economic asymmetry also support this observation (Billon et al., 2008; Vicente and López, 2011; Campos, 2016).

Figure 3. "Technology oriented" Member States
(Source: Own editing, 2023)

Figure 4. "Digital Laggard" Member States
(Source: Own editing, 2023)

Upon further examination of the results, Cluster 3 (n=4) significantly outperformed the average in all four main areas, portraying a balanced, all-encompassing digital development. These observational units constitute the group of "Digital Powerhouses". Countries belonging into this cluster are: Finland, Denmark, Netherlands, Sweden (Figure 5.). This outcome aligns with international research that highlights the pioneering role of Northern European countries in the digital realm (Cruz-Jesus et al., 2012; Marti and Puertas, 2023). Correspondingly, a connection can also be observed with the findings of studies emphasizing the more effective innovation capabilities (GII) of these countries, enabling faster digital adaptation

(Aytekin et al., 2022). In the case of Cluster 4 (n=7), they performed above average in two dimensions ("*Human Capital*"; "*Digital Public Services*"), while achieving around average performance in "*Integration of Digital Technologies*" and below-average performance in "Connectivity." States within this cluster appear to be more advanced from the user perspective compared to the Technology-oriented cluster. As a result, they were named the "User-centric" cluster.

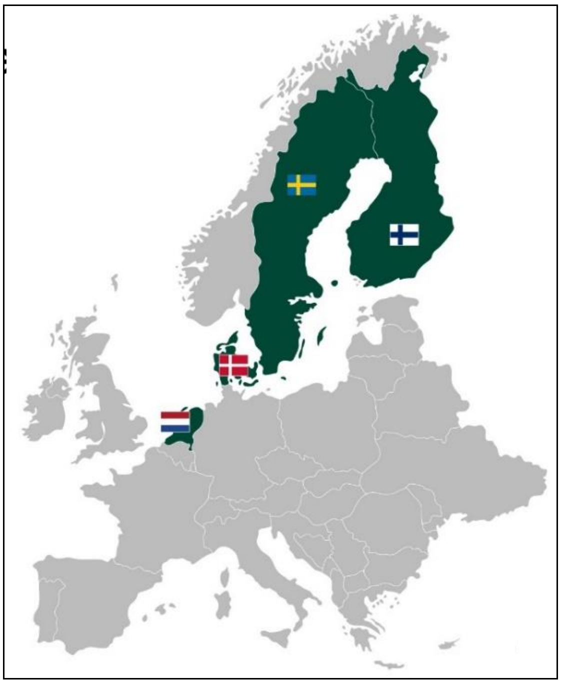


Figure 5. "Digital Powerhouse" Member States
(Source: Own editing, 2023)

Figure 6. "User-centric" Member States
(Source: Own editing, 2023)

Based on the results of the cluster analysis, it can be asserted that beyond the "Digital Powerhouses," which represent the Member States with the most advanced digital development in all four dimensions, and the "Digital Laggards," who significantly lag behind in digital development across all areas, two other significant trends emerge on the European Union's digital map. Firstly, there is a group of Member States excelling in the integration of digital technologies, internet, and various broadband coverage areas—these are primarily characterized by a Technology-oriented digitalization approach. Secondly, there is a cluster of Member States demonstrating lower technological advancement but showcasing better performance in human factors. Thus, they are more User-centric in nature.

2. The relationship between digital development and esports performance

In the final phase of our research, we examined the association between the two variables, namely the DESI (Digital Economy and Society Index) scores modeling the digital development of member states and the esport performance of these states. It's important to highlight that for the DESI scores, we utilized the aggregated value of the four main policy areas or dimensions (Human Capital, Connectivity, Integration of Digital Technologies and Digital public services) in other words, the main DESI scores of each member state, which represents the highest dimension of the composite index. Once we ensured that the assumptions for conducting linear regression were met, we proceeded with the analysis. After running the regression, it can be stated that the linear regression model investigating the impact of digital development on esport performance during the 2022 period yielded reliable results. The model's explanatory power is acceptable (R=0.42; r^2=0.179; Sig. = 0.032). As part of the overall examination of the models, we also determined the Durbin-Watson value, which is 1.87.

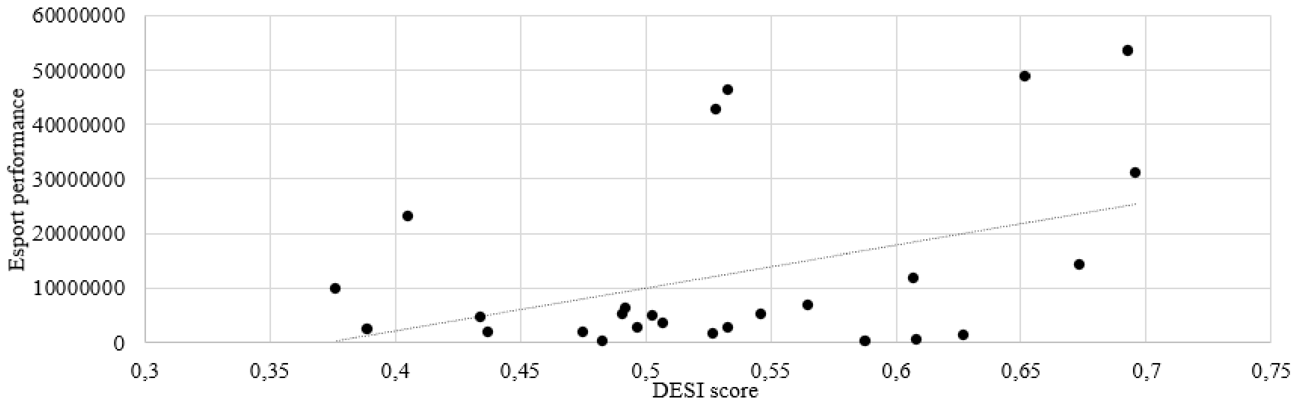


Figure 7. Results of the linear regressions (Source: Own editing, 2023)

Based on these results it can be said, that the regression line can account for 17.9% of the total variation, implying that various aspects of digital development contribute to 17.9% of the differences in member states' esport performance. This result is not surprising, as similar to traditional sports, where factors like a country's average temperature can influence performance, a multitude of factors can affect esport performance as well. Nevertheless, the significance of the F-test (Sig. 0.032) confirms the presence of a relationship. Additionally, the significance of the slope determined in the t-test (Sig. 0.032) also indicates that digital development influences esport performance.

CONCLUSION

Similar to traditional sports, the esports performance of a given nation significantly influences the international allocation of resources. A nation's success in esports can have substantial positive externalities on the development of domestic departments, clubs (and leagues), and potentially related industries (Sugden and Tomlinson, 1998; Hoffmann et al., 2002). Therefore, understanding how the digital societal and economic development of a nation affects esports performance holds paramount importance. Based on these considerations, our aim was to examine the digitalization of European Union Member States along the lines of the Digital Economy and Society Index (DESI), annually issued by the European Commission. We aimed to investigate whether a connection exists between esports performance and the digital performance and advancement of individual Member States.

Based on these, our research was built upon three major segments. In the first phase, using various international theoretical models, we aimed to find logical connections between traditional sports performance, esports performance, and digital development. This provided evidential support for the potential existence of a relationship. After examining the four main dimensions of the DESI along these relationships, the second segment of the research focused on investigating the prevailing digital power dynamics within the European Union, which helped outline four defining directions. The group of "Digital Powerhouses" was identified, comprising Member States, mainly from the Northern part of the EU that excel in all four dimensions of the DESI. This group is complemented by the "Digital Laggards" from the Eastern part of the EU, who perform well below average in all four areas. Additionally, two other directions emerged: Member States emphasizing technology and those focusing on user-friendliness, or user-centric approaches.

In the third and most crucial phase of our research, we examined the actual connection between digital development and esports performance. The results of the statistical analysis we conducted supported our preliminary proposition, confirming a significant relationship between the two variables. This current study provided only a glimpse into a larger and more significant investigation. Going forward, it is worthwhile to consider the various levels of DESI and delve deeper into the different axes (technology-oriented, user-centric). Additionally, a more in-depth examination of the different directions may yield valuable insights. Moreover, it could be beneficial to incorporate the factor of time into the research and analyze the progression of member states' development over time.

Limitation of the research

It is important to highlight that our research encounters limitations from various perspectives, which can be categorized into two main strands.

Firstly, it's essential to acknowledge that we are examining aggregated performance in the context of countries. For the research's purposes, investigating individual and team performances could prove valuable and insightful in the future. Additionally, results might differ between online and offline games, as well as across different types of games.

Secondly, comparing the research results directly with studies on traditional sports is challenging, given that the most relevant indicator of esport success is the share of prize money rather than the number of medals, titles, or rankings. Therefore, the proportion of won tournaments may not adequately reflect a country's performance. In this regard, the ideal solution would involve the availability of a publicly accessible and verified database that tracks not only the amount of money earned by different countries but also the achieved podium placements, which could be equated to medals per podium placement (first place gold, second place silver, third place bronze medal).

Author Contributions: Conceptualization, A.MO. and A.MÜ. methodology, A.MO. and A.MÜ, software, A.MO.; validation, A.MO. and A.MÜ ;formal analysis A.MO. investigation, A.MO. and A.MÜ; data curation, A.MO. ; writing - original draft preparation, A.MO. and A.MÜ; writing - review and editing, A.MO. and A.MÜ; visualization, A.MO. supervision, A.MO. and A.MÜ; project administration, A.MO. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: „Supported by the ÚNKP-22-3-II New National Excellence Program of the Ministry for Culture and Innovation from the source of the National Research, Development and Innovation Fund."

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Andreff, M., Andeff, W., & Poupaux, S. (2008). Economic Determinants of the Olympic Performance: Forecasts of the medals to be won at Beijin Olympic Games. *Revue d' Eco-nomie Politique*, 2008, 118 (2), 135–169.

Andreff, W., & Andreff, M. (2015). *Economic prediction of sport performances from the Beijing Olympics to the 2010 FIFA World Cup in South Africa: the notion of surprising sporting outcomes*. In: Rodriguez, P. – Késenne, S. – Koning, R. (2015). The Economics of Competitive Sports, 2015, 185-215. https://doi.org/10.4337/9781783474769.00018

Andreff, W. (2013). Economic development as major determinant of Olympic medal wins: predicting performances of Russian and Chinese teams at Sochi Games. *International Journal of Economic Policy in Emerging Economies*, 2013, 6 (4) 314-340.

Andreff, W., & Scelles, N. (2021). *Economic determinants of sport performance*. Research handbook on sports and society, 69-82.

Asadizadeh, S., & Askarian, F. (2019). The effect of economic factors on sport performance of selected countries participating in summer universiades (1999–2015). *Sport Management Journal*, 11(4), 833-853. https://doi.org/10.22059/jsm.2019.249512.2000

Aytekin, A., Ecer, F., Korucuk, S., & Karamaşa, Ç. (2022). Global innovation efficiency assessment of EU member and candidate countries via DEA-EATWIOS multi-criteria methodology. *Technology in Society*, 68, 101896. https://doi.org/10.1016/j.techsoc.2022.101896

Backhaus, K., Erichson, B., Plinke, W., & Weiber, R. (2006). *Multivariate Analysemethoden*. Springer Verlag, 2006.

Bajnai, Z., & Kakas, S. (2021). Measurement of State Digital Development - Methodologies and Indicators Utilized by the EU, USA, UN, and OECD. 2021. *Financial Review Online*.

Bernard, A.B., & Busse, M.R. (2004). Who wins the Olympic Games: Economic resources and medal totals. *Review of economics and statistics*, 2004, 86 (1), 413-417. https://doi.org/10.1162/003465304774201824

Bian, X. (2005). Predicting Olympic medal counts: The effects of economic development on Olympic performance. *The park place economist*, 2005, 13 (1, 37-44.

Billón, M., Ezcurra, R., & Lera-López, F. (2008). The spatial distribution of the internet in the European Union: Does geographical proximity matter?. *European Planning Studies*, 16(1), 119-142. https://doi.org/10.1080/09654310701748009

Brandtzæg, P.B., Heim, J., & Karahasanovic, A. (2011). Understanding the new digital divide – a typology of Internet users in Europe, *International Journal of Human–Computer Studies*, 2011, 69, 123–138.

Campos, G. L. (2016). From success to failure: under what conditions did mercosur integrate? *Journal of Economic Integration*, 855-897. https://doi.org/10.11130/jei.2016.31.4.855

Chinn, M.D., & Fairlie, R.W. (2007). *The determinants of the global digital divide: a crosscountry analysis of computer and internet penetration.* Oxford Economic Papers – New Series, 2007, 59, 16–44.

Chinn, M.D., & Fairlie, R.W. (2010). ICT use in the developing world: an analysis of differences in computer and internet penetration. *Review of International Economics*, 2010, 18, 153–167. https://doi.org/10.1111/j.1467-9396.2009.00861.x

Cilan, C.A., & Bolat, B.A., & Coskun, E. (2009). Analyzing digital divide within and between member and candidate countries of European Union. *Government Information Quarterly*, 2009, 26, 98–105. https://doi.org/10.1016/j.giq.2007.11.002

Cuervo, M.R.V., & Menendez, A.J.L. (2006). A multivariate framework for the analysis of the digital divide: Evidence for the European Union-15. *Information & Management*, 2006, 43, 756–766. https://doi.org/10.1016/j.im.2006.05.001

Cruz-Jesus, F., Oliveira, T., & Bacao, F. (2012). Digital divide across the European Union. *Information & Management*, 49(6), 278-291. https://doi.org/10.1016/j.im.2012.09.003

Dewan, S., Ganley, D., & Kraemer, K.L. (2009). Complementarities in the diffusion of personal computers and the internet: implications for the global digital divide. *Information Systems Research*, 2009, 1–17. https://doi.org/10.1287/isre.1080.0219

Emrich, E., Klein, M., Pitsch, W., & Pierdzioch, C. (2012). On the determinants of sporting success–A note on the Olympic Games. *Economics Bulletin*, 2012, 32 (3), 1890-1901.

EsportsEarnings.com (2023). Esports Earnings. Accessed on: 2022.05.18. https://www.esportsearnings.com

European Commission (2022). *Digital Economy and Society Index (DESI) 2022 - Methodological Note*, Accessed: 2022.03.21. https://ec.europa.eu/ newsroom/dae/redirection/document/88557

Fahlevi, M., Jermsittiparsert, K., Joemsittiprasert, W., Sözüdoğru, O., Emiroğlu, T., & Aljuaid, M. (2023). Investigating the Association Between Economic Conditions and Sports Performance in Asia: A Panel Data Approach. *Journal of Sport Psychology*, 32(1), 112-119.

Green, B.C. (2005). Building sport programs to optimize athlete recruitment, retention, and transition: Toward a normative theory of sport development. *Journal of sport management*. 2005, 19 (3), 233-253. https://doi.org/10.1123/jsm.19.3.233

Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., & Tatham, R.L. (2014). Multivariate data analysis. Seventh Edition. Pearson Education Limited Harlow, Essex, 415-475.

Happ, E., & Horváth, Z.I. (2020). A study of digital marketing tools usage habits among Hungarian tourists. *GeoJournal of Tourism and Geosites*, 32(4), 2020, 1283-1289.

Hargittai, E. (1999). Weaving the Western Web: explaining differences in Internet connectivity among OECD countries. Telecommunications Policy. 1999, 23, 701–718. https://doi.org/10.1016/S0308-5961(99)00050-6

Hoffmann, R., Ging, L.C., & Ramasamy, B. (2002). The socio-economic determinants of international soccer performance. *Journal of Applied economics*. 2002. 5 (2) 253-272. https://doi.org/10.1080/15140326.2002.12040579

Hsieh, J.J.P.A., & Rai, A., Keil (2008). Understanding digital inequality: comparing continued use behavioral models of the social-economically advantaged and disadvantaged, *MIS Quarterly*, 2008, 32 97–126.

John Manuel, L., & Fadal, R. (2011). An economic analysis of sports performance in Africa. *International Journal of Social Economics*, (2011), 38(10), 869-883. https://doi.org/10.1108/03068291111170415

Kiiski, S., & Pohjola, M. (2002). Cross-country diffusion of the Internet. *Information Economics and Policy*. 2002. 14 297–310.

Kovács, E., Gulyás, E., & Sterbenz, T. (2017). Determinants of a nation's sport performance at different mega sport events. *Society and Economy*. 2017. 39 (4) 573-596.

Kovács, S., & Balogh, P. (2007). Cluster Analysis as a Method for Evaluating Pig Farms. *Agricultural Science Communications*, 2007. 27, 165-174.

Lozano, S., & Villa, G., Guerrero, F., Cortés, P. (2002). Measuring the performance of nations at the Summer Olympics using data envelopment analysis. *Journal of the Operational Research Society*. 2002. 53 501-511. https://doi.org/10.1057/palgrave/jors/2601327

Makiyan, S.N., & Rostami, M. (2021). Economic Determinants of Success in Olympic Games. *Turkish Journal of Sport and Exercise*, 23(1), 33-39.

Malhotra, N.K. (2001). *Marketingresearch*. Műszaki Könyvkiadó, Budapest, 698-721.

Marti, L., & Puertas, R. (2023). Analysis of European competitiveness based on its innovative capacity and digitalization level. *Technology in Society*, 72, 102206. https://doi.org/10.1016/j.techsoc.2023.102206
Parshakov, P., & Zavertiaeva, M. (2018). Determinants of performance in eSports: A country-level analysis. *International Journal of Sport Finance*, 2018, 13 (1), 34-51.
Parshakov, P. (2019). *The economics of eSports: elements that affect performance*. Doctoral dissertation, Programa de Doutoramento en Análise Económica e Estratexia Empresarial (RD 99/2011).
Pohjola, M. (2003). *The Adoption and Diffusion of ICT Across Countries: Patterns and Determinants*. The New Economy Handbook, Academic Press, 2003, 230– 247.
Quintá, F.J.A., & Arce, J.C.M. (2013). The information society in Europe: Policies to stem the digital divide. *Quaestiones Geographicae*, 32(2), 25-38. https://doi.org/10.2478/quageo-2013-0011
Rathke, A., & Woitek, U. (2008). Economics and the summer Olympics: an efficiency analysis. *Journal of sports economics*. 2008, 9(5), 520-537. https://doig.org/10.1177/1527002507313743
Rosas, A., Antonio, L., & Flegl, M. (2019). Quantitative and qualitative impact of GDP on sport performance and its relation with corruption and other social factors. *Nóesis. Revista de ciencias sociales y humanidades*. 2019, 28(55), 15-37. https://doi.org/10.20983/noesis.2019.1.2
Sajtos, L., & Mitev, A. (2007). *SPSS research and data analysis handbook*. Alinea Kiadó, Bu-dapest.
Shilbury, D., Sotiriadou, K.P., & Green, B.C. (2008). Sport development. Systems, policies and pathways: An introduction to the special issue. *Sport Management Review*, 2008, 11 (3), 217-223.
Shughart, W.F., & Tollison, R.D. (1993). Going for the gold: Property rights and athletic effort in transitional economies. *Kyklos*, 46, 263–272.
Stevens, J. (1996). *Applied multivariate statistics for the social sciences (3rd ed.).* Lawrence Erlbaum Associates, Publishers: New Jersey
Studenmund, A.H. (2001). *Using econometrics – A practical guide (4th ed.).* Addison, Wesley, Longman: New York.
Sugden, J., & Tomlinson, A. (1998). *FIFA and the Contest for World Football*. Cambridge, Polity Press.
Unwin, T., & de Bastion, G. (2009). *Digital divide.* In: K. Rob, T. Nigel (Ed.). International Encyclopedia of Human Geography, Elsevier, Oxford, 2009, 191–197.
Vagenas, G., & Vlachokyriakou, E. (2012). Olympic medals and demo-economic factors: Novel predictors, the ex-host effect, the exact role of team size, and the “population-GDP” model revisited. *Sport Management Review*, 2012, 15(2), 211-217. https://doi.org/10.1016/j.smr.2011.07.001
Vicente, M.R., & Lopez, A.J. (2015). Some empirical evidence on Internet diffusion in the New Member States and Candidate Countries of the European Union. *Applied Economics Letters*, 2008, 15, 1015–1018. https://doi.org/10.1080/13504850600972352
Wu, J., & Liang, L., & Yang, F. (2009). Achievement and benchmarking of countries at the Summer Olympics using cross efficiency evaluation method. *European Journal of Operational Research*, 2009, 197(2), 722-730. https://doi.org/10.1016/j.ejor.2008.06.030
Yamamura, E. (2009). Technology transfer and convergence of performance: an economic study of FIFA football ranking. *Applied Economics Letters*, 2009, 16(3), 261-266. https://doi.org/10.1080/13504850601018361

Article history: Received: 23.08.2023 Revised: 03.10.2023 Accepted: 26.10.2023 Available online: 06.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1439-1446
DOI 10.30892/gtg.50424-1142

EARLY PLANNING FOR TOTAL SOLAR ECLIPSE EVENTS: FACTORS IN SUSTAINABLE TOURISM DEVELOPMENT

Mohammad SOLTANOLKOTABI
Faculty of Tourism, Department of Geography, University of Girona (UdG) in Catalonia, Spain, e-mail: msoltanolkotabi@gmail.com

Lluís MUNDET
Faculty of Tourism, Department of Geography, University of Girona (UdG) in Catalonia, Spain, e-mail: lluis.mundet@udg.edu

Neda TORABI FARSANI*
Department of Museum and Tourism, Art University of Isfahan, Isfahan, Iran, e-mail: n.torabi@aui.ac.ir

Mehrshad GHANBARI HOSSEIN ABADI
Department of Museum and Tourism, Art University of Isfahan, Isfahan, Iran, e-mail: mehrshadwgh@gmail.com

Citation: Soltanolkotabi, M., Mundet, L., Torabi Farsani, N., & Ghanbari Hossein Abadi, M. (2023). EARLY PLANNING FOR TOTAL SOLAR ECLIPSE EVENTS: FACTORS IN SUSTAINABLE TOURISM DEVELOPMENT. *GeoJournal of Tourism and Geosites*, 50(4), 1439–1446. https://doi.org/10.30892/gtg.50424-1142

Abstract: One gorgeous natural event which attracts tourists to a destination is an eclipse. This paper is an initial attempt to investigate the effective factors for early planning in destinations for a total solar eclipse. A qualitative-quantitative methods (with exploratory factor analysis) were used. The results reveal seventeen effective factors and five variables such as management and planning at different levels; setting up a news agency website and social networks to increase the level of public awareness and advertising; local involvement; organizing local festivals in nearby villages and cities; and public involvement as the main factors in early planning in destinations for a total solar eclipse. The results also illustrate that there is correlation between the identified variables. Eclipse events in a short period of time attract numerous tourists to a destination, and this is a form of mass tourism. Therefore, early management of the event plays an axial role in the sustainable development of the region.

Key words: Astronomical event, event, event management, solar eclipse, sustainable tourism

* * * * * *

INTRODUCTION

Astronomical events such as a lunar eclipse, a moon halo, a meteor shower, the aurora, Mars opposition, etc. attract tourists to destinations. One of the most important astronomical events is a total solar eclipse. Solar eclipses are natural phenomena; a total solar eclipse is especially mesmerizing and can be considered a tourism resource. On the other hand, solar eclipse celebrations and gatherings in the host communities provide an opportunity to hold large-scale festivals, since a total solar eclipse as an event attracts tourists and investments to destinations. Eclipses are known as mega natural events and need sustainable management for promoting green festivals and reducing negative impacts in destinations.

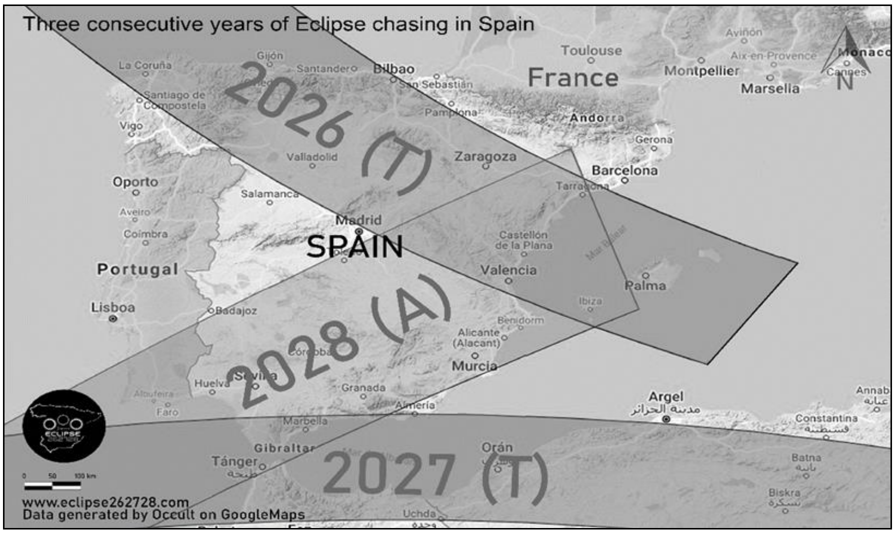


Figure 1. Three consecutive years of eclipse chasing in Spain (Source: www.eclipse262728.com)

* Corresponding author

Total solar eclipses often take place in regions that have no living memory of seeing a total solar eclipse. Even the planners usually have never experienced the phenomenon. When it comes to the total solar eclipse in 2026, the Iberian Peninsula will experience its first totality since 1912. That is to say that the lack of experience and awareness on holding the eclipse festival will affect both observers and organizers. In the total solar eclipse of 2017 in the USA and the total solar eclipse of 2023 in Australia, these destinations were the focal points of eclipse celebrations around the world and the local community started planning for the eclipse festivals years in advance.

The result was successful in both host communities, a great number of international tourists travelled the path of the totality and significant benefit was achieved throughout the event. Both cases are crucial to study since destinations such as Spain and Portugal (2026) (Figure 1) and Iran (2034) (Figure 2) will also be the main destinations on earth to host eclipse observers. Since millions of visitors plan to travel to observe the total solar eclipse, it is crucial to manage accommodation for the visitors. On the one hand, solar eclipse events create a unique opportunity for the accommodation sector to host tourists and take advantage of the benefits, but on the other, management of the crowd and offering suitable tourist services is difficult and needs early planning. The major objective of this study is to investigate the effective factors for early planning in host destinations for a total solar eclipse event. The research presents a summary of works on astronomy and tourism related issues of eclipse chasing. It is noteworthy that the results of this paper can reinforce the literature in this regard and that effective factors for early planning in destinations for a total solar eclipse have not been identified or studied before and thus this study can fill a gap in the literature.

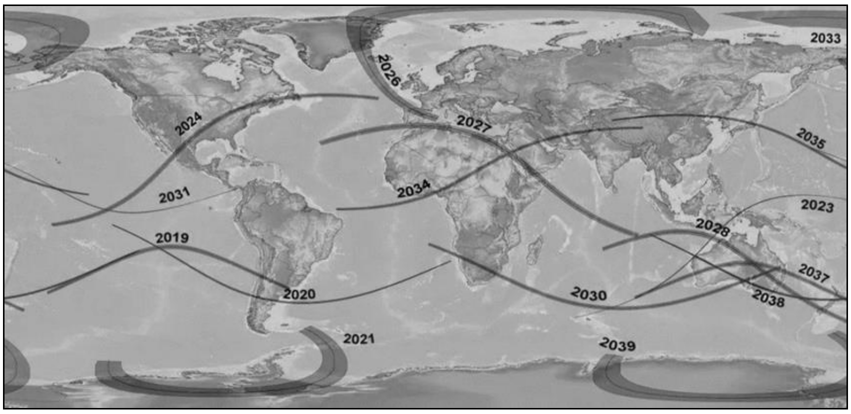


Figure 2. Paths of the total solar eclipses around the world from 2019 to 2039 (Source: https://eclipsewise.com)

LITERATURE REVIEW

The impacts of events on the destinations

The value of events is not restricted to one or a few aspects and economic approaches have been featured in the event-specific literature. Lundberg et al. (2017) discussed that events facilitate marketing and attracting tourists in the long-term as destinations try to take advantage of events to attract more tourists and repeat visits. Moreover, it is recognized that repeat visits simplify marketing efforts and help enhance revenues. Events are valuable for destination branding as they boost the number of visitors. The same authors believe that it would be a potential strategy to utilize events to ensure repeat visits and brand equity, and co-branding the destination together with the event. Also, as event goers tend to revisit the event to a larger extent than tourists do, good opportunities occur to market other activities in all seasons.

The benefit of events can be tangible such as attracting tourists, creating work opportunities etc. and intangible such as providing civic pride and community cohesion. Farber (1983) believes that events can reveal much about a community's symbolic, economic, social and political life, as they create links between people and groups in a community and between the community and the world. An aspect of the economic value of events is their direct and indirect role in creating employment within the local community, since their contribution generates temporary jobs in the tourism industry and other related sectors. In addition, Lundberg et al. (2017) emphasize the importance of the value of involvement, considering the recipients of this value. They argue that the community is often taken as the basis for judgements on the value of events, and community members are seen as the beneficiaries of events. As cited in May (2006) and Lundberg et al. (2017), it is important that involvement is seen as a process rather than merely passive inclusion. They believe that a festival must be considered as a series of activities rather than merely as an object or product to be consumed at a single point in time; thus, encouraging public participation in festivals and events at a meaningful level is a challenge. According to the same authors, involvement also needs to be considered from a local government perspective, since it is often the role of the local authority to establish and enhance the level of interest and engagement. At the destination, both residents and businesses can be participants, beneficiaries and hosts. It is crucial to have the residents involved in the event and give them maximum opportunities to promote themselves. In other words, local communities have a say in most events and are actively involved in their production, marketing and evaluation as well as attendance. According to Lundberg et al. (2017), as cited in Packer and Ballantyne (2010), festivals establish a sense of belonging and enable social integration during and beyond the event.

According to Andersson and Lundberg (2013), the values of events can be categorized into four dimensions: identity (happiness), cultural values, social and economic values (public education, health and welfare, environmental values) and conduct attitudes (health expenditure). In addition, Getz (2005) notes that events can act as place marketing, tourist attractions, image makers, catalysts and animators in tourism destinations. Planning and managing events can be a challenging process which can lead to significant positive outcomes at the destination where they take place. Nwokorie (2020) explains that events need an experienced team of people with a range of skills, applicable to the type and scale of the event being planned, with clear lines of authority, decision-making and control. It is also necessary to identify and work with other stakeholders to ensure successful feedback and the ongoing sustainability of events.

Furthermore, community acceptance has an central role in event management (Nwokorie, 2020). According to Yeoman et al. (2006), the aims of an event may focus on one of three main categories: economic, social and cultural politics. They argue that most events, even not-for-profit ones, have economic aims. Economic aims may be direct or indirect and short or long term. When it comes to the long-term impacts of an event, they create permanent or temporary jobs, and generate direct economic benefits for the host community through increased visits and improved levels of visitor expenditure.

As cited in Moufakkir and Pernecky (2015) and Wood (2005), it is believed that events can be also used as a marketing tool to improve the host community's image. Getz (1991) revealed that events do not necessarily have to attract visitors to destinations and play a significant role in tourism development. He describes that in most cases, tourists look for something to do in an area even though they did not previously desire to visit it. Also, events can be used in conjunction with other attractions to heighten overall destination appeal. Event tourism is a relatively new term defined by Getz (1991) as systematic planning*, development and marketing of festivals and special events as tourist attractions, development catalysts and image builders for attractions and destination areas.* Lundberg et al. (2017) state that destinations use events to improve their image, stimulate urban development and attract visitors and investment. Goldblatt (2005) defines stakeholders as individuals or organizations who have invested in an event. The emphasis of this paper is on eclipse events. A total solar eclipse festival as a once-in-a-lifetime experience at the main viewing point can be considered as a mega-event based on the numerous and wide range of audiences and significant impacts of this phenomenon.

Lundberg et al. (2017) define mega-events, by way of their size or significance, as those that offer extraordinarily high levels of tourism, media coverage, prestige or economic impact for the host community, venue or organization. Sadeghi Shahdani et al., (2023) believe that the events are tools for educational tourism. Sustainability in organizing events is an important issue to consider in a prosperous achievement. Especially when it comes to special and mega-events, sustainability must be studied in depth since the bigger an event is, the more significant its positive and negative effects are. This issue can be studied in event management according to its three fundamental pillars: social, economic and environmental.

Astronomical events

Pásková et al. (2021) named astronomical tourism as niche tourism, celestial ecotourism or dark sky tourism, in which an opportunity is created for environmental education, nature and space protection. Soleimani et al. (2019) also considered astronomical tourism as special-interest tourism in a nature tourism context, which includes dark sky observation and astrophotography. Iwanicki (2022) noted that the recently emerged concept of astro-tourism, astrotourism, astronomical tourism or astronomy tourism – all with the same meanings – is related to travel motivated by observations of celestial objects and the night sky, or visiting places related to astronomy (e.g., observatories, museums, planetariums, impact craters, or meteorites). Jiwaji (2016) introduced Tanzania as a destination for the viewing of stars and mentions setting up of fixed or mobile observatories especially in rural areas without light pollution and training local astro-tour guides as operational solutions for promoting astronomical tourism. Haristiani et al. (2016) discussed that the solar eclipse of 9 March 2016 attracted tourists to Indonesia and the results illustrate that the tourists not only travelled to see the solar eclipse, but they also wanted to get a sensation of myths and cultures in Indonesia during the solar eclipse. Furthermore, the authors argue that the solar eclipse event brought benefits for local communities.

The American total eclipse happened on 21 August, 2017 and covered 14 US states: Oregon, Idaho, Wyoming, Montana, Nebraska, Iowa, Kansas, Missouri, Illinois, Kentucky, Tennessee, Georgia, and North and South Carolina (Ma et al., 2020). Ma et al. (2020) introduced two tourists groups who travelled to visit the American total eclipse in 2017, such as opportunists and hardcore group I; tourists followed the “shortest-distance” pattern in their destination choices, presumably selecting convenient observation locations, with group II tourists being less affected by travel distance, and also different in their educational and financial characteristics. Group II tourists are more prevalent in communities with higher educational levels and financial affluence. Rao (2017) notes that there are no ticket sales for eclipse observations, so no one has a definitive count of how many people will attend, and the destinations should be prepared for major traffic jams. Therefore, destinations need a sustainable plan for defocusing crowded populations during solar eclipse events. It is noteworthy that, according to Agiesta (2017), about half of the US population planned to watch the eclipse.

Greenville news (2017) explained that the total solar eclipse that brought more than one million travellers to the state of South Carolina and left an additional $269 million at the Palmetto state's door. This impact made the eclipse the greatest single tourist event on record in South Carolina, according to the research released by the South Carolina Department of Parks, Recreation and Tourism. Kline (2017) demonstrated that the US total solar eclipse in 2017 created economic benefits for local businesses and has added costs in many economic dimensions.

Fienberg (2019) describes how the American Astronomical Society (AAS) formed the Solar Eclipse Task Force to function as a think tank, coordinating body, and communication gateway to the vast resources available about the eclipse of 21 August 2017. The task force secured funding of about $500,000 that was used mainly for the following purposes: 1. to build a website as a reference to offer basic information about solar eclipses, safe viewing practices, and eclipse imaging and video, along with resources for educators and the media; 2. to solicit, receive, evaluate, and fund proposals for mini-grants to support eclipse-related education and public outreach to under-represented groups; and 3. to organize a series of multidisciplinary workshops to prepare communities for the eclipse and to facilitate collaboration between astronomers, meteorologists, school administrators, and transportation and emergency-management professionals.

Kunjaya et al. (2019) note that Belitong Geopark, Indonesia, organized the super blue blood moon event on January 31, 2018 and Mars opposition event on July 21, 2018 and the results illustrate that organizing astronomical events needs more effort and creativity to make these events more attractive and marketable for tourists. In addition, they pay particular attention to cultural heritage sites related to astronomical knowledge, such as Borobudur Temple. Dark sky parks are established in response to the negative aspect of light pollution and follow the Sustainable Development Goals. Izera Dark Sky Park, located on the Czech–Polish border, constitutes a good example (Iwanicki, 2022). Joseph et al. (2022) mention that Kerala, India, which hosted tourists in a solar eclipse in 2019 has great potential for astronomical tourism.

This paper aims to investigate the effective factors for early planning in destinations for a total solar eclipse event, oriented towards sustainable tourism. We considered a summary of work being carried out in the field of total solar eclipse and tourism. A critical review at a glance demonstrated that the majority of research emphasizes the benefits of astronomical events for local communities (Kline, 2017; Greenville news, 2017; Agiesta, 2017; Haristiani et al., 2016) and the other academic works explained about operational solutions for better management of astronomical events (Kunjaya et al., 2019; Fienberg, 2019; Rao, 2017; Jiwaji, 2016). Therefore, it can be said that there is a lack of academic research regarding the identification of the effective factors for early planning in destinations for a total solar eclipse event and the results of this study can reinforce the literature in this regard. The identification of the effective factors for early planning in destinations for a total solar eclipse have not been studied before and this study can fill this gap in the literature.

MATERIALS AND METHODS

The goal of the present study is to determine the effective factors for early planning in destinations for a solar eclipse. In the first step, the authors interviewed elites and experts in the field of astronomy, urban management, planning and tourism to collect their knowledge, ideas, brainstorming and brainwaves regarding effective factors for early planning in destinations for a total solar eclipse event. A snowball sampling method was used to collect data and the data reached the saturation point in interview number 70. In the next step, the interviews were analysed and the open codes (effective factors) were extracted. The experts introduced seventeen effective factors for early planning in destinations for a total solar eclipse event. In the third step, we used a simple per cent agreement by two coders to determine reliability. The codes that were similar in the opinion of two people were marked as "agreement" and the codes that were not similar were marked as "disagreement". Lastly, the coders reached agreement on an average of 100%. Hence, it can be said that the coding was highly reliable. The empirical part of this study was conducted from December 2022 to May 2023. In the fourth step, exploratory factor analysis through SPSS as a statistical technique was applied to reduce effective factors to a smaller set of summary variables and to explore the underlying theoretical structure of the phenomena. Principal component factor analysis method was used to determine the minimum number of factors and explain the maximum portion of variance in the original variables. Figure 3 illustrates the methodology framework for the present research.

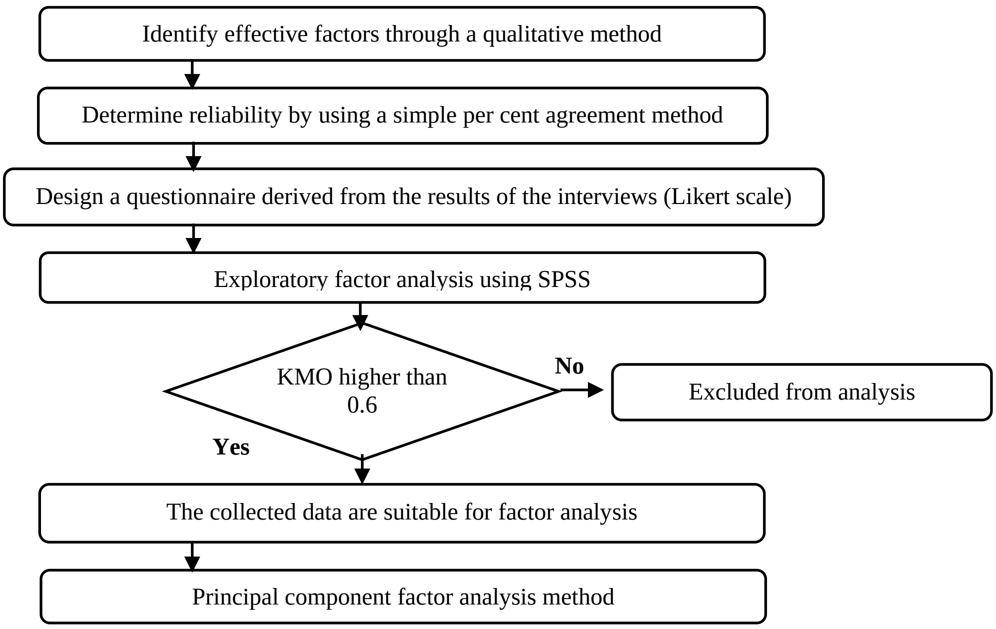


Figure 3. Methodology framework to determine the effective factors for early planning in destinations for a total solar eclipse

RESULTS AND DISCUSSION

As mentioned before, the authors interviewed elites and experts in the field of astronomy, urban management, planning and tourism to collect their knowledge and ideas regarding effective factors for early planning in destinations for a total solar eclipse event. The demographic characteristics of the interviewees are shown in Table 1. The interviews were analysed, and seventeen effective factors were extracted (Table 2).

Table 1. Demographic characteristics of the interviewers who participated in the research

Demographic characteristics	Percentage	Demographic characteristics	Percentage
Gender	49% male 51% female	PhD in tourism Master's in tourism	10% 20%
Country	Iran 92% Portugal 4% Spain 3% Australia 1%	Tourism guide Astronomer University professor Municipal tourism planners	30% 10% 20% 10%

Table 2. Effective factors for early planning in destinations for a total solar eclipse event (obtained from interviews)

V1	Management and planning at different levels (regional, provincial, national)	V2	Setting up a news agency website and social networks to increase the level of public awareness and advertising
V3	Local involvement	V4	Organizing local festivals in nearby villages and cities
V5	Public involvement	V6	Coordination of the involved institutions (formation of a coordination council)
V7	Training amateur astronomers	V8	Local empowerment
V9	Creating infrastructure and accommodation facilities in nearby villages and cities	V10	Linking regional capacities (produce, handicrafts, cultural heritage, etc.) with the eclipse event and empowering local communities in this regard
V11	Directing tourism flows to other places and balancing the flows by determining the tourism route	V12	Exploitation of cultural heritage and cultural sites related to astronomy (myths, sites, etc.)
V13	Creation of temporary camps for tourist accommodation	V14	Attracting funds at different levels to improve infrastructure, organize various activities, train tourist guides, support and educate local communities, etc.
V15	Training of human resources in tourism and astronomy skills	V16	Locating and planning for the construction of temporary markets to sell local products, handicrafts, local foods, etc.
V17	Organizing training workshops for the preparation of beneficiaries		

We used a simple per cent agreement to determine reliability of the results of codes extracted from interviews. An electronic questionnaire was designed and sent to elites and experts who participated in the interview to rate each item (effective factors) from "agreement" to "disagreement". It is worth mentioning that the sixty experts reached agreement on an average of 100%. Hence, it can be said that the effective factors (codes) were highly reliable and no item was removed.
Exploratory factor analysis using SPSS as a statistical technique was then applied to reduce effective factors and determine the relation between variables. Before doing the exploratory factor analysis test, it should first be ascertained whether the number of samples are suitable for factor sanalysis. For this purpose, the KMO indicator and Bartlett's test were used.

Table 3. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.778
Bartlett's Test of Sphericity	Approx. Chi-Square	325.419
	Df	136
	Sig.	.000

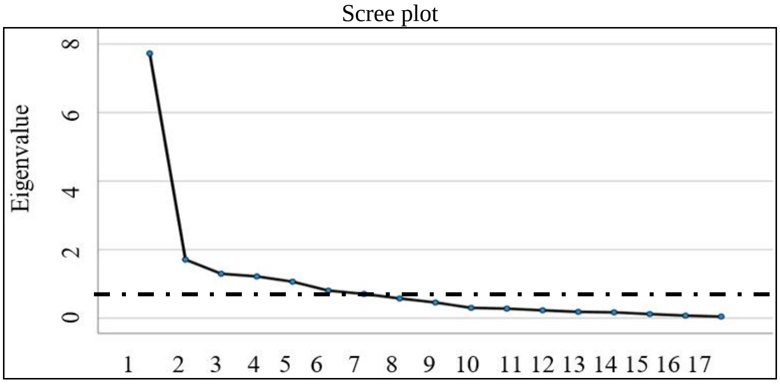


Figure 4. Scree plot for determining main effective factors for education of early planning in destinations for a total solar eclipse

Table 4. Initial extraction of variables obtained from SPSS analysis (Method: principal component analysis)

Commonalities		
	Initial	Extraction
V1	1.000	.801
V2	1.000	.781
V3	1.000	.898
V4	1.000	.836
V5	1.000	.764
V6	1.000	.567
V7	1.000	.807
V8	1.000	.854
V9	1.000	.782
V10	1.000	.843
V11	1.000	.856
V12	1.000	.817
V13	1.000	.704
V14	1.000	.796
V15	1.000	.555
V16	1.000	.651
V17	1.000	.715

According to the value of the significance level, it can be concluded that the desired data are suitable for sampling. The results of SPSS analysis (KMO = .778 and Sig = .000) (Table 3) illustrated that the number of sample data is suitable for factor analysis because the value of the KMO index is close to one (at least 0.6). In addition, Bartlett's test demonstrated whether the variables are related to each other. If the significance level in Bartlett's test is less than 5%, the correlation matrix will not be the same, which means there is a relationship between the variables. According to the table, the significance level of the test is 0.000, which means that the null hypothesis is rejected and there is a significant relationship between the effective factors mentioned by experts for education of early planning in destinations for a total solar eclipse.
Table 4 indicated the common factors in non-rotating mode. The commonality of a variable is the square of the multiple correlation for the corresponding variable using factors, so it is a proportion of the desired test variance that is estimated by the common factors extracted in factor analysis. If the extraction values are smaller than 0.5, it can be removed due to its

low value. The results of the table demonstrate that none of the factors can be eliminated. Further analysis (Table 5), illustrates that among effective factors mentioned by experts and elites, five main variables are identified: management and planning at different levels (regional, provincial, national); setting up a news agency website and social networks to increase the level of public awareness and advertising; local involvement; organizing local festivals in nearby villages and cities; and public involvement. These were identified as the main effective factors for early planning in destinations for a total solar eclipse. Moreover, a scree plot (Figure 4) also illustrates that only five variables have specific values higher than one. It is noteworthy that there is a significant relationship between main effective factors and the other variables.

Table 5. Total variance explained for determining main effective factors (Extraction method: principal component analysis)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
V1	7.730	45.468	45.468	7.730	45.468	45.468	3.174	18.671	18.671
V2	1.711	10.066	55.534	1.711	10.066	55.534	3.135	18.439	37.110
V3	1.299	7.640	63.174	1.299	7.640	63.174	2.563	15.076	52.186
V4	1.220	7.179	70.353	1.220	7.179	70.353	2.171	12.771	64.957
V5	1.067	6.276	76.628	1.067	6.276	76.628	1.984	11.672	76.628
V6	.807	4.745	81.373						
V7	.710	4.174	85.547						
V8	.578	3.397	88.945						
V9	.460	2.704	91.649						
V10	.303	1.782	93.431						
V11	.280	1.650	95.081						
V12	.232	1.363	96.444						
V13	.186	1.094	97.538						
V14	.172	1.010	98.548						
V15	.122	.718	99.266						
V16	.076	.447	99.712						
V17	.049	.288	100.000						

According to the results of the rotated component matrix (Table 6), it can be concluded that setting up a news agency website and social networks to increase the level of public awareness and advertising (V2); linking regional capacities (produce, handicrafts, cultural heritage, etc.) with the eclipse event and empowering local communities in this regard (V10); directing tourism flows to other places and balancing the flows by determining the tourism route (V11); exploitation of cultural heritage and cultural sites related to astronomy (myths, sites, etc.) (V12); creation of temporary camps for tourist accommodation (V13); attracting funds at different levels to improve infrastructure, organize various activities, train tourist guides, support and educate local communities, etc. (V14), and organizing training workshops for the preparation of beneficiaries (V17) are categorized under the first main factor (management and planning at different levels (regional, provincial, national). Furthermore, organizing local festivals in nearby villages and cities (V4); local empowerment (V8); creating infrastructure and accommodation facilities in nearby villages and cities (V9); linking regional capacities (produce, handicrafts, cultural heritage, etc.) with the eclipse event and empowering local communities in this regard (V10); directing tourism flows to other places and balancing the flows by determining the tourism route (V11); exploitation of cultural heritage and cultural sites related to astronomy (myths, sites, etc.) (V12); creation of temporary camps for tourist accommodation (V13); and training of human resources in tourism and astronomy skills (V15) have good relationship with the second main factor (setting up a news agency website and social networks to increase the level of public awareness and advertising).

Table 6. Rotated component matrixa for determining the correlation between variables for early planning in destinations for solar eclipse

	Component (a. Rotation converged in 19 iterations)				
	1	2	3	4	5
V1	.843	.232	.178	.061	-.036
V2	**.431**	.335	**.492**	.102	**.480**
V3	-.250	.199	.624	**.631**	-.092
V4	.257	**.866**	.094	.101	-.003
V5	.156	.173	.243	**.807**	.019
V6	.275	.142	**.648**	.106	.199
V7	.203	-.073	.247	.030	**.836**
V8	.114	**.691**	**.355**	**.380**	**.307**
V9	.045	**.453**	.032	.175	**.737**
V10	**.411**	**.514**	**.569**	.257	.141
V11	**.617**	**.456**	-.018	**.514**	.048
V12	**.336**	**.332**	**.749**	-.008	.181
V13	**.465**	**.631**	.100	.136	.246
V14	**.786**	.055	.225	.168	**.312**
V15	-.049	**.669**	**.311**	.082	.035
V16	.293	.088	-.083	**.698**	.250
V17	**.640**	.044	**.417**	.195	**.304**
Extraction method: principal component analysis. Rotation method: varimax with Kaiser normalization					

Moreover, local involvement as the third main factor includes seven variables such as: setting up a news agency website and social networks to increase the level of public awareness and advertising (V2); coordination of the involved institutions (formation of a coordination council) (V6); local empowerment (V8); linking regional capacities (produce, handicrafts, cultural heritage, etc.) with the eclipse event and empowering local communities in this regard (V10); exploitation of cultural heritage and cultural sites related to astronomy (myths, sites, etc.) (V12); training of human resources in tourism and astronomy skills (V15); and organizing training workshops for the preparation of beneficiaries (V17).

Our results also illustrate that local involvement (V3); public involvement (V5); local empowerment (V8); directing tourism flows to other places and balancing the flows by determining the tourism route (V11); and locating and planning for the construction of temporary markets to sell local products, handicrafts, local foods, etc. (V16) are categorized under the fourth main factor (organizing local festivals in nearby villages and cities) and there is a high correlation between the fourth main factor and these five variables. In addition, the clearest result of the exploratory factor analysis with SPSS is that there is a correlation between the fifth main factor (public involvement) and six variables: setting up a news agency website and social networks to increase the level of public awareness and advertising (V2); training amateur astronomers (V7); local empowerment (V8); creating infrastructure and accommodation facilities in nearby villages and cities (V9); attracting funds at different levels to improve infrastructure, organize various activities, train tourist guides, support and educate local communities, etc. (V14); and organizing training workshops for the preparation of beneficiaries (V17).

CONCLUSION

One of the natural events that attracts many domestic and international tourists to tourism destinations is a solar eclipse event. This pull factor and astronomical event, if not managed properly, can have many negative effects on the destinations, because in a short period of time, numerous tourists travel to a destination, and this is a form of mass tourism. Therefore, early management of the event plays an central role in the sustainable development of the region. In the present research, with an emphasis on the recent eclipse events in Australia, Spain, Portugal and Iran, the authors strive to investigate the effective factors for early planning in destinations for a total solar eclipse. In this regard, a qualitative-quantitative method was used.

The results of qualitative analysis determined seventeen variables: management and planning at different levels; setting up a news agency website and social networks to increase the level of public awareness and advertising; local involvement; organizing local festivals in nearby villages and cities; public involvement; coordination of the involved institutions; training amateur astronomers; local empowerment; creating infrastructure and accommodation facilities in nearby villages and cities; linking regional capacities with the eclipse event and empowering local communities in this regard; directing tourism flows to other places and balancing the flows by determining the tourism route; exploitation of cultural heritage and cultural sites related to astronomy; creation of temporary camps for tourist accommodation; attracting funds at different levels to improve infrastructure, organize various activities, train tourist guides, support and educate local communities, etc.; training of human resources in tourism and astronomy skills; locating and planning for the construction of temporary markets to sell local produce, handicrafts, local foods, etc. and organizing training workshops for the preparation of beneficiaries. It is worth noting that tourism planners should pay particular attention to these seventeen factors before total solar eclipse events.

Comparing our results to the literature review, we find that Lundberg et al. (2017) also emphasize the involvement factor for event management. Moreover, according to our results, exploitation of cultural heritage and cultural sites related to astronomy (myths, sites, etc.) was identified as an important variable and the finding of this paper provides some support for the findings of Haristiani et al. (2016) and Kunjaya et al. (2019). On the basis of the results of this research, training amateur astronomers can be seen as an crucial variable for education of early planning in destinations for a total solar eclipse and our results confirm the findings of Jiwaji (2016).

Further analysis through an exploratory factor test with SPSS demonstrated that among identified variables, five such as management and planning at different levels; setting up a news agency website and social networks to increase the level of public awareness and advertising; local involvement; organizing local festivals in nearby villages and cities; and public involvement are seen to be main factors for early planning in destinations for a total solar eclipse. Our results also indicate that there is a correlation between main factors and other variables.

Lastly, identifying the appropriate strategies for event management in destinations with total eclipse events and investigating marketing strategies for attracting tourists to nearby villages and cities of destinations with total eclipse events are the subjects recommended by authors for future research.

Author Contributions: M.S. and L.M. conceived of the presented idea. M.S. developed the theory and performed the conceptualization. M.G.H.A. and M.S. contributed to collecting data. N.T.F. done the methodology and analytical methods, writing - review and editing. L.M. encouraged to investigate and supervised the findings of this work. All authors discussed the results and contributed to the final manuscript.

Funding: This research is funded by the multidisciplinary laboratory for tourism research (grhcs058) of the University of Girona. Reference number: AGAUR 2021 SGR 00575.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: This research is funded by The Multidisciplinary Laboratory for Tourism Research (GRHCS058) of the University of Girona. Reference Number: AGAUR 2021 SGR 00575. The authors would like to express their great appreciation to The Multidisciplinary Laboratory for Tourism Research (GRHCS058) of the University of Girona. for supporting the Project.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Agiesta, J. (2017). *CNN poll: Americans' eclipse viewing plans take shape*. CNN, accessed: 6 April 2023. https://edition.cnn.com/ 2017/08/19/ politics/eclipse-poll-travel-plans/index.html

Andersson, T.D., & Lundberg, E. (2013). Commensurability and sustainability: Triple impact assessments of a tourism event. *Tourism management*, 37, 99–109. https://doi.org/10.1016/j.tourman.2012.12.015

Farber, C. (1983). High, healthy and happy: Ontario mythology on parade. In F. Manning (Eds.), *Celebration of Society: Perspectives on Contemporary Cultural Performance*, 33–50, Bowling Green Popular Press. Bowling Green, USA.

Fienberg, R.T. (2019). What the American Astronomical Society Learned from the" Great American Eclipse". Celebrating the 2017 Great American Eclipse: Lessons Learned from the Path of Totality, 516, 391.

Greenville News. (2017). Solar eclipse: Economic impact in South Carolina is $269M, accessed: 3 June 2023. https://eu.greenville online.com/story/news/2017/09/20/solar-eclipse-economic-impact-south-carolina-269-m/686257001/

Getz, D. (2005). *Event management and event tourism. Cognizant Communication Corporation*, Cornell University, New York, USA. ISBN: 9781882345465, 1882345460.

Getz, D. (1991). *Festivals, special events, and tourism*. Van Nostrand Reinhold, Indiana University, Bloomington, Indiana, pp: 374. ISBN: 0442237448

Goldblatt, J. (2005). *Special Events: Event Leadership for a New World*, John Wiley & Sons. Indiana University, Bloomington, Indiana, pp. 496.

Haristiani, N., Wiryani, A., Rusli, A., Nandiyanto, A., Permatasari, N., Sucahya, T., & Hurriyati, R. (2016). *Did the Solar Eclipse of 9 March 2016 Attract Tourist to Come to Indonesia?* In Asia Tourism Forum 2016-the 12th Biennial Conference of Hospitality and Tourism Industry in Asia, 440–444, Atlantis Press, 7–9 May 2016. Bandung, Indonesia. https://doi.org/10.2991/atf-16.2016.66

Iwanicki, G. (2022). Astro-tourism in the Czech-Polish Izera Dark Sky Park. In Novelli, M., Cheer. J., Dolezal, C., Jones, A. and Milano, C. (Eds.). *Handbook of Niche Tourism*, 2–13. Edward Elgar Publishing. Regency town of Cheltenham and Camberley, UK. https://doi.org/10.4337/9781839100185.00009

Jiwaji, N.T. (2016). Astro-tourism as a high potential alternative tourist attraction in Tanzania. Huria: *Journal of the Open University of Tanzania*, 23(1), 106–113.

Joseph, S., Ulahannan, J.P., & Piramanayagam, S. (2022). Importance–Performance Analysis of Destination Attributes of an Emerging Astrotourism Destination in Kerala, India. *New Space*, 10(1), 101–111. https://doi.org/10.1089/space.2021.0032

Kline, A.D. (2017). The 2017 Solar Eclipse and the Solar Power Industry. accessed: 5 April 2023. chrome-extension://efaidnbmn nnibpcajpcglclefindmkaj/ https://www.westga.edu/~bquest/2017/kline5-2017.pdf

Kunjaya, C., Sukmaraga, A.A., & Arsono, T. (2019). *Possibility of astronomical phenomena to be used to support tourism industry*. In Journal of Physics: Conference Series, 1231(1), 012025, IOP Publishing. https://doi.org/10.1088/1742-6596/1231/1/012025

Lundberg, E., Andersson, T., Getz, D., & Armbrecht, J. (Eds.). (2017). *The value of events*. Routledge, Taylor & Francis Group. England, UK.

Ma, S.D., Kirilenko, A.P., & Stepchenkova, S. (2020). Special interest tourism is not so special after all: Big data evidence from the 2017 Great American Solar Eclipse. *Tourism Management*, 77, 104021. https://doi.org/10.1016/j.tourman.2019.104021

May, J. (2006). Ladders, stars and triangles: old and new theory for the practice of public participation. *International journal of market research*, 48(3), 305–319. https://doi.org/10.1177/147078530604800305.

Moufakkir, O., & Pernecky, T. (Eds.). (2015). *Ideological, social and cultural aspects of events*. CABI. ISBN: 9781780643526

Wood, E.H. (2005). Measuring the economic and social impacts of local authority events. *International Journal of Public Sector Management*, 18(1), 37–53. https://doi.org/10.1108/09513550510576143

Nwokorie, E.C. (2020). Event operation and management: A multidimensional perspective. *Hospitality and Tourism Management Association of Nigeria*. Kaduna, Nigeria.

Packer, J., & Ballantyne, J. (2011). The impact of music festival attendance on young people's psychological and social well-being. *Psychology of Music*, 39(2), 164–181.

Pásková, M., Budinská, N., & Zelenka, J. (2021). Astrotourism–exceeding limits of the earth and tourism definitions?. *Sustainability*, 13(1), 373. https://doi.org/10.3390/su13010373

Rao, J. (2017). *Get Ready for Major Traffic Jams During the 2017 Solar Eclipse, Space*. accessed: 6 April 2023. https://www.space.com/37234-expect-solar-eclipse-traffic-jams.html

Sadeghi Shahdani, H., Torabi Farsani, N., Moslehi, M., & Zahedi, M. (2023). Designing an Event Calendar for Children and Teenagers: A Tool for Educational Tourism. *Journal of Hospitality & Tourism Education*, 1-9. https://doi.org/10.1080/10963758.2023.2176312

Soleimani, S., Bruwer, J., Gross, M.J., & Lee, R. (2019). Astro-tourism conceptualisation as special-interest tourism (SIT) field: A phenomonological approach. *Current Issues in Tourism*, 22(18), 2299–2314. https://doi.org/10.1080/13683500.2018.1444021

Wood, E.H. (2005). Measuring the economic and social impacts of local authority events. *International Journal of Public Sector Management*, 18(1), 37–53. https://doi.org/10.1108/09513550510576143

Yeoman, I., Robertson, M., Ali-Knight, J., Drummond, S., & McMahon-Beattie, U. (2006). *Festival and event management: an international arts and cultural perspective*. Butterworth-Heinemann, Elsevier, UK. ISBN: 978-0-7506-5872-0.

Article history: Received: 12.08.2023 Revised: 04.10.2023 Accepted: 27.10.2023 Available online: 06.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1447-1457
DOI 10.30892/gtg.50425-1143

PROMOTION OF SUSTAINABLE TOURISM IN MARGINAL RURAL AREAS: A GIS DATABASE FOR THE PLANNING AND THE DEVELOPMENT OF EQUESTRIAN TOURISM (CASE OF STUDY IN TUSCANY - ITALY)

Gianluca BAMBI*
Department of Agriculture, Food, Environment and Forestry, University of Florence, Florence, Italy, e-mail: gianluca.bambi@unifi.it

Leonardo CONTI
Department of Agriculture, Food, Environment and Forestry, University of Florence, Florence, Italy, e-mail: leonardo.conti@unifi.it

Giuseppe ROSSI
Department of Agriculture, Food, Environment and Forestry, University of Florence, Florence, Italy, e-mail: giuseppe.rossi@unifi.it

Matteo BARBARI
Department of Agriculture, Food, Environment and Forestry, University of Florence, Florence, Italy, e-mail: matteo.barbari@unifi.it

Citation: Bambi, G., Conti, L., Rossi, G., & Barbari, M. (2023). PROMOTION OF SUSTAINABLE TOURISM IN MARGINAL RURAL AREAS: A GIS DATABASE FOR THE PLANNING AND THE DEVELOPMENT OF EQUESTRIAN TOURISM (CASE OF STUDY IN TUSCANY - ITALY). *GeoJournal of Tourism and Geosites*, 50(4), 1447–1457. https://doi.org/10.30892/gtg.50425-1143

Abstract: A form of rural tourism in expansion is horse tourism. Equitourism is a form of hiking that allows for an intimate and natural use of landscapes and local territories. Equestrian tourism today no longer represents a small elite market niche, as it has become a true form of pastime for an increasing number of users. Trail planning and management need to consider the changes that are already occurring, as well as those that are predicted to lie ahead. The key trends that are expected to have an impact on recreational horse trail planning and management are highlighted in this research. Many of these trends have been emerging over decades and have rapidly increased due to the impacts of the COVID-19 pandemic. In recent years, in many Italian regions, especially in Tuscany, thanks to the enhancement of the Tuscan equestrian routes, projects for the promotion of equestrian tourism have been developed. In this work the methodology applied was based on the identification of an appropriate database created in the GIS context and specifically coded for equestrian tourism. The aim is to guarantee the creation of an innovative and functional product to meet the needs of this sustainable tourism sector, providing information capable of facilitating the end user, who, through their GPS, georeferenced images and maps, will have the possibility of planning and traveling the horse trail in complete safety. The final result of this research (the first case study in Italy) is the creation of a modern and complete information database of a horse trail that can be managed using GIS.

Key words: sustainable tourism, equitourism, horse trail, information database, Geographic Information Systems

* * * * * *

INTRODUCTION

Horse riding in Italy and in Europe in general has become big business (in France, it is the third biggest sports federation, with around 700,000 members in 2016). The number of riders in Italy is one of the highest in Europe, and the Tuscany region is considered the number one equestrian tourism and outdoor destination, with an institutional network at every administrative level in the country (regional and departmental) and around 1,000 businesses specializing in equestrian tourism (and/or stabling) and 30.000 km of equestrian trails (Italian Equestrian Tourism Federation, 2016).

In the Tuscany region, there exists 4000 km of equestrian trails designed by various associations, of which only 500 km has been identified by public administrations without any official design criteria or methodology. Equestrian tourism is a non-competitive riding practice, which is combined with an exploration of the territory.

It favors slow travel and being immersed in nature, having the concrete possibility of encountering the rural environment made of history and ancient flavors. Horse-riding tourism is open to a large number of people. The equestrian tourist can be either a professional sportsman or an amateur. Horse-riding tourism is a tool for the sustainable development and enhancement of the territory because of the following:

- It respects the environment (it is an ecotourism practice);
- It favors the discovery of the territory, its history and its culture;
- It promotes the recovery of ancient crafts;
- It promotes the discovery of gastronomy and typical products;
- It allows for the maintenance and use of ancient rural paths;
- It promotes human relationships through encounters between riders and local populations;

* Corresponding author

- It promotes the possibility of farms, above all in marginal rural areas, to maintain themselves by offering accommodation for riders (agritourism) and diversifying horse breeding (equitourism).

There are many recreational activities that can be practiced outdoors: hiking, walking, paddling, biking, bird watching and horseback riding are the main travel motivators. These activities are intricately linked to the tourism development process, and they are often developed by entrepreneurs within the community.

However, existing tourism development models often do not consider the importance of outdoor recreational tourism, which is studied much less than other forms of tourism, such as equestrian trail tourism (ETT). Effective land management plans are required to favor the proper multi-use of trails by different kinds of tourists, avoiding conflict between horseback tourists and other tourists (Beeton, 1999). Multi-use trails can be successfully managed by integrating trail management strategies, persuasive communication theories and marketing (Beeton, 2006).

According to the International Ecotourism Society, “ecotourism” is defined as "Responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education". The riders are visitors who create a positive impact on the local community and the environment. A good sign of responsibility and sustainability is a horseback riding business that follows the area’s guidelines. Horseback riding is a great way to relax and take in all that nature has to offer. One can encounter all kinds of wildlife and beautiful flora while horseback riding in various locations around the world. Equestrian tourism, as with other forms of “soft tourism”, requires excursions and holidays to be carefully prepared beforehand with great professionalism (services are organized by riding centers or specialized tour operators) or with the skills of experienced riders (planned several days in advance, using up-to-date technology: downloading maps and routes, and increasing the use of GPS).

A correlation between equestrian tourism and sustainable development exists, and it is essentially dependent on the actions of the local authorities, associations and institutions. In summary the highlights are:

- A network of routes and historical itineraries are essential for the development and promotion of rural tourism, as they promote forms of sustainable mobility in rural areas, particularly in marginal ones.

- The recent European explosion of rural tourism is undoubtedly the result of two phenomena that have only recently become far-reaching:

- The "environmental question", relating to the growing human impacts (air, water and soil pollution) both in cities and in the countryside;

- The growing attention paid to the quality of life, also increasingly judged in terms of the actual accessibility and usability of green areas, as well as the offer of recreational opportunities.

- Equestrian tourism represents a strategic segment of a new tourist offer based on sustainable development criteria.

- The importance of spatial information has been defined by the European directive 2007/2/EC, INSPIRE (acronym for INfrastructure for SPatial InfoRmation in Europe). The directive aims to create spatial data infrastructures in the European Community.

- The research actions can be summarized as follows: (a) a complete GPS survey of a horse trail network, of the variants and of the equestrian stops; (b) the checking of the feasibility and practicability of the entire route for horse users; (c) the identification of critical issues along the route; (d) the identification of temporary and night staging points for horses and riders; (e) the identification of points of interest (PUNs), such as panoramic points and points of historical, religious, cultural and natural interest; (f) the planning of the installation of signs and the locations of points where vertical signs have to be placed; and (g) the drafting of an information database of the Monte Pisano horse trail.

- The cartographic database collecting information for the management and maintenance and the GPS survey of the routes, the equestrian variants and all the points of interest allowed for the realization of an innovative and functional project addressing the needs of this tourism sector.

Sustainability and horse riding

For equine tourism, environmental sustainability is probably the most difficult and least addressed aspect of the sustainability triad. Issues of overuse, particularly the impact of large numbers of horses on plant species on ridden trails, have been a significant concern in the literature. Similarly, to the impact of large numbers of ramblers on sensitive mountain habitats, concerns have been raised about the negative impacts of equine tourism, primarily in terms of ground disturbance and the diffusion of exotic seeds in manure (Newsome et al., 2008). Many of the objections to the riding of horses in national parks and outdoor recreation areas actually appear to be perceptions rather than facts, and many of these perceptions focus on aesthetic concerns. As documented by Newsome et al., 2008 other user groups often disapprove of the equine use of wilderness areas, and this is often expressed as perceptions of negative environmental impacts. As Newsome states in other studies, however, whilst soil compaction and the other impacts of hoof prints are definite issues, the impacts of other aspects of horses’ presence are mainly aesthetic—in terms of seeing/smelling muck or encountering excessively noisy parties of riders on trails. Interestingly, there are claims that many walkers surveyed “had actually not encountered horseback groups, with many of their attitudes not based on actual experience.

Those walkers who had encountered horseback tour groups had a more positive attitude towards them than those who had not”. It remains clear, however, that there is a need for more research on how to set acceptable levels of equine use, both on dedicated bridleways and in open countryside. In this research, for the identification of horse trails, we chose roads that are suitable for horses and that do not suffer damage from trampling. These forest roads and tracks, due to the fact that they were created for the passage of only cars for the management of the woods, limit the damage to horses, are not very busy and always have a natural background. Equestrian tourism represents a strategic segment of a new tourist offer based on sustainable development criteria. So, horse-based tourism can affect traditional economic sectors. Regarding the growth of equestrian tourism, it is essential that research is conducted to determine how to properly plan and help ensure that this product is a sustainable option for the local community (Kline, 2015).

Equestrian tourism represents a new strategic segment of rural tourism and a new opportunity for farms

Bruch, 2013 states that horse-based tourism can be classified as ecotourism, involving farms. It is already a fundamental part of the rural tourism sector in many countries, such as Iceland (Helgadóttir, 2008). In order to become sustainable, a tourist project needs to involve various kinds of stakeholders at national and local levels, as well as from business to ecological and territorial representatives (Butler, 1999). The vertical quasi-integration of a network of small- and medium-sized firms maintaining relations, which are as competitive as they are cooperative, could be particularly well adapted to equestrian tourism. Equestrian tourism requires an image of a "Horse" associated with an area linked to the presence of a set of activities (equestrian culture, shows, sports events and tourism on horseback), as well as with the way they are networked (marked equestrian routes, accommodation, sites and shows). Equestrian tourism makes it possible to keep the farms located along the horse tracks running, and farms are instruments for the sustainable development and enhancement of the territory (Luloff et al., 1994; Sharpley, 2000). The presence of well-managed farms is fundamental, favoring people's discovery of the territory and its history and culture, gastronomy and typical products (Hoefle, 2016; Lee et al., 2015; McAreavey et al., 2010; Saxena et al., 2007).

Furthermore, the presence of farms allows for the maintenance and use of ancient rural paths (Bambi et al., 2019). This is very important for more peripheral regions, where the emergence of new sectors has not been able to overcome the reduction of rural communities' economic opportunities, the declining of public service provision and the deficits of infrastructure. In marginal areas, characterized by high-quality landscapes, horse tourism could have a great potential for growth in the presence of other factors, i.e., infrastructure (Mastronardi et al., 2017). As stressed by several authors (Cristóvão et al., 1999; Baum et al., 1999; Eusébio et al., 2017; Kastenholz et al., 2008; Wilson et al., 2008), one of the most popular non-traditional rural development strategies has been tourism and complementary businesses, such as recreational activities, arts and crafts. A network of routes and historical itineraries are essential for the development and promotion of rural tourism, as they promote forms of sustainable mobility in rural areas, particularly in marginal ones. In Kentucky, the economic value of riding trails is noted with reference to the local rural economy (Hackbert et al., 2011). With regard to equestrian tourism, horse riding is a popular, high-impact recreational activity carried out worldwide. Horses have been used for tourism activities in various countries, such as Australia (Beeton et al., 2001; Ollenburg et al., 2005), Finland (Räbinä, 2010), France (Pickel-Chevalier, 2015), Hungary (Könyves, 2009; Iceland Helgadóttir, 2006; Schmudde, 2015). Moreover, wild-horse-based tourism is taken into account as an important part of tourism in some places, such as in the western US and western Canada (Notzke, 2016).

However, the study of equestrian tourism lacks a clear definition of what constitutes horse-related tourism. Instead, there is a range of definitions and interpretations, as well as diverse terminology, including horse-based tourism, equestrian tourism, equine tourism, riding tours, horse rental, horseback riding, horsemanship travel, equestrian vacation, riding vacation and equestrian holiday (Buchmann, 2017). Notzke (Notzke, 2016) focused on the core element of equestrian tourism, travel on horseback and the role of equine animal agency in the co-creation of tourism experiences and tourism places. In future research Newsome et al., 2008 recommended paying more attention to experimental design, with research spanning across and into new ecosystems to improve the generalization of findings, and they also recommended researching management effectiveness.

The creation of a modern database for the management of linear and punctual data of equestrian routes

The main objective of this work is to describe the setting up of a specific and modern correct database with the aim of managing linear and punctual data of equestrian routes. Good management of these data allows for the promotion of local development and the enhancement of rural tourism. In particular, in this study, the construction of the information database was carried out within a research project for the design, survey and promotion of the horse trail of Monti Pisani in a Tuscan region in Italy. This project finds its purpose in the will to create a sustainable hiking network expressly dedicated to the use of the territory through horses. The creation of an information database relating to the equestrian project allows one to obtain a product that represents an opportunity to optimize territorial and tourist management.

Furthermore, this tool allows public administrations to have a spatial data infrastructure that is standardized at national and European levels and, therefore, can be shared with other management institutions. At the European level, the importance of spatial information is defined by the European directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007, which established INSPIRE (acronym for INfrastructure for SPatial InfoRmation in Europe), Directive INSPIRE. Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community). The INSPIRE directive is a project of the European Commission with the aim of creating spatial data infrastructures in the European Community. It arised from the need to make large quantities of spatial data (of multiple forms and origins) sharable in order to constitute a single infrastructure for spatial information at the European level based on infrastructures operating at the national level.

The Italian legal system has implemented the European directive 2007/2/EC of the European Parliament with the legislative decree of 27 January 2010, n. 32, which, in Italy, establishes, the national infrastructure for spatial information and environmental monitoring as a node of the community infrastructure. The documentation and accessibility of the Public Administration's knowledge assets are the basis for encouraging both reuse by other public bodies—to ensure the consistency of various decision-making processes based on the same information—and use by citizens and companies in participatory and productive processes, as well as to encourage the maximum transparency of decision-making processes and administrative activity. The creation of a Equestrian infrastructure database data can simplify the sharing of the spatial information between public authorities, to facilitate public access to environmental spatial information across Italy and Europe and assist decision-making processes concerning the environment and the territory.

The creation of a specific database for horse-riding tourism is was based on 5 principles:

- More efficient management – data should be collected once and maintained where this can be done more efficiently;
- Interoperability – it must be possible to combine data from different sources and share them between several users and applications;
- Sharing – it must be possible to share information picked by the various levels of government;
- Abundance and usability – the geographic information essential for good governance must exist and be truly accessible to conditions that do not restrict the possible use;
- Availability and access – it must be easy to identify which geographic information is available, to evaluate its usefulness for their own purposes and conditions under which you can get it and use it.

MATERIALS AND METHODS

With regard to the regional geographic infrastructure, this consists of a set of tools that allow cooperation between entities for the management of the regional geographic information database, with reference to the guidelines formulated by the European Union in the context of the EU INSPIRE Directive. The region of Tuscany, as part of the actions aimed at the expansion of knowledge, enhancement and protection of its environmental and territorial heritage, favors the development of hiking activities as a tool to achieve a balanced relationship with the environment.

It also promotes the recovery of viability through the creation of a hiking network and trails. The Tuscan hiking network, called R.E.T. (Regional Law 20 March 1998, n. 17 "Tuscany hiking network and discipline of hiking activities", Consolidated text of the regional laws on tourism; Firenze, 17 January 1998), is a set of roads, mule tracks, paths and tracks that, located outside of urban centers and inserted in a special land register, allow for hiking. With regard to the standardization of the information models of geographical data and the sharing of methodologies among the local Tuscan authorities, the information and technical data on the R.E.T. (Tuscany Hiking Network) paths must be archived and organized in a specific cadastre, containing the minimum number of information layer archives relating to the implementation of the database of Tuscan paths. In drafting the specifications, the region paid particular attention to defining the coding of the paths so that (a) each path can be easily identified by the hiker on the ground and on hiking maps and (b) the univocal identification of the Tuscan paths in the whole national territory is allowed. A characteristic element of the archive is the "path" from whose aggregation the hiking itineraries and stages are organized. The paths are uniquely identified in the territory and in the archive through their belonging to a specific geographical area.

The objective of this research (the first case study in Italy) is to create a modern and complete information database of a horse trail that can be managed using GIS (Geographic Information Systems) and that can be replicated in other situations. The actions carried out to obtain the information data used to complete the database can be summarized as follows: (a) a complete GPS survey of the horse trails, of the variants and of the equestrian stops; (b) the checking of the feasibility and practicability of the entire route for horse users; (c) the identification of critical issues along the route (fallen trees, eroded ground, etc.); (d) the identification of temporary and night staging points for horses and riders; (e) the identification of points of interest (PUNs), such as panoramic points and points of historical, religious, cultural and natural interest; (f) the planning of the installation of signs and the locations of points where vertical signs have to be placed; and (e) the drafting of an information database of horse trails that can be replicated in every other territory.

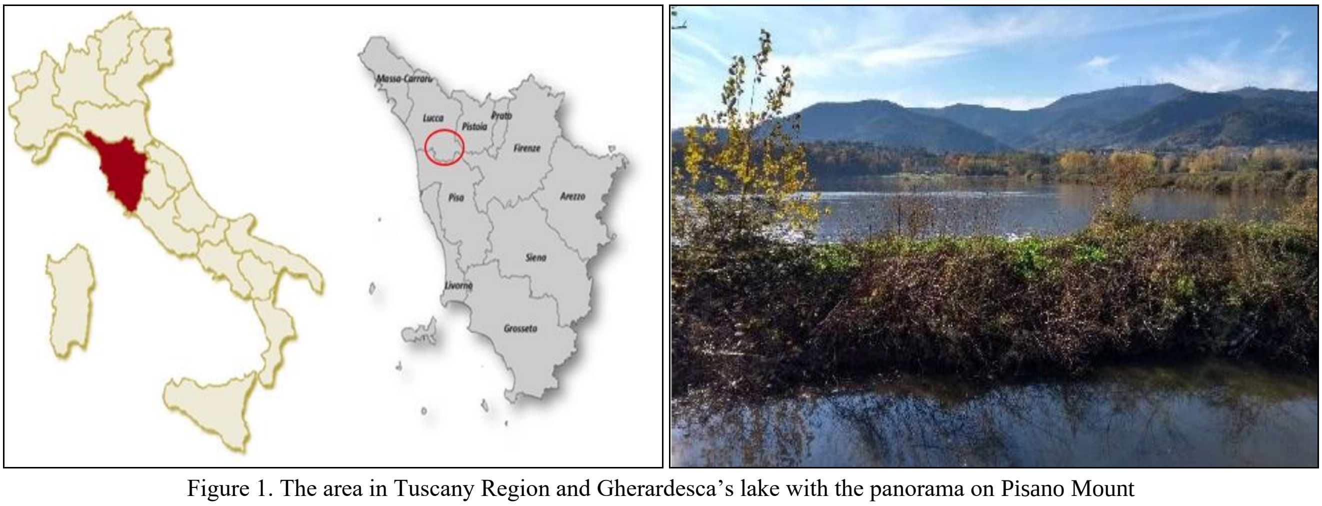


Figure 1. The area in Tuscany Region and Gherardesca's lake with the panorama on Pisano Mount

STUDY AREA

Monte Pisano is a modest mountain system belonging to the Tuscan Subappennino, located in the central–northern part of Tuscany and separating Pisa and Lucca, with reliefs less than 1000 m high and slightly higher than hills. The Monte Pisano chain forms an extension of the Apuan Alps between the Serchio and Arno rivers. The highest peak is Monte Serra (917 m), and the municipality of this territory is Capannori, which is located in the center of Tuscany and is one of the largest municipalities in Tuscany and Italy. The Monti Pisani area is an area characterized by a strong landscape with regard to the quality and variety of the environmental context in which it is located. The area affected by the Pisano Mount horse trail project is characterized by the presence of important environmental sites such as regional nature reserves and Natura 2000 sites, like the Gherardesca's lake (Figure 1).

Around Pisano Mount there are also numerous ancient churches and abbeys and stone villages typical of the Tuscan landscape. The area also has a strong history of individuals participating in discovering the area through horseback riding. For these reasons, the municipality of Capannori has identified an opportunity in the area for the development of equestrian tourism. The Monte Pisano horse trail project, in addition to guaranteeing a network dedicated to equestrian tourism on Monte Pisano, aims to guarantee a safe alternative to the Via Francigena on horseback, which, from Lucca to Altopascio, presents numerous critical issues related to the transit of motor vehicles and the absence of low-traffic roads. The research project led to the identification of 52 km of horse trails, all identified on a network of historical trails. The route consists of two main rings (western and eastern rings) and functional links to other routes, fitting into a sustainable mobility system that involves the neighboring municipalities (Figure 2).

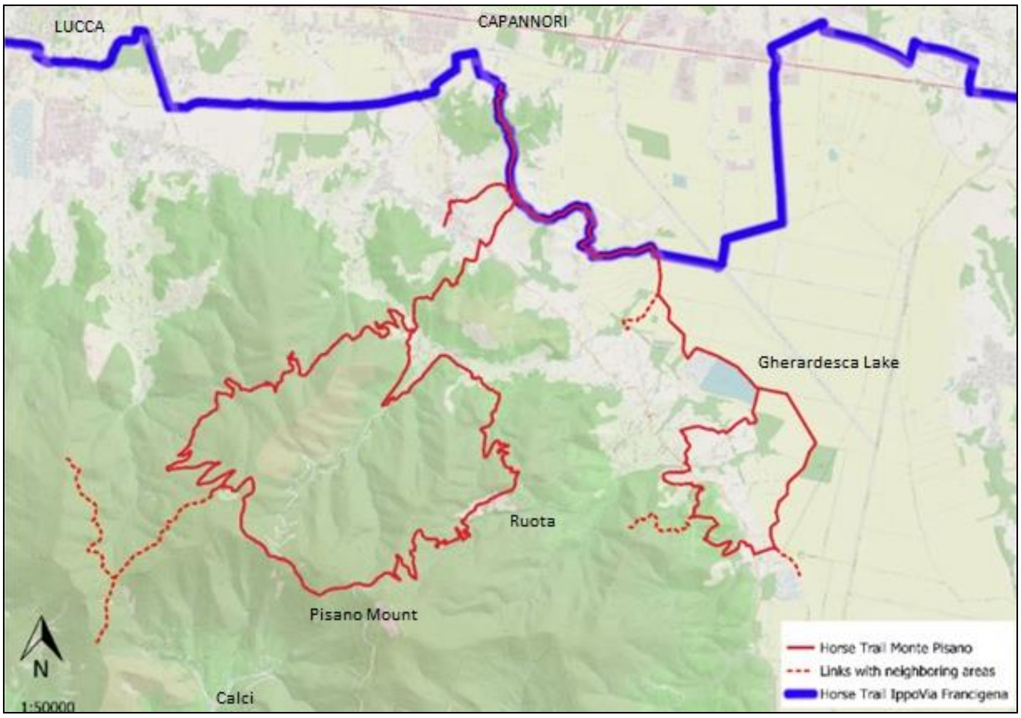


Figure 2. Study area: Source: geographic data by Tuscany Region cartography office

The methodology applied for the realization of a horse trail is defined by a three-phase approach: phase 1 - preliminary map analysis, phase 2 - field survey, and phase 3 - processing and realization of the final product (Figure 3).

The following tools were used for the planning of the horse network: QGis software (release 3.4); basic cartography of the Geographical Military Institute (IGM) at a scale of 1: 25.000; regional technical cartography (CTR) at scales of 1:10.000 and 1:2.000 of the Tuscany region in raster and digital formats; and aerial photos of the area.

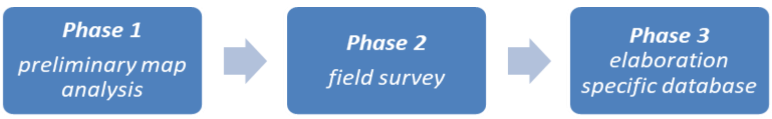


Figure 3. Phases of the methodology identified for the database creatione for horse-ridind tourism

Phase 1: Preliminary map analysis

The preliminary analysis allowed us to identify a route hypothesis using already outlined and existing routes, highlighting possible feasible improvements or possible variants. The route hypothesis was identified by using the existing cartography, trying to use the present pathways as much as possible and favoring the routes that pass on roads or forest tracks (easily identifiable from the 10.000 scale cartography and from aerial photos).

Technical data sheets were also specifically created to facilitate the survey of the tracks and points in the field, and they were subsequently digitized via data entry. The realization of the cartographic survey resulted in (a) an analysis of any existing routes, allowing them to be inserted in the tracing of the final route, whether they were sections of the main route or possible minor variations of the route, and (b) the identification of the points of interest (PUNs) present in the territory, allowing them to be enhanced through the passage of the route, such as panoramic points and points of historical, religious, cultural and environmental interest. The identification of the route concerned the following: the study of the route on cartography at a scale of 1: 25.000 (a hiking map or an IGM sheet if available); route control also on more detailed maps (1: 10,000 or 1: 5,000 if available); and the loading of the map onto a GPS device.

Phase 2: Field survey

The operational steps followed the preliminary analyses on the field. Having set the appropriate tool settings, the data processed in the preliminary phase were inserted into the cartographic GPS for the field survey. With a GPS instrument for excursion use (considered the most suitable for accuracy), the hypothesized route was detected through the acquisition and recording of points and tracks, and a technical data sheet was compiled for the survey. The technical data sheet, designed to make the survey easier and faster, was used with the aim of acquiring information on the track for subsequent data entry into the database. The tools and software used for the survey were a GPS Garmin 64 ST with an external antenna; a Nicon ColdPix digital camera; and a folder with the technical data sheets for the survey.

The operational steps included the following: (a) a survey of the entire route carried out directly in the field; (b) a survey and check of the path identified on paper; (c) the detection of any changes based on possible anomalies found between the cartography and the real geography of the territory; (d) the detection of possible critical issues, such as fords, road crossings, landslides, real or possible dangers and the crossing of private property; (e) photographic documentation of the route: critical points, parking and/or reception facilities, and naturalistic and historical–artistic emergencies.

For the correct execution of the survey, the following tools were necessary: (1) GPS with the possibility of adding an external antenna; (2) paper survey forms; (3) a pencil and an eraser to fill in the forms; (4) a digital camera with an image georeferencing function; (5) a 25k map extract of the area to be surveyed; (6) a tablet or smartphone with a dedicated app containing offline preloaded maps of the area to be detected (IGM, CTR, open streetmap, cadastral maps, historical maps, etc.) or directly viewable online through the WMS function; and (7) spare stylus batteries. Tablets and smartphones were also useful for importing drafts of the track (in .gpx or .kml format), viewed through dedicated apps in order to facilitate, in moments of uncertainty, an easy and quick understanding of the surrounding geography. Each track is generally composed of "n" linear geometric contiguous elements, with the "sections" corresponding to the center line of the route and acquired with GPS instrumentation in dynamic mode (i.e., in motion).

Because of reasons related to the impossibility of connecting the corresponding alphanumeric data directly to the geometric element and because of digital memory limits, the survey was made up of a single polyline of the entire path, associated with a series of start and end points, which were inserted for each change in the same characteristic. Each piece of information associated with a change in the section was identified by an abbreviation; this could be consulted in a decoding table, which was reported in pencil on the survey form.

Ultimately, the start and end of each leg were recorded by marking a corresponding waypoint and reporting the relevant code on the paper form. With this type of instrument, the tolerable planimetric error could be contained within 10 meters. In cases of a satellite reception insufficient to achieve the required accuracy for signal obstructions, it was necessary to repeat the survey by waiting for a few minutes to obtain the best accuracy. The missing parts or those with poor precision were modified and improved via post-processing in the GIS environment, relying on a basic cartography. Operationally, the detection method with the combination of a GPS receiver and a card was carried out as follows: (a) the waypoint was taken (with the GPS “MARK” function), and (b) the progressive Id number automatically provided to the GPS was transcribed on the cards in the first row in the first column called “GPS Code”. In the column named “START SECTION”, all the codes that characterized a change in the route (background, type and safety) were inserted (Table 1).

Table 1. Detail of technical data sheet

Gps Code	Start Section	End Section	Point Of Interest	Notes	Photo Code
001	TIP02-FON01-SIC00				
002	FON02-SIC01	FON01-SIC00			

Phase 3: elaboration and realization of the final product

Once the GPS data were obtained from the survey phase, we proceeded with transforming the original (raw) data into geographical elements. The following operations were necessary for this: (a) the exporting of data in a format compatible with GIS systems (shapefile); (b) geometric correction on a cartographic basis identified as CTR 10K; and (c) the structuring of the database (the assignment of alphanumeric information to geographic elements).

The third phase therefore concerned the digitization, always on the reference map, of the best route; of the accommodation facilities; of the most interesting naturalistic, cultural and religious emergencies (PUNs); of the water points; and of the panoramic points surveyed. The processing of the collected data took place with the correction of the GPS data and adaptation to the basic cartography (CTR 10k Regional). Once the tracks and WPs (waypoints) detected with GPS were downloaded, the GPS data were cleaned and converted to the shapefile (.shp) and Keyhole Markup Language (.kml) formats for viewing on GIS and Google Earth. In fact, the track detected during the field phase presented some more or less pronounced deformations, which were generally deemed to derive from possible reception problems of the satellite signal. The data were grouped by themes and inserted in GIS in the shapefile format, creating a collection of digital thematic maps that are easy to view and update. The data examination phase consisted of the following: (a) an examination of the data collected using the satellite navigator; (b) the identification of GPS tracks detected on the control cartography and the overlapping of the acquired data; (c) the control of the track on Google Earth panoramic satellite view or using a similar instrument; (d) the extraction of georeferencing data and the creation of Excel tables using the collected data; and (e) the processing of the database.

Technical information for the processing of the equestrian database trails

The classes of the georeferenced geometric entities that make up the archive of the equestrian trails are listed in the following way: Areas; Sections; Paths; Stage; Itineraries; Nodes/Junctions; and Points of Interest (POIs) (Table 2).

Table 2. Classes of georeferenced geometric entities

Class	Name	Class definition and acquisition criteria	Geometry
Areas	RET_ ARE	Based on the numbering of the regional paths, the territory of Tuscany is divided into territorial areas corresponding to the provincial administrative areas	Area / Multiarea
Sections	RET_ TRA_ L	Section means a linear element delimited by two nodes, identified by an ordered set of points and, normally, connected to other sections. The section constitutes the elementary geometric element of a path that has homogeneous characters. In other words, a path can consist of one or more sections. The geometric continuity of the path is divided into two sections, connected to each other through a node or junction, whenever events along the way require a change of attributes between the previous and next sections. The acquisition of the sections takes place substantially in two ways: 1. from topographic cartography; 2. with direct surveys via GPS	Lines / Multilines
Paths	RNC_ SEN	The Paths class is made up of all the path-type entities that make up the national path network. From a geometric point of view, the path entity derives from the composition of one or more connected sections	Lines / Multilines
Itineraries	RNC_ CAM	The Path class is made up of contiguous linear entities derived from the composition of the geometry of sections belonging to one or more paths.	Lines / Multilines
Nodes / Junctions	RNC_ NOD	The nodes and junctions correspond to particular vertices of the section that represents the path: the beginning and end vertices of the path, the way and the stage are nodes; those of bifurcation of the path in multiple paths and also those of junction that are created at the intersection of paths, itineraries and different stages.	Point
Points of Interest	RNC_ POI	Useful points for greater characterization of the section, both from point of view of the use by the walker, and from the point of view of management and maintenance by the manager.	Point

RESULTS AND DISCUSSION

Geographic Information Systems provide the best environment for the collection, storage, management, processing, analysis and cartographic representation of information (Pantelias et al., 2008), and they can play an important role in examining the suitability of locations for sustainable development (Bahaire et al., 1999). Web-based GIS models with dynamic and interactive maps are useful for managing and promoting tourism resources using data collected in the field (Mango et al., 2020). According to Eremitaggio (Eremitaggio et al., 2010), in recent years, with the spread of plans in digital format, public bodies at different levels have launched actions to harmonize the cartographic databases and the data used in order to make different policies comparable. Creating harmonized and consistent data models between different regions and countries can provide an opportunity to build more robust planning practices.

For this reason, for the planning of a hiking route, the development of an information database that contains all the information relating to the route and the sections and POIs that compose it is fundamentally important. Once the route was detected, the cartographic and alphanumeric data collected in the field were processed according to national standards and loaded onto the cartographic database.

The level of information required fluctuates between the need to collect useful information for the management and maintenance of the network and the need to provide users with the greatest amount of useful data for the full enjoyment of the routes from the tourist and hiking points of view. In this phase, the punctual information (recorded during the survey) was processed and transposed onto the linear geometric entity of the entire path. Then, tables were compiled listing the attributes of the paths and points based on the information collected during the survey with related identification codes. To optimize the overall organization of the database, the elements to be detected along a path were divided into two large groups: (a) section change points, necessary to indicate changes in a specific feature of the linear path, and (b) points of interest (POIs). By section, we mean a linear element delimited by two nodes, identified by an ordered set of points and, normally, connected to other sections. The section constitutes the elementary geometric element of a path that has homogeneous characteristics (attribute code). Before proceeding with the assignment of the codes to the linear elements, we proceeded with the definition of their characteristics in order to make the survey more precise. The definitions of the linear elements are presented in Table 3. The use of univocal codification responds to the need for the uniformity of information required by the INSPIRE directive, with the aims of harmonizing and promoting the interoperability of spatial data at regional, national and international levels (Balawejder et al., 2016).

In the hiking sector, too often we observe the creation of local initiatives for routes that do not satisfy the INSPIRE directive (2007), leaving out the possibility of creating a network for large-scale tourism promotion. For this reason, it is necessary that the paths are designed by creating a database of standardized information interchangeable with other management bodies. This work created a database connected to the route of the Monti Pisani horse trail, following the coding indicated by the R.E.T. (Tuscany Hiking Network). The geometric continuity of the path is divided into two sections, connected to each other through a node or junction, whenever events occur along the route that require a change in attributes between the previous and the following sections. The events that require the interruption of the continuity of the path and the insertion of a connection node are as follows: (a) the type of section (field TIP_TRA—values: drive-over, non-drive-over and drive-over with limitations); (b) the type of land (FON_TRA field—values: dirt, on rock, natural and artificial); (c) the degree of security (SIC_TRA field—values: criticality 0/safe, criticality 1 and criticality 2); and (d) the ownership of the estate (field PRO_TRA—values: section on public estate and on private estate).

Table 3. Definition of linear elements

Linear element detected	DTB Code	Definition
CLA_TRA		
Main	01	Main path
Variant / alternative	02	Variation to the main route due to logistical or historical-environmental reasons
Functional connection	03	Connection to a place / site of particular interest not far beyond 1.5 km
TIP_TRA		
Accessible to vehicles	01	This category includes roads with a width exceeding 2.5 m and with a bottom, slope and width of curves that allow the transit of vehicles
Not accessible to vehicles	02	Roads less than 2.5 m wide and not suitable for vehicles fall into this category
Accessible to vehicles with limitations	03	This category includes all the driveways on which restrictions on use are applied based on current state and regional legislation
FON_TRA		
Natural	01	Natural background typical of the path due to the repeated passage of people
Asphalt / concrete	02	It includes all types of flooring made by man with plastic materials such as concrete, asphalt, bitumen etc.
Gravel / dirt road	03	This category includes all the driveways on which restrictions on use are applied based on current state and regional legislation
Paved / cobblestones	04	Paving made of flints or other irregular stones (paving, roadbed, etc.).
Pedestrian and bicycle route	05	This category includes all those pedestrian and bicycle paths with an improved bottom
SIC_TRA		
Zero criticality - safe section	00	They are sections classified with a large safety margin. They are sections generally identified on paths, tracks, dirt roads, driveways on asphalt but with the presence of a sidewalk, low traffic and good visibility conditions
Criticality 1	01	These are sections in which the walker does not have a sidewalk, platform or lateral space along the roadway. The walker must therefore be careful to avoid the cars that come even if the visibility is good and the traffic is low
Criticality 2	02	These are sections with the same conditions with criticality 1 but with the aggravation of the fact that pedestrian / vehicle intervisibility is completely absent

In the data processing and database construction phase, the support waypoints recorded during the field surveys, indicating the attribute change points, represent interruptions on the path polyline (nodes), generating a number of contiguous sections that differ in attribute values. In Table 4, the values of the attributes referable to the sections detected are reported. Figure 4 shows an example of a change in the estate's attribute.

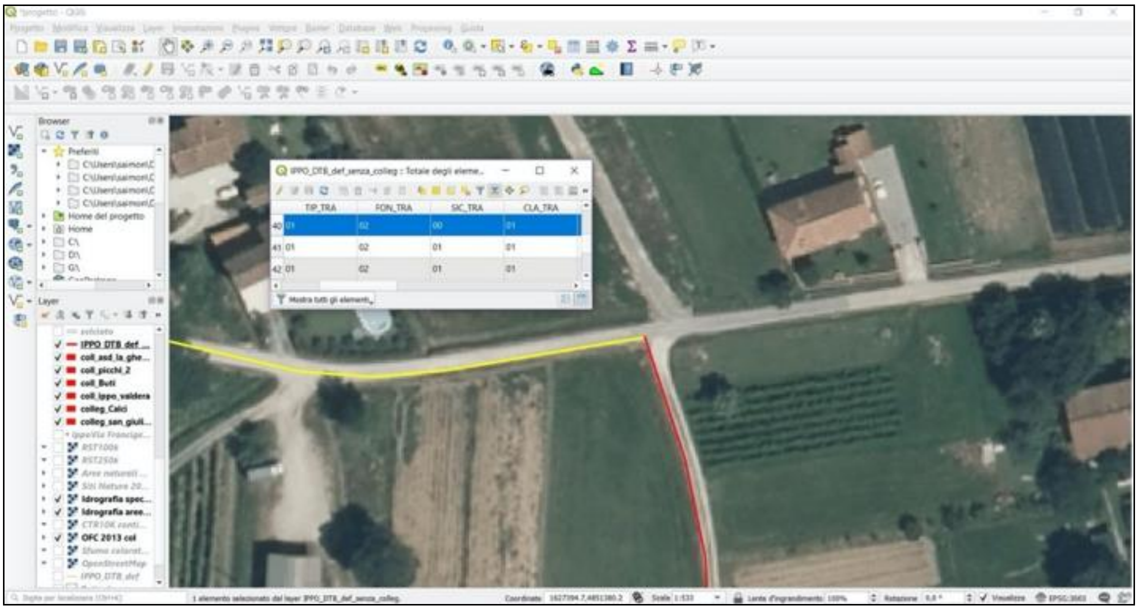


Figure 4. Example of estate's attribute change, elaborated in QGIS

With regard to the attribution of information to specific elements, a number of points of interest (POIs) are associated with the route; they are not directly connected to the route but are useful for its greater characterization. This allows for better utility in terms of hiking and in terms of management and maintenance by the manager. From a geometric point of view, notable points are recorded as point entities in the real geographic position in which they are found. The POIs that are located directly along the routes (main, variants and connections) or that are located in a buffer of up to 600 meters (300 meters per road side) are part of the archive. The points that report any criticalities due to landslides, dangerous fords, etc., are also included in this information level. Table 5 shows the descriptions of the codes assigned to the points of interest.

Table 4. Attributes codes for sections

Name	Description	DTB code
Geometry	**Entity geometry**	
CLA_TRA	Section classification	Domain: 01 = main; 02 = variant / alternative;03 = functional connection to POI
TIP_TRA	Type of venue on which the section passes	Domain: 01 = accessible to vehicles; 02 = not accessible to vehicles;03 = accessible to vehicles with limitations
FON_TRA	Type of land on which the section develops	Domain: 01 = natural; 02 = asphalt / concrete; 03 = gravel / dirt road; 04 = paved / cobblestones; 05 = pedestrian and bicycle route; 00 = other
SIC_TRA	Degree of section security based on 3 levels of criticality	Domain: 00 = safe zero criticality; 01 = criticality 1; 02 = criticality 2
PRO_TRA	Estate ownership	Domain: 01 = section on public land; 02 = section on private land; 03 = for public use
DATA_RIL	Date relating to the acquisition or the last geometric / information modification of the "section" element	YYYYMM; Where YYYY indicates the year e MM indicates the month
NOTE_GEN	General information relating to the element "section"	Character format A / b

As for Yosemite National Park, in the same way, the availability of the spatial information database of the Monti Pisani Horse Trail can allow for the creation of an interactive hiking map and a web-based hiking information system, providing interactive topographic maps, hiking information and thematic and touristic information. The chosen trail is displayed on the map, along with a profile and a list of useful information and tips (Williams et al., 2006).

Table 5. Attributes codes for points of interest

Name	Description	DTB code
Geometry	**Entity geometry**	
TIP_POI	Type of Point of Interest POI	Domain: SR = reception / receptivity; PA = water supply; PI = points of interest; SE = services; CR = point criticality
SR_POI	Accommodation facilities	Domain: SR01 = hospitable / poor receptivity; SR02 = guesthouse; SR03 = hotel; SR04 = hostel; SR05 = rent-rooms; SR06 = holiday farm; SR07 = camping; SR08 = refuge; SR09 = bivouac; SR10 = horse shelter; SR00 = other
PA_POI	Water points	Domain: PA01 = source of drinking water; PA02 = drinking water fountain; PA03 = fountain of uncontrolled water; PA04 = seasonal source; PA05 = horse drinking trough; PA00 = other
PI_POI	User services	Domain: SE01 = refreshment point ; SE02 = information point, visitor center ; SE03 = railway station; SE04 = bus stop; SE05 = bicycle assistance ; SE06 = pharmacy ; SE07 = hospital ; SE08 = release of official stamp; SE09 = dedicated Wi-Fi point; SE10 = equipped rest area; SE00 = other
CR_POI	Critical points	Domain: CR01 = landslide; CR02 = dangerous ford; CR03 = mud, flooding; CR04 = gate / barrier; CR05 = free dogs; CR06 = particularly luxuriant vegetation; CR07 = missing pedestrian crossing; CR00 = other
QUO_POI	Altitude of the point of interest expressed in m.a.s.l.	
NOM_POI	Toponym identifying the point of interest	Character format

The standardized information database represents a useful tool, because not only is it possible for users to access the route information through web services, but it also serves as a management tool that can be consulted by the administration for the management and maintenance of the same route, and it can also be shared with other management bodies and with those who work in the tourism sector. Cooperation is perceived to be an important factor for successful tourism development. Rural tourism requires different types of businesses to work together because, by its nature, tourism has intertwined relationships between different types of businesses, such as shops, hotels, restaurants and tourist attractions (Wilson et al., 2001). The possibility of having a management tool such as the spatial information database facilitates the sharing of information data between entities, given the importance of strategic planning for the development of tourism, which is fundamental for the efficient and effective use of resources and funds, especially in rural areas that have few funds and resources. Good planning for the development and promotion of tourism can help develop and support local tourism-related businesses (Riberio et al., 2020). With regard to value from a managerial point of view, a well-structured database allows an administration to identify the critical points of a route and take action to make them safe; define the best strategies for achievement using information relating to the points of interest and available rest stops along the route; proceed with the maintenance of the path, where necessary, in relation to the characteristics of the land and possible invasion by infesting vegetation; and integrate the existing database with variants, ring routes, connections to routes of neighboring municipalities, new parking points or new points of interest.

CONCLUSIONS AND FUTURE PERSPECTIVES

The research carried out in this paper ended with the delivery of a management tool (an equestrian database manageable using Gis) to the local public administration for the management and promotion of equestrian tourism.

In addition to the GPS track of the horse trail and the connected points of interest (in the various consultable and work formats), a true management tool, that is, a map database, was realized. This tool contains information relating to the route and regarding the safety of the sections that make up the entire route, their practicability characteristics and any critical issues on which the administrator will focus their actions in order to maintain it for the use of users. Such a structured system allows one to create a territorial information system in compliance with regional directives, constituting the deepest knowledge of the territory. The information packaged in a well-structured database can then be used for the creation of path promotion tools, such as webgis portals or applications for smartphones, in order to facilitate use by users. The cartographic database aims to collect useful information for the management and maintenance of the network and to provide users with the greatest amount of useful data for the full enjoyment of routes from the tourist and hiking points of view. The GPS survey of the routes, the equestrian variants and all the points of interest dedicated to equestrian tourism allowed for the realization of an innovative and functional project addressing the needs of the tourism sector. A digital detection and computerization system of the routes, through the detection of the attributes of sections, paths and significant points, allows one to create a database containing uniform information for the whole region, obtaining a management tool and an achievement of fundamental importance. Further research needs to be undertaken in the future not only to determine the effects of these developing initiatives but also to better understand the individual person–place relationships of horse riders with their environment and their evolution.

Author Contributions: Conceptualization, G.B.; methodology, L.C. and M.B.; software, G.B. and G.R.; validation, L.C. and M.B.; formal analysis, L.C. and M.B.; investigation G.B.; data curation, G.B. and L.C.; writing - original draft preparation, G.B.; writing - review and editing, G.B.; visualization, L.C. and M.B.; supervision, G.R.; project administration, G.B. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Bahaire, T., & Elliott-White, M. (2001). The application of Geographical Information Systems (GIS) in sustainable tourism planning: A review. *Journal of Sustainable Tourism*, 7(2) 159-174, ISSN 0966-9582.

Balawejder, M., Adamczyk, T., & Cyga, M. (2016). *The problem of adjusting polish spatial information resources to the standards of the INSPIRE*. Conference Proceedings: XXIII International Geographic Information Systems Conference and Exhibition “GIS ODYSSEY 2016”, Perugia, Italy, September 5-9, 2016, 14–24.

Bambi, G., Iacobelli, S., Rossi, G., Pellegrini, P., & Barbari, M. (2019). Rural tourism to promote territories along the ancient roads of communication: Case study of the rediscovery of the St. Francis’s ways between Florence and La Verna. *European Countryside*, 11, 462-474. https://doi.org10.2478/euco-2019-0025

Baum, T., & Hagen, L. (1999). Responses to seasonality: The experiences of peripheral destinations. *International Journal of Tourism Research*, 1(5), 299–312.

Beeton, S. (1999). Hoofing it – on four or two feet? Managing multi-use trails and sites. *Current Issues in Tourism*, 2(2&3), 211–225. https://doi.org10.1080/13683509908667852

Beeton, S. (2001). Horseback tourism in Victoria, Australia: Cooperative, proactive crisis management. *Current Issues in Tourism*, 4(5), 422–439. https://doi.org10.1080/13683500108667897

Beeton, S. (2006). Sustainable tourism in practice: Trails and tourism, critical management issues of multi-use trails. *Tourism and Hospitality: Planning and Development*, 3(1), 47–64. https://doi.org10.1080/14790530600727227

Bruch, M. (2012). Horse-based tourism in Iceland. An analysis of the travel motivation of equestrian tourists. *Anchor Academic Publishing* (aap_verlag).

Buchmann, A. (2017). Insights into domestic horse tourism: the case study of Lake Macquarie, NSW, Australia. *Current Issues in Tourism*, 20(3), 261–277. doi:10.1080/13683500.2014.887058

Butler, R. (1999). Sustainable tourism: A state-of-the-art review. *Tourism Geographies*, 1:1, 7-25. doi: 10.1080/14616689908721291.

Cristóvão, A. (1999). Environment and development of marginal rural areas: the tortuous path to a potentially fruitful relationship. In proceedings 1° Encontro Galiza-Portugal de Estudos Rurais, Bragança, Portugal 13 November.

Directive INSPIRE. Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE). http://data.europa.eu/eli/dir/2007/2/oj

Eremitaggio, A.M., Procaccini, P., Ombuen, S., Vico, F., & Zanetti, N. (2010). Plan4all: l’armonizzazione dei dati per la pianificazione territoriale in accordo con INSPIRE, *Conference Proceedings: 14th National Conference ASITA, Brescia, Italy, 9-12 November*, 935-940.

Eusébio, C., Carneiro, M.J., Kastenholz, E., Figueiredo, E., & da Silva, D.S. (2017). Who is consuming the countryside? An activity-based segmentation analysis of the domestic rural tourism market in Portugal. *Journal of Hospitality and Tourism Management*, 31, 197–210. https://doi.org10.1016/j.jhtm.2016.12.006

Hackbert, P., & Lin, X. (2011). Equestrian Trail Riding: An Emerging Economic Contributor To The Local Rural Appalachian Economy. *Journal of Business Case Studies*, 5(6):47-58. https://doi.org10.19030/jbcs.v5i6.4732

Helgadóttir, G., & Sigurdardóttir, I. (2008). Horse-based tourism: Community, quality and disinterest in economic value. *Scandinavian Journal of Hospitality and Tourism*, 8(2), 105–121. https://doi.org10.1080/150222508020881.49

Helgadóttir, G. (2006). The culture of horsemanship and horse-based tourism in Iceland. *Current Issues in Tourism*, 9(6), 535–548. https://doi.org10.2167/cit297.0

Hoefle, S.W. (2016). Multi-functionality, juxtaposition and conflict in the Central Amazon: Will tourism contribute to rural livelihoods and save the rainforest? *Journal of Rural Studies*, 44, 24–36. https://doi.org10.1016/j.jrurstud.2015.12.009

Kastenholz, E. (2004). Management of demand as a tool in sustainable tourist destination development. *Journal of Sustainable Tourism*, 12(5), 388–408. https://doi.org10.1080/09669580408667246

Kline, C.S., Cardenas, D., Viren, P.P., & Swanson J.R. (2015). Using a community tourism development model to explore equestrian trail tourism potential in Virginia. *Journal of Destination Marketing and Management*, 4(2), 79–87. https://doi.org 10.1016/j.jdmm.2015.01.001

Könyves, E., & Suta, É. (2009). The importance of equestrian tourism enterprises in tourism destination management in Hungary. *Applied Studies in Agribusiness and Commerce*, 3(3–4), 25–27.

Lee, A.H.J., Wall, G., & Kovacs, J.F. (2015). Creative food clusters and rural development through place branding: Culinary tourism initiatives in Stratford and Muskoka, Ontario, Canada. *Journal of Rural Studies*, 39, 133–144.

Luloff, A.E., Bridger, J.C, Graefe, A.R., Saylor, M., Martin, K., & Gitelson, R. (1994). Assessing rural tourism efforts in the United States. *Annals of Tourism Research*, 21(1), 46–64.

McAreavey, R., & McDonagh, J. (2010). Sustainable rural tourism: Lessons for rural development. *Sociologia ruralis*, 51(2), 175–194. https://doi.org10.1111/j.1467-9523.2010.00529.x

Mango, J., Çolak, E., & Li, X. (2020). Web-based GIS for managing and promoting tourism in sub-Saharan Africa. *Current Issues in Tourism*, Published online: 08 Jan 2020.

Mastronardi, L., Giaccio, V., Giannelli, A., & Stanisci, A. (2017). Methodological proposal about the role of landscape in the tourism development process in rural areas: The case of Molise Region (Italy). *European Countryside*, 9(2), 245–262. https://doi.org 10.1515/euco-2017-0015

Newsome, D., Smith, A., & Moore, S.A. (2008). Horse riding in protected areas: a critical review and implications for research and management. *Current Issues in Tourism*, 11(2), 144–166. https://doi.org10.2167/cit336.0

Notzke, C. (2016). Wild horse-based tourism as wildlife tourism: The wild horse as the other. *Current Issues in Tourism*, 19(12), 1235–1259. https://doi.org10.1080/13683500.2014.897688

Ollenburg, C. (2005). Worldwide Structure of the Equestrian Tourism Sector. *Journal of Ecotourism*, 4(1), 47–55. https://doi.org10.1080/14724040508668437

Pantelias, E., Zervakou, A., Tsombos, P.I., & Nikolakopoulos, K.G. (2008). Spatial database for the management of "urban geology" geothematic information: The case of Drama City, Greece. Conference Proceedings: *Remote Sensing for Environmental Monitoring, GIS Applications, and Geology VIII, SPIE Europe*, 7110 (pp. 7110 12).

Pickel-Chevalier, S. (2015). Can equestrian tourism be a solution for sustainable tourism development in France? *Loisir et Société / Society and Leisure*, 38(1), 110–134.

Räbinä, R.L. (2010). Benchmarking Finnish and Irish equestrian tourism. Degree Thesis. Kajaani Universitz of Applied Sciences.

Riberio, M., & Marques, C. (2020). Rural tourism and the development of less favoured areas - between rhetoric and practice. *International Journal of Tourism Research*, 4(3) 211–220. https://doi.org10.1002/jtr.377

Saxena, G., Clark, G., Oliver, T., & Ilbery, B. (2007). Conceptualizing integrated rural tourism. *Tourism Geographies*, 9(4) 347–370. https://doi.org10.1080/14616680701647527

Schmudde, R. (2015). Equestrian tourism in national parks and protected areas in Iceland – an analysis of environmental and social impacts. *Scandinavian Journal of Hospitality and Tourism*, 15(1–2), 91–104. https://doi.org10.1080/15022250.2014.1000713

Sharpley, R. (2000). Tourism and sustainable development: Exploring the theoretical divide. *Journal of Sustainable Tourism*, 8(1), 1–19. https://doi.org10.1080/09669580008667346

Williams, J., Neumann, A. (2005). Interactive hiking map of Yosemite National Park. Available online:https://www.carto.net/neumann/papers/2006/bohinj_slovenia_2006_williams_neumann.pdf.

Wilson, S., Fesenmaier, D.R., Fesenmaier, J., & van Es, J.C. (2001). Factors for success in rural tourism development. *Journal of Travel Research*, 40(2), pp. 132–138.40

Wilson, J., & Richards, G. (2008). Suspending Reality: an Exploration of Enclaves and the Backpacker Experience. *Current Issues in Tourism*, 11:2, 187-202

Article history: Received: 19.08.2023 Revised: 05.10.2023 Accepted: 30.10.2023 Available online: 06.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1458-1465
DOI 10.30892/gtg.50426-1144

THE ATTRACTION OF CAN THO CITY, VIETNAM AS A TOURIST DESTINATION

Luu Thanh Duc HAI
School of Economics, Can Tho University, Can Tho, Vietnam, e-mail: ltdhai@ctu.edu.vn

Quoc Nghi NGUYEN*
School of Economics, Can Tho University, Can Tho, Vietnam, e-mail: quocnghi@ctu.edu.vn

Khuu Ngoc HUYEN
School of Economics, Can Tho University, Can Tho, Vietnam, e-mail: knhuyen@ctu.edu.vn

Citation: Hai, L.T. D., Nguyen, Q.N., & Huyen, K.N. (2023). THE ATTRACTION OF CAN THO CITY, VIETNAM AS A TOURIST DESTINATION. *GeoJournal of Tourism and Geosites*, 50(4), 1458–1465. https://doi.org/10.30892/gtg.50426-1144

Abstract: This study aims to demonstrate the influencing factors on the destination attractiveness of Can Tho City, Vietnam. From October 2022 to November 2022, the study collected data using a convenient sampling method, with a sample size of 268 tourists. A mixed-method research approach combining qualitative and quantitative research methods was employed to validate the research hypotheses. For qualitative research, a focus group discussion method was conducted to identify appropriate scales for the research model. For quantitative research, the following analytical methods were utilized: testing the reliability of the scales using Cronbach's alpha coefficient, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modeling (SEM). The research results indicate that the attraction of Can Tho City as a tourism destination depends on 08 factors, including the natural environment, local culture, local cuisine, recreational activities, infrastructure, service price, tourism promotion, and local residents. Among these, tourism promotion is the most significant and influential factor affecting the attraction of Can Tho City as a tourism destination.

Key words: attraction, tourism destinations, Can Tho City

* * * * * *

INTRODUCTION

Destination attractiveness is an important factor for tourists (Funk et al., 2004). Attraction serves as a magnet for tourists to choose their destinations based on their preferences and travel purposes (Benckendorff and Pearce, 2003). The attractiveness of a destination forms a significant foundation for tourists' decisions in choosing travel destinations (Richards, 2002; Hou et al., 2005; Dolnicar and Leisch, 2008); the stronger the attraction, the higher the potential to draw tourists to the destination (Benur and Bramwell, 2015). However, the attractiveness of a destination depends on the tourist locations visitors are headed to (Krešić and Prebežac, 2011). Attraction contributes to fulfilling tourists' trip objectives such as entertainment, relaxation, and education (Leask, 2010). The attractiveness of a destination is a crucial element for the successful development of a tourist destination (Hu and Wall, 2005). Hence, a successful tourist destination must identify the factors that constitute its appeal to visitors (Formica, 2000).

Can Tho City is one of the five centrally-governed cities in Vietnam. It stands as a bustling and developed city in the Mekong Delta region, playing a role as the center of economics, culture, society, healthcare, education, and commerce for the entire region. In recent years, tourism in Can Tho City has undergone significant changes and strong development. The development of Can Tho's tourism industry is the result of the implementation of the Party and State's policies, especially Resolution No. 08-NQ/TW dated January 16, 2017, by the Party Central Committee on developing tourism into a key economic sector, and Resolution No. 03-NQ/TU of the Can Tho City Party Committee on promoting tourism development, setting the goal for 2020, Can Tho tourism industry has essentially become a key economic sector, providing impetus for socio-economic development. Can Tho City has an intricate network of rivers and canals, abundant seasonal greenery, numerous festivals, traditional craft villages, valuable historical cultural relics, and a diverse lodging system.

In Can Tho City, various types of tourism attract both domestic and international tourists, including ecotourism, river tourism, cultural tourism, community-based tourism, and MICE tourism. Some prominent tourist attractions widely recognized among visitors are community-based tourism in Son Islet, Cai Rang Floating Market, My Khanh Tourist Village, and Ninh Kieu Wharf. The literature review shows that, despite numerous studies demonstrating the factors influencing the attractiveness of tourist destinations, most studies have focused on developed countries, while few studies have been conducted in developing countries with a context similar to Vietnam. Therefore, identifying the factors that contribute to the attractiveness of the tourism destination in Can Tho City holds great significance. The research outcomes will suggest policy implications to enhance the appeal of Can Tho City as a tourism destination in the minds of travelers.

* Corresponding author

THEORETICAL FRAMEWORK AND RESEARCH HYPOTHESES

Destination attractiveness: Destination attractiveness is the spiritual image of a destination, created through the available attractions at a destination (Krešić and Prebežac, 2011). The attraction of a destination is a positive perception of the destination's image, reflected through an individual's understanding, impression, evaluation, and emotions toward a specific tourist location (Sun et al., 2013; Wu, 2016). The attractiveness of a destination is linked to its core attributes, notably the values of natural and cultural resources (Nadzirah et al., 2018), as well as supplementary attributes such as goods and services catering to the journey (Cheng et al., 2013; Hou et al., 2005). The attractiveness of a destination is a decisive factor in the development of the tourism economy (Sofield, 2006; Andersson and Getz, 2009). The attractiveness of a destination is evaluated through various dimensions and is seen as a multidimensional concept (Zhang et al., 2014). In this study, regarding the tourism destination of Can Tho City, the attractiveness of the destination is assessed through factors such as natural environment, socio-cultural aspects, local cuisine, recreational activities, infrastructure, service price, tourism promotion, and local residents.

Research hypotheses: In recent years, the topic of destination attractiveness has drawn the attention of many researchers. As a result, researchers have demonstrated various factors influencing the appeal of tourist destinations, including the natural environment, local culture, local cuisine, recreational activities, infrastructure, service prices, tourism promotion, and local residents. However, few studies have focused on the factors of tourism promotion and local residents. The impact level of these factors may vary for tourists depending on the characteristics and resources of the destination. Therefore, this study synthesizes the factors that influence destination attractiveness to formulate research hypotheses.

Natural Environment: Natural landscapes and the natural environment directly impact the capacity to attract tourists (Deng et al., 2002), influencing the existence and development of tourism activities (Kim and Richardson, 2003). Natural landscapes not only affect tourists' destination choices but also influence the flow of tourists on a national and global scale (Chau et al., 2016). The natural environment is a factor that contributes to the attractiveness level of a destination; the more beautiful and captivating the natural scenery, the greater the demand for exploration and experiences by tourists (Kozak, 2002; Beerli and Martín, 2004; Chen and Tsai, 2007; Ahmed et al., 2010; Seyidov and Adomaitienė, 2016; Vy, 2019; Tang et al., 2022). Therefore, this study suggests Hypothesis H1: The natural environment positively influences the attractiveness of Can Tho City as a tourism destination.

Local Culture: Local customs, festivals, traditional craft villages, and artistic performances are distinctive cultural aspects that interest tourists and encourage their participation (Formica and Murrmann, 1998; Yu and Littrell, 2003; Tien et al., 2021). Each type of tourism has its history of formation and unique local culture, which helps tourists gain a deeper understanding of the significance of different types of tourism in each region (Chau et al., 2016). Some researchers have argued and demonstrated that local culture is a factor that creates the appeal of a tourism destination (Kozak and Rimmington, 1998; Vengesayi, 2003; Beerli and Martín, 2004; Zhou, 2005; Chau et al., 2016; Vy, 2019; Son et al., 2023). Therefore, this study proposes Hypothesis H2: Local culture positively impacts the attractiveness of Can Tho City as a tourism destination.

Local Cuisine: Local cuisine is an important message that a destination needs to introduce to tourists to enhance the allure of the tourism destination (Quan and Wang, 2004; Blasco et al., 2014). The authenticity of local dishes is closely tied to traditional values, integrity, constancy, and the absence of distortion (Gupta and Duggal, 2021). Specialty dishes are a significant part of a destination's culinary culture (Thuy, 2023), contributing to the attractiveness of the tourism destination (Ahmed et al., 2010; Loan and Thanh, 2014; Hoang et al., 2016; Nghia et al., 2017; Quyen and Thao, 2017; Lien et al., 2021; Nghi et al., 2021; Giang, 2022). Therefore, this study proposes Hypothesis H3: Local cuisine positively affects the attractiveness of Can Tho City as a tourism destination.

Recreational Activities: A variety of recreational activities at a destination includes options such as shopping, sports activities, nightlife, water shows, swimming, etc. (Chang and Gibson, 2011; Loureiro, 2015). Diverse recreational activities contribute to the attraction of a destination for tourists (Beerli and Martín, 2004; Chi and Qu, 2008; Lien et al., 2021). Some researchers have argued and demonstrated a positive correlation between recreational activities and the attraction of a tourism destination (Beerli and Martín, 2004; Yoon and Uysal, 2005; Ahmed et al., 2010; Loan and Thanh, 2014; Quyen and Thao, 2017; Thong, 2019). Therefore, this study proposes Hypothesis H4: Recreational activities positively influence the attractiveness of Can Tho City as a tourism destination.

Infrastructure: Infrastructure comprises communication systems, public utilities, transportation, and services catering to tourists (Piewdang et al., 2013). Infrastructure forms the underlying system supporting both the activities of the local community and tourists (Thuy and Tuan, 2018). Good infrastructure creates favorable conditions for tourists to access the destination and engage in tourism activities (Duc and Kien, 2017). Within the realm of tourism, several studies have demonstrated that infrastructure is an important factor influencing the attractiveness of a destination (Beerli and Martín, 2004; Ahmed et al., 2010; Loan and Thanh, 2014; Seyidov and Adomaitienė, 2016; Quyen and Thao, 2017; Huong and Quan, 2019; Nghi et al., 2021; Thong and Phung, 2021). Therefore, this study proposes Hypothesis H5: Infrastructure positively affects the attractiveness of Can Tho City as a tourism destination.

Service Price: In the realm of tourism, service prices encompass accommodation costs, prices of goods and tourist services, transportation costs, and dining expenses (Loan and Thanh, 2014). A destination with reasonable prices that correspond to the quality of services is a matter of concern for tourists (Thong and Phung, 2021). The pricing and affordability of services impact the demand and choice of a destination (Nicolau and Mas, 2006; Chi and Qu, 2008). Some researchers have argued and demonstrated the positive influence of service prices on the attractiveness of a destination (Beerli and Martín, 2004; Zhou, 2005; Seyidov and Adomaitienė, 2016; Huong and Quan, 2019; Thong, 2019; Giang, 2022; Son et al., 2023). Therefore, this study proposes Hypothesis H6: Service prices positively influence the attractiveness of Can Tho City as a tourism destination.

Tourism Promotion: Tourism promotion involves activities that boost and search for trading opportunities for goods and services in tourism, encompassing promotional endeavors, advertising, displays, showcasing, trade fairs, and travel exhibitions (Thong and Yen, 2022). According to Nguyen (2010), several marketing activities related to local tourism include image marketing, highlighting distinctive features, infrastructure marketing, and local marketing. Tourism promotion plays an essential role in driving tourism development, not only imparting information to tourists about the destination but also attracting and persuading them to choose the destination (Thong, 2019; Thong and Phung, 2021). Tourism promotion is a crucial factor positively influencing the attractiveness of a tourism destination, contributing to attracting tourists to the destination (Ahmed et al., 2010; Zidehsaraei and Zidehsaraei, 2015; Hoang et al., 2016; Quyen and Thao, 2017; Nghi et al., 2021). Thus, this study proposes Hypothesis H7: Tourism promotion positively impacts the attractiveness of Can Tho City as a tourism destination.

Table 1. Interpretation of observed variables in the research model

Factor	**Observed variable**	**Scale**
Natural Environment	NE1: Abundant natural resources	Likert 1-5
	NE2: Many attractive natural attractions	Likert 1-5
	NE3: Pleasant temperate and climate	Likert 1-5
	NE4: Fresh and peaceful environment	Likert 1-5
	References: Lin et al. (2007), Duc and Kien (2017)	
Local Culture	CUL1: Many handicraft villages	Likert 1-5
	CUL2: Many folk festivals	Likert 1-5
	CUL3: Many attractive historical and cultural relics	Likert 1-5
	CUL4: Interesting local people's lifestyle	Likert 1-5
	References: Yu and Littrell (2003), Huong and Quan (2019)	
Local Cusine	CUS1: The cuisine is typical and attractive	Likert 1-5
	CUS2: The variety of dishes and drinks	Likert 1-5
	CUS3: Very unique culinary taste	Likert 1-5
	CUS4: Food quality is guaranteed	Likert 1-5
	References: Kim and Richardson (2003), Blasco et al. (2014).	
Recreational Activities	RA1: Many entertainment activities for visitors	Likert 1-5
	RA2: Enjoyable shopping experiences	Likert 1-5
	RA3: Various types of souvenirs and specialties	Likert 1-5
	RA4: Exciting night activities	Likert 1-5
	References: Loureiro (2015), Tien et al. (2021)	
Infrastructure	IN1: Good public transport system	Likert 1-5
	IN2: Full and diverse tourist information	Likert 1-5
	IN3: Diversity of food establishments	Likert 1-5
	IN4: The variety of accommodation facilities	Likert 1-5
	References: Lin et al. (2007), Huong and Hoan (2020)	
Service Price	SP1: Reasonable price for sightseeing services	Likert 1-5
	SP2: Affordable shopping prices	Likert 1-5
	SP3: Food service prices correspond to food quality	Likert 1-5
	SP4: Reasonable accommodation service price	Likert 1-5
	References: Loan and Thanh (2014), Thong (2019)	
Tourism Promotion	TP1: Impressive and attractive tourist destination advertisement	Likert 1-5
	TP2: Various forms of destination promotion	Likert 1-5
	TP3: Many attractive promotions	Likert 1-5
	TP4: Many travel programs	Likert 1-5
	References: Zidehsaraei and Zidehsaraei (2015), Quyen and Thao (2017)	
Local Resident	LR1: Local people are hospitable	Likert 1-5
	LR2: The friendliness and hospitality of the people	Likert 1-5
	LR3: Local people are always polite and courteous	Likert 1-5
	LR4: Local people are reliable	
	References: Palau-Saumell et al. (2016), Soonsan and Sukahbot (2019)	
Destination Attractiveness	DA1: Can Tho City is an attractive tourist destination	Likert 1-5
	DA2: Can Tho City brings many interesting experiences	Likert 1-5
	DA3: I am satisfied with the tourist destination of Can Tho City	Likert 1-5
	DA4: Can Tho City brings many good impressions	Likert 1-5
	References: Loan and Thanh (2014), Nghi et al. (2021)	

Local Residents: Tourism relies on the goodwill of local residents; thus, their participation is crucial for success and sustainable development (Ritchie, 1988; Jurowski, 1994). The attitude of local residents towards tourism development is of utmost importance, particularly positive support from them as a significant factor for successful tourism development (Nunkoo and So, 2016; Erul et al., 2020). The presence of local residents in tourism activities plays a vital role that determining the quality of tourism services and enhancing the image of the tourism destination (Thong, 2019; Nguyen and Mai, 2021). Some researchers have argued and demonstrated the positive impact of local residents on the attractiveness of a tourism destination (Zhou, 2005; Quyen and Thao, 2017; Thong and Phung, 2021; Giang, 2022). Thus, this study proposes Hypothesis H8: Local residents positively affect the attractiveness of Can Tho City as a tourism destination.

Based on the research hypotheses, the research model of factors influencing the attractiveness of Can Tho City as a tourism destination is established as Figure 1 and Table 1.

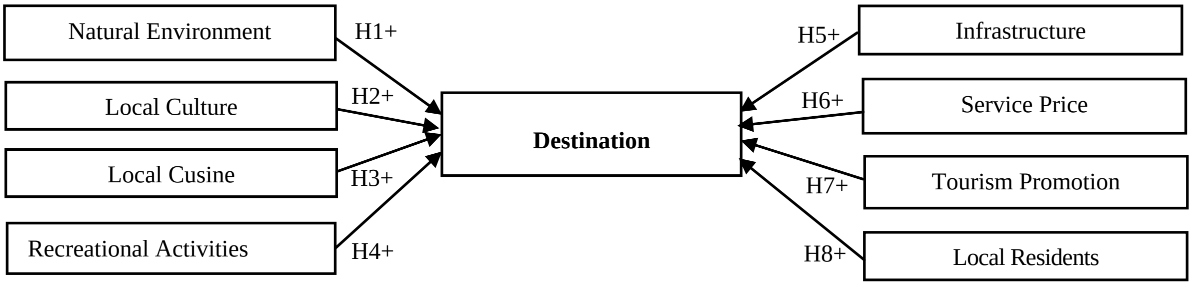


Figure 1. Proposed research model, (Source: compiled by the authors)

RESEARCH METHODOLOGY

Analytical method

A mixed-method research combining qualitative and quantitative research was employed to validate the research hypotheses. For qualitative research, a focus group discussion method was conducted to identify appropriate scales for the research model. Two group discussions (each consisting of 5 tourists) were organized, involving a total of 10 tourists. The participants in the group discussions were identified as experienced travelers, especially those who had used tourism services at least twice at tourist destinations of Can Tho City. For quantitative research, the following analytical methods were utilized: testing the reliability of the scales using Cronbach's alpha coefficient, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modeling (SEM). Research methodology diagram is presented in Figure 2.

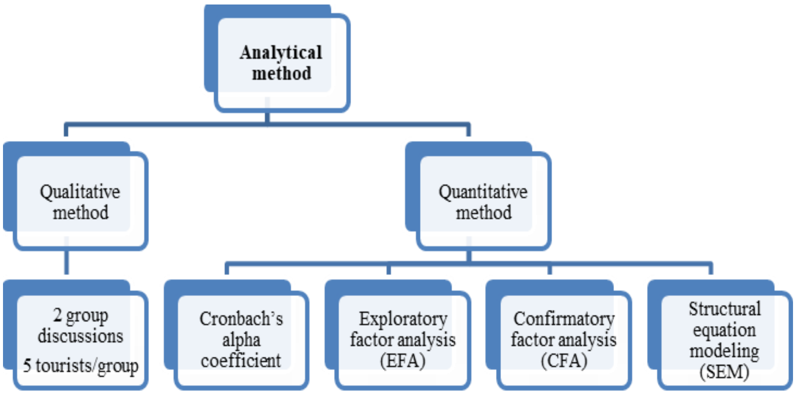


Figure 2. Research methodology flowchart, (Source: compiled by the authors)

Data collection method

Researchers believe that SEM requires a large sample size as it relies on the theory of large sample distributions (Raykov and Widaman, 1995), and the minimum sample size should be 200 (Hoelter, 1983). A formal survey was conducted during the period from October 2022 to November 2022. The survey participants were selected from tourists who had visited and experienced tourism services in Can Tho City. The study utilized a convenience sampling method to collect data. Due to the lack of a comprehensive list and difficulty in accessing the survey subjects, the study used a convenient sampling to collect data. The drawback of this sampling method is that it cannot determine the sampling error and has limited generalizability of research results. After excluding surveys that were not reliable, a total of 268 valid surveys were used to test the research hypotheses. Some demographic characteristics of the respondents are as Table 2. Domestic tourists accounted for 68.66%, while international tourists accounted for 31.34%. The gender distribution of the respondents was relatively balanced, with males accounting for 52.24% and females accounting for 47.76%. The age group of the respondents was concentrated in the 30 to 45 age group (44.03%), followed by the age group above 45 (29.10%), and finally the age group under 30 (26.87%). The majority of respondents had completed high school (44.78%), followed by those with a university degree (46.64%), and postgraduate education (8.58%). In terms of occupation, office workers constituted the highest proportion of respondents (37.31%), followed by respondents working in the public sector (23.13%), self-employed individuals (25.37%), and managers/operators (14.18%).

Table 2. Demographic characteristics of the respondents (Source: authors)

Characteristics of the respondents	Number of respondents	Percentage
Respondents	**268**	**100%**
Domestic tourists	184	68.66
International tourists	84	31.34
Gender	**268**	**100%**
Male	140	52.24
Female	128	47.76
Age (years)	**268**	**100%**
< 30	72	26.87
30 - 45	118	44.03
> 45	78	29.10
Education	**268**	**100%**
High school	120	44.78
University	125	46.44
Postgraduate	23	8.58
Occupation	**268**	**100%**
Office workers	100	37.31
Public sector workers	62	23.13
Self-employed	68	25.37
Managers/operators	38	14.18

RESEARCH RESULTS AND DISCUSSION

Evaluate scale reliability

To identify the factors influencing the attractiveness of Can Tho City as a tourist destination, the study employed SPSS 24 and AMOS 24 software for analysis. The estimation results were carried out step by step as follows:

The Cronbach's alpha reliability coefficient was used to assess the internal consistency of the measurement scales. Based on the result in Table 3, Cronbach's alpha values of all measurement scales met the requirements, ranging from 0.834 to 0.916 (Nunnally, 1978; Peterson, 1994; Slater, 1995). Simultaneously, the results of exploratory factor analysis (EFA) were ensured according to the statistical criteria as follows: (1) Reliability of observed variables (Factor loading > 0.5); (2) Suitability of the model (0.5 < KMO = 0.930 < 1); (3) Bartlett's test of correlation among observed variables (Sig. = 0.000 < 0.05). The cumulative variance test yielded 76.16%, surpassing the threshold of 50% (Hair et al., 1998). As a result, 09 factors were formed from 36 observed variables, and there was no disturbance among observed variables. Therefore, the names of factors remained consistent.

The CFA result shows the following indices: Chi-square/df ratio = 1.325 < 2 with a P-value = 0.00 ≤ 0.05; The TLI and CFI indices have values of 0.969 and 0.972, respectively, both > 0.9; the RMSEA coefficient = 0.035 < 0.08. This indicates that the model fits the market data (Anderson and Gerbing, 1988). Based on Table 4, the computed results for Composite Reliability (CR) and Average Variance Extracted (AVE) both satisfy the conditions. The values of CR (minimum 0.838) and AVE (minimum 0.566) meet the requirements (Fornell and Larcker, 1981). The test results show that the correlations between the conceptual structures achieve discriminant validity (Fornell and Larcker, 1981). Therefore, the research data aligns with market data, displaying convergent validity, unidimensionality, discriminant validity, and reliability.

Table 3. Cronbach's alpha testing result (Source: authors)

Scale	Number of observed variables	Cronbach's alpha	Factor loading
NE	4	0.889	0.705 – 0.878
CUL	4	0.888	0.699 – 0.887
CUS	4	0.916	0.811 – 0.860
RA	4	0.903	0.780 – 0.867
IN	4	0.912	0.789 – 0.894
SP	4	0.843	0.738 – 0.778
TP	4	0.834	0.534 – 0.819
LR	4	0.884	0.744 – 0.811
DA	4	0.912	0.663 – 0.841

Table 4. Correlation matrix between factors (Source: authors)

	CR	AVE	IN	RA	CUL	CUS	SP	TR	LR	NE	DA
IN	0.912	0.722	**0.850**								
RA	0.903	0.700	0.501	**0.837**							
CUL	0.891	0.671	0.369	0.431	**0.819**						
CUS	0.916	0.731	0.297	0.480	0.523	**0.855**					
SP	0.843	0.574	0.416	0.443	0.390	0.396	**0.758**				
TP	0.838	0.566	0.363	0.522	0.554	0.669	0.413	**0.752**			
LR	0.885	0.658	0.341	0.479	0.530	0.660	0.408	0.712	**0.811**		
NE	0.889	0.668	0.492	0.425	0.553	0.357	0.363	0.498	0.479	**0.817**	
DA	0.913	0.724	0.544	0.612	0.629	0.641	0.554	0.700	0.680	0.593	**0.851**

Table 5. Estimation result in SEM model (Source: authors)

Hypothesis	Relationship	Estimate	P-value	Result
H1	NE → DA	0.122	0.038	accepted
H2	CUL → DA	0.137	0.022	accepted
H3	CUS → DA	0.139	0.033	accepted
H4	RA → DA	0.126	0.027	accepted
H5	IN → DA	0.149	0.005	accepted
H6	SP → DA	0.144	0.007	accepted
H7	TP → DA	0.178	0.025	accepted
H8	LR → DA	0.161	0.025	accepted

Test research model and hypotheses

Based on the results of SEM presented in Table 5, all model values meet the requirements, including $\chi^2/df = 1.299$, P-value = 0.00, TLI = 0.971, CFI = 0.975, and RMSEA = 0.033 (Anderson and Gerbing, 1988). This indicates that the research model aligns with market data. The test result shown in Table 5 confirms that all research hypotheses are accepted with a 95% confidence level. Based on the examination result in Table 5, the attractiveness of the tourism destination of Can Tho City is influenced by 08 factors, including the natural environment, local culture, local cuisine, entertainment activities, infrastructure, service price, tourism promotion, and local residents. Among these factors, the tourism promotion factor has the most impact on the destination attractiveness of Can Tho City, while the natural environment factor has the least impact on the destination attractiveness of Can Tho City.

DISCUSSION

Hypothesis H1, H2, H3: According to the test results, there is a positive correlation between the natural environment and the attractiveness of the tourism destination of Can Tho City. Indeed, the natural environment is a crucial factor, creating allure for tourists (Deng et al., 2002; Loan and Thanh, 2014), shaping an appealing destination image in the minds of travelers (San Martín and Del Bosque, 2008; Ahmed et al., 2010). Furthermore, the research findings have demonstrated that local culture and local cuisine are factors positively affecting the destination image of Can Tho City. The city possesses numerous captivating historical relics, along with traditional handicraft villages and various folk festivals, all of which constitute cultural characteristics that attract both domestic and international visitors. Furthermore, visitors to Can Tho City can enjoy distinctive Southern dishes, renowned for their unique flavors and high culinary quality. The research outcomes affirm that local culture and local cuisine are positive influencing factors on the destination image of tourism (Hu and Ritchie, 1993; Quyen and Thao, 2017). Hypothesis H4, H5: The research results have demonstrated that entertainment activities positively contribute to the attractiveness of the tourism destination of Can Tho City. When visiting Can Tho City, tourists will experience engaging shopping activities, and take part in captivating nighttime events, especially when they can choose from a variety of souvenirs and local specialties. The reality shows that the demands for shopping, dining, and entertainment of tourists are limitless and continually increasing (Loan and Thanh, 2014). Therefore, it is evident that entertainment activities are an important factor in shaping a positive destination image in the minds of tourists (Beerli and Martín, 2004; Chi and Qu, 2008; Lien et al., 2021). The research results also indicate that infrastructure makes a positive contribution to the attractiveness of the tourism destination of Can Tho City. This research outcome reaffirms the significant role of infrastructure in the appeal of a tourism destination, aligning with several studies proposed by Loan and Thanh (2014), Quyen and Thao (2017), Huong and Quan (2019), Thong and Phung (2021).

Hypothesis H6, H7, H8: The examination results have demonstrated a positive correlation between service price and the attractiveness of the tourism destination of Can Tho City. The research continues to affirm that service price is an important factor influencing the destination's attractiveness (Swarbrooke and Page, 2012; Loan and Thanh, 2014; Giang, 2022; Son et al., 2023). Additionally, the research has proven that tourism promotion has a positive and the strongest influence on the attractiveness of the tourism destination of Can Tho City. Indeed, if tourism promotion activities are invested and supported, it will enhance the appeal of the tourism destination (Zidehsaraei and Zidehsaraei, 2015; Hoang et al., 2016; Quyen and Thao, 2017). Finally, the research has indicated that local residents are a positive influencing factor on the attractiveness of the tourism destination of Can Tho City. The local residents of Can Tho City uphold traditional values of "Intellect - Dynamism - Benevolence - Heroism – Elegance", forming the foundational values of the city's inhabitants. Hence, the local residents of Can Tho City are highly regarded by tourists for their cheerfulness, politeness, hospitality, and reliability. In the field of tourism, the role of local residents is always crucial in shaping the destination image (Zhou, 2005; Quyen and Thao, 2017; Thong and Phung, 2021; Giang, 2022).

CONCLUSION

The attractiveness of a destination is a crucial factor that generates appeal for tourists. Therefore, identifying the influencing factors on destination attractiveness can help managers develop appropriate action plans, contributing to enhancing the quality of the destination image in the minds of tourists. The research results have demonstrated the positive influence of 08 factors on the attractiveness of the tourism destination of Can Tho City, including the natural environment, local culture, local cuisine, recreational activities, infrastructure, service price, tourism promotion, and local residents. Among these, tourism promotion is the most significant and strongly impacts the attractiveness of the tourism destination of Can Tho City. The research results contribute to suggesting policy implications to enhance the attractiveness of Can Tho City. The two most essential solutions are concentrating on promotional programs and improving tourism image. Alongside the achieved results, the research still has some limitations as follows: Firstly, the sample size of the study is limited, especially for international tourists who are restricted to English-speaking proficiency, which may lead to less generalizability of the research findings. Secondly, the study has not examined the role of moderating variables (gender, education level, occupation, type of tourists) that may influence the attractiveness of the tourism destination of Can Tho City. Subsequent studies should expand the scale of the research sample and examine the role of moderating variables to enhance the explanatory power of the destination attractiveness of Can Tho City.

Author Contributions: Conceptualization, H. L.T.D and Nguyen, Q.N; methodology, N.Q.N; software, N.Q.N; formal analysis, H.K.N; investigation, H. L.T.D and N.Q.N; data curation, N.Q.N; writing - original draft preparation, H. L.T.D and N.Q.N; writing - review and editing, N.Q.N; visualization, H.K.N; supervision, H.K.N; project administration, N.Q.N; All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Ahmed, F., Azam, M.S., & Bose, T.K. (2010). Factors affecting the selection of tour destination in Bangladesh: An empirical analysis. *International Journal of Business and Management, 5*(3), 52.

Anderson, J.C., & Gerbing, D.W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*(3), 411-423. https://doi.org/10.1037/0033-2909.103.3.411

Andersson, T.D., & Getz, D. (2009). Tourism as a mixed industry: Differences between private, public and not-for-profit festivals. *Tourism Management, 30*(6), 847-856. https://doi.org/10.1016/j.tourman.2008.12.008

Beerli, A., & Martín, J.D. (2004). Tourists' characteristics and the perceived image of tourist destinations: a quantitative analysis - a case study of Lanzarote, Spain. *Tourism Management, 25*(5), 623-636. https://doi.org/10.1016/j.tourman.2003.06.004

Benckendorff, P.J., & Pearce, P.L. (2003). Australian tourist attractions: The links between organizational characteristics and planning. *Journal of Travel Research, 42*(1), 24-35. https://doi.org/10.1177/0047287503253948

Benur, A.M., & Bramwell, B. (2015). Tourism product development and product diversification in destinations. *Tourism management*, *50*, 213-224. https://doi.org/10.1016/j.tourman.2015.02.005

Blasco, D., Guia, J., & Prats, L. (2014). Tourism destination zoning in mountain regions: a consumer-based approach. *Tourism Geographies*, *16*(3), 512-528. https://doi.org/10.1080/14616688.2013.851267

Chang, S., & Gibson, H.J. (2011). Physically active leisure and tourism connection: Leisure involvement and choice of tourism activities among paddlers. *Leisure Sciences*, *33*(2), 162-181. https://doi.org/10.1080/01490400.2011.550233

Chau, N.T.B., Nga, O.T.E., & Nghi, N.Q. (2016). Factors affecting the attractiveness of tourism resources in Phong Dien District, Can Tho City. *Can Tho University Journal of Science*, (42), 91-98. DOI: 10.22144/ctu.jvn.2016.055

Chen, C.F., & Tsai, D. (2007). How do destination image and evaluative factors affect behavioral intentions? *Tourism Management, 28*(4), 1115-1122. https://doi.org/10.1016/j.tourman.2006.07.007

Cheng, T.M.C., Wu, H., & Huang, L.M. (2013). The influence of place attachment on the relationship between destination attractiveness and environmentally responsible behavior for island tourism in Penghu, Taiwan. *Journal of Sustainable Tourism, 21*(8), 1166-1187. https://doi.org/10.1080/09669582.2012.750329

Chi, C.G.Q., & Qu, H. (2008). Examining the structural relationships of destination image, tourist satisfaction, and destination loyalty: An integrated approach. *Tourism Management*, *29*(4), 624-636. https://doi.org/10.1016/j.tourman.2007.06.007

Deng, J., King, B., & Bauer, T. (2002). Evaluating natural attractions for tourism. *Annals of tourism research*, *29*(2), 422-438. https://doi.org/10.1016/S0160-7383(01)00068-8

Dolnicar, S., & Leisch, F. (2008). An investigation of tourists' patterns of obligation to protect the environment. *Journal of Travel Research*, *46*(4), 381-391. https://doi.org/10.1177/0047287507308330

Duc, P.M., & Kien, D.T. (2016). The Impact of Destination Image and Emotional Value on Satisfaction and Visitor Loyalty: A Case Study in Dalat City. *Journal of Economics and Development*, *236*(1), 82-91.

Erul, E., Woosnam, K.M., & McIntosh, W.A. (2020). Considering emotional solidarity and the theory of planned behavior in explaining behavioral intentions to support tourism development. *Journal of Sustainable Tourism*, *28*(8), 1158-1173. https://doi.org/10.1080/09669582.2020.1726935

Formica, S. (2000). *Destination attractiveness as a function of supply and demand interaction.* Virginia Polytechnic Institute and State University.

Formica, S., & Murrmann, S. (1998). The effects of group membership and motivation on attendance: an international festival case. *Tourism Analysis*, *3*(3/4), 197-207.

Fornell, C., & Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, *18*(1), 39-50. https://doi.org/10.1177/002224378101800104

Funk, D.C., Ridinger, L.L., & Moorman, A.M. (2004). Exploring origins of involvement: Understanding the relationship between consumer motives and involvement with professional sport teams. *Leisure Sciences*, *26*(1), 35-61. https://doi.org/10.1080/01490400490272440

Giang, H.T. (2022). Factors Influencing the Decisions on Choosing Ho Chi Minh City as A Destination of North American Tourists. *Calitatea*, *23*(187), 138-142.

Gupta, V., & Duggal, S. (2021). How do the tourists' behavioral intentions influenced by their perceived food authenticity: A case of Delhi. *Journal of Culinary Science & Technology*, *19*(4), 294-314. https://doi.org/10.1080/15428052.2020.1764430

Hair, J.F., Tatham, R.L., Anderson, R.E., & Black, W.C. (1998). *Multivariate Data Analysis* (5th ed.). New Jersey: Prentice-Hall.

Hoang, T.P., Quang, H.T., Phuong, N.N., & Ha, N.T. (2016). Factors affecting the decision of the selection of foreign tourists for a tourist destination: A study in Da Nang City, Vietnam. *European Journal of Business and Social Sciences*, *4*(10), 86-97.

Hoelter, J.W. (1983). The analysis of covariance structures: Goodness-of-fit indices. *Sociological Methods & Research*, *11*(3), 325-344. https://doi.org/10.1177/0049124183011003003

Hou, J.S., Lin, C.H., & Morais, D.B. (2005). Antecedents of attachment to a cultural tourism destination: The case of Hakka and non-Hakka Taiwanese visitors to Pei-Pu, Taiwan. *Journal of Travel Research*, *44*(2), 221-233. https://doi.org/10.1177/0047287505278988

Hu, W., & Wall, G. (2005). Environmental management, environmental image, and the competitive tourist attraction. *Journal of sustainable tourism*, *13*(6), 617-635. https://doi.org/10.1080/09669580508668584

Hu, Y., & Ritchie, J.B. (1993). Measuring destination attractiveness: A contextual approach. *Journal of travel research*, *32*(2), 25-34. https://doi.org/10.1177/004728759303200204

Huong, N.T.L., & Quan, T.T. (2019). Measuring the image of tourist destination Thua Thien Hue. Hue *University Journal of Science: Economics and Development*, *128*(5A), 105-118. https://doi.org/10.26459/hueuni-jed.v128i5A.5130

Huong, N.T.L., & Hoan, P.T. (2020). Measuring the influence of factors of Hue tourist destination on tourists' intention to return. *Hue University Journal of Science: Economics and Development, 129*(5C), 41-59. https://doi.org/10.26459/hueunijed.v129i5C.5968

Jurowski, C.A. (1994). *The interplay of elements affecting host community resident attitudes toward tourism: A path analytic approach*. Virginia Polytechnic Institute and State University.

Kim, H., & Richardson, S.L. (2003). Motion picture impacts on destination images. *Annals of tourism research, 30*(1), 216-237. https://doi.org/10.1016/S0160-7383(02)00062-2

Kozak, M. (2002). Comparative analysis of tourist motivations by nationality and destinations. *Tourism Management, 23*(3), 221-232. https://doi.org/10.1016/S0261-5177(01)00090-5

Kozak, M., & Rimmington, M. (1998). Benchmarking: destination attractiveness and small hospitality business performance. *International Journal of Contemporary Hospitality Management*, *10*(5), 184-188. https://doi.org/10.1108/09596119810227767

Krešić, D., & Prebežac, D. (2011). Index of destination attractiveness as a tool for destination attractiveness assessment. *Tourism: An International Interdisciplinary Journal, 59*(4), 497-517.

Leask, A. (2010). Progress in visitor attraction research: Towards more effective management. *Tourism Management*, *31*(2), 155-166. https://doi.org/10.1016/j.tourman.2009.09.004

Lien, T.T.N., Van Chuong, H., & Hung, D.M. (2021). Measuring destination's attractiveness of Ly Son, Quang Ngai. *Hue University Journal of Science: Economics and Development, 130*(5A), 115-126. https://doi.org/10.26459/hueunijed.v130i5A.6320

Lin, C.H., Morais, D.B., Kerstetter, D.L., & Hou, J.S. (2007). Examining the role of cognitive and affective image in predicting choice across natural, developed, and theme-park destinations. *Journal of Travel Research, 46*(2), 183-194. https://doi.org/10.1177/0047287507304049

Loan, D.T.T., & Thanh, B.T. (2014). Factors affecting tourist attraction: A case study of Binh Dinh Province. *Journal of Economics and Development, 210*, 36-44.

Loureiro, S.M.C. (2015). The role of website quality on PAD, attitude, and intentions to visit and recommend island destination. *International Journal of Tourism Research, 17*(6), 545-554. https://doi.org/10.1002/jtr.2022

Nadzirah, M., Yuhanis, A.A., Khairil, W.A., & Zaiton, S. (2020). Influence of destination attractiveness on place satisfaction and environmentally responsible behavior in Marine Parks. *Journal of Sustainability Science and Management, 15*(1), 52-67.

Nghi, N.Q., Ni, B.T.Y., Van Trinh, B., & Mi, T.T.B. (2021). Factors affecting the attractiveness and tourists' word-of-mouth intention to the Southern Folk Cake Festival. *World Journal of Advanced Research and Reviews, 12*(3), 277-284. https://doi.org/10.30574/wjarr.2021.12.3.0687

Nghia, N.T.M., Nhi, L.V.T.T., & Tuan, T.H. (2017). Factors affecting the ability to attract domestic tourists of Hoi An destination. *Hue University Journal of Science: Economics and Development, 126*(5D), 29-39.

Nguyen, T.T.N. (2010). Local Marketing Strategies to Attract Tourists To Da Nang City. *The University of Danang – Journal of Science and Technology, 5*(40), 215-224.

Nguyen, Q.N., & Mai, V.N. (2021). Impacts of pushing and pull factors on tourist satisfaction and return intention towards river tourism in Can Tho city, Cietnam. *GeoJournal of Tourism and Geosites, 38*(4), 1011–1016. https://doi.org/10.30892/gtg.38404-738

Nicolau, J.L., & Mas, F.J. (2006). The influence of distance and prices on the choice of tourist destinations: The moderating role of motivations. *Tourism Management, 27*(5), 982-996. https://doi.org/10.1016/j.tourman.2005.09.009

Nunkoo, R., & So, K.K.F. (2016). Residents' support for tourism: Testing alternative structural models. *Journal of travel research, 55*(7), 847-861. https://doi.org/10.1177/0047287515592972

Nunnally, J.C. (1978). *Psychometric Theory.* New York: McGraw-Hill.

Palau-Saumell, R., Forgas-Coll, S., Amaya-Molinar, C.M., & Sánchez-García, J. (2016). Examining how country image influences destination image in a behavioral intentions model: The cases of Lloret De Mar (Spain) and Cancun (Mexico). *Journal of Travel & Tourism Marketing, 33*(7), 949-965. https://doi.org/10.1080/10548408.2015.1075456

Peterson, R.A. (1994). A meta-analysis of Cronbach's coefficient alpha. *Journal of Consumer Research, 21*(2), 381-391. https://doi.org/10.1086/209405

Piewdang, S., Mekkamol, P., & Untachai, S. (2013). Measuring spiritual tourism management in the community: A case study of Sri Chom Phu Ongtu Temple, Thabo district, Nongkhai Province, Thailand. *Procedia-Social and Behavioral Sciences, 88*, 96-107. https://doi.org/10.1016/j.sbspro.2013.08.485

Quan, S., & Wang, N. (2004). Towards a structural model of the tourist experience: An illustration from food experiences in tourism. *Tourism Management, 25*(3), 297-305. https://doi.org/10.1016/S0261-5177(03)00130-4

Quyen, L.T.T., & Thao, N.T.P. (2017). The factors creating attractions to tourists in Bangkok city - Thailand. *Can To University Journal of Science*, (48), 46-54.

Raykov, T., & Widaman, K.F. (1995). Issues in applied structural equation modeling research. *Structural Equation Modeling: A Multidisciplinary Journal, 2*(4), 289-318. https://doi.org/10.1080/10705519509540017

Richards, G. (2002). Tourism attraction systems: Exploring cultural behavior. *Annals of tourism research, 29*(4), 1048-1064. https://doi.org/10.1016/S0160-7383(02)00026-9

Ritchie, J.B. (1988). Consensus policy formulation in tourism: Measuring resident views via survey research. *Tourism Management, 9*(3), 199-212. https://doi.org/10.1016/0261-5177(88)90037-4

San Martín, H., & Del Bosque, I.A.R. (2008). Exploring the cognitive-affective nature of destination image and the role of psychological factors in its formation. *Tourism Management, 29*(2), 263-277. https://doi.org/10.1016/j.tourman.2007.03.012

Seyidov, J., & Adomaitienė, R. (2016). Factors influencing local tourists' decision-making on choosing a destination: a case of Azerbaijan. *Ekonomika, 95*(3), 112-127. https://doi.org/10.15388/Ekon.2016.3.10332

Slater, S.F. (1995). Issues in conducting marketing strategy research. *Journal of Strategic Marketing, 3*(4), 257-270. https://doi.org/10.1080/09652549500000016

Sofield, T.H. (2006). Border tourism and border communities: An overview. *Tourism Geographies, 8*(2), 102-121. https://doi.org/10.1080/14616680600585489

Son, N.T., Nguyen, Q.N., & Hoang, T.H.L. (2023). Factors influencing tourist satisfaction with agritourism in the Mekong Delta, Vietnam. *GeoJournal of Tourism and Geosites, 49*(3), 998–1005. https://doi.org/10.30892/gtg.49315-1099

Soonsan, N., & Sukahbot, S. (2019). Testing the role of country and destination image effect on satisfaction and revisit intentions among Western travelers. *African Journal of Hospitality, Tourism and Leisure, 8*(4), 1-14.

Sun, X., Chi, C.G.Q., & Xu, H. (2013). Developing destination loyalty: The case of Hainan Island. *Annals of tourism research, 43*, 547-577. https://doi.org/10.1016/j.annals.2013.04.006

Swarbrooke, J., & Page, S.J. (2012). *Development and management of visitor attractions.* London: Routledge.

Tang, H., Wang, R., Jin, X., & Zhang, Z. (2022). The Effects of Motivation, Destination Image and Satisfaction on Rural Tourism Tourists' Willingness to Revisit. *Sustainability, 14*(19), 11938. https://doi.org/10.3390/su141911938

Thong, T.T. (2019). Factors that attract tourists to sea-island tourism at Kien Hai district, Kien Giang province. *Can Tho University Journal of Science, 55*(4), 113-122. https://doi.org/10.22144/ctu.jvn.2019.101

Thong, T.T., & Phung, T.D. (2021). Factors influencing the attractiveness of Phu Quoc tourist destination, in Kien Giang Province. *Can Tho University Journal of Science, 57*(5), 231-241. https://doi.org/10.22144/ctu.jvn.2021.161

Thong, V.N., & Yen, L.T.T. (2022). Some Solutions to Promote, and Advertise Dong Thap Tourism Products in The Integration Trends. *Dong Thap University Journal of Science, 11*(6), 102-114. https://doi.org/10.52714/dthu.11.6.2022.998

Thuy, H.T.D. (2023). Effect of pull and push factors on domestic tourists' satisfaction with Hue cuisine. *Can Tho University Journal of Science, 59*(2), 253-262. https://doi.org/10.22144/ctu.jvn.2023.086

Thuy, T.T., & Tuan, L.A. (2018). The impact of destination attractiveness on tourist satisfaction and intention to revisit the spiritual destinations in Vietnam. *Journal of Economics and Development, 252*, 90-100.

Tien, D.T.A., Viet, N.T.T., & Duy, B.N. (2021). Destination's Image Impacs on Traver's Intention to back to Quang Ngai. *Journal of Finance – Marketing, 65*(5), 113-126. https://doi.org/10.52932/jfm.vi65.214

Vengesayi, S. (2003). A conceptual model of tourism destination competitiveness and attractiveness. In R. Kennedy (Ed.), *Proceedings of the 2003 ANZMAC Conference* (pp. 637 - 647). Australia & New Zealand Marketing Academy (ANZMAC).

Vy, N.T. (2019). An analysis of the tourist attraction of Mekong Delta's eastern coastal. *Can Tho University Journal of Science, 55*(5), 117-123.

Wu, C.W. (2016). Destination loyalty modeling of the global tourism. *Journal of Business Research, 69*(6), 2213-2219. https://doi.org/10.1016/j.jbusres.2015.12.032

Yoon, Y., & Uysal, M. (2005). An examination of the effects of motivation and satisfaction on destination loyalty: a structural model. *Tourism Management, 26*(1), 45-56. https://doi.org/10.1016/j.tourman.2003.08.016

Yu, H., & Littrell, M.A. (2003). Product and process orientations to tourism shopping. *Journal of Travel Research, 42*(2), 140-150. https://doi.org/10.1177/0047287503257493

Zhang, H., Fu, X., Cai, L.A., & Lu, L. (2014). Destination image and tourist loyalty: A meta-analysis. *Tourism management, 40*, 213-223. https://doi.org/10.1016/j.tourman.2013.06.006

Zhou, L. (2005). *Destination attributes that attract international tourists to Cape Town* (Doctoral dissertation, University of the Western Cape).

Zidehsaraei, M., & Zidehsaraei, M. (2015). Analysis of the factors attracting foreign tourists to South Korea, with emphasis on the visual media and mass communication. *Cumhuriyet Üniversitesi Fen Edebiyat Fakültesi Fen Bilimleri Dergisi, 36*(3), 2490-2498.

Article history: Received: 10.08.2023 Revised: 06.10.2023 Accepted: 06.11.2023 Available online: 11.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1466-1482
DOI 10.30892/gtg.50427-1145

EXPLORING SMART CITY CHARACTERISTICS FOR "TOURISM-FOR-ALL" INITIATIVES IN URBAN DEVELOPMENT: A SYSTEMATIC LITERATURE REVIEW

Hassnah WEE*
Faculty of Hotel & Tourism Management, Universiti Teknologi MARA (UiTM)
Cawangan Selangor, Kampus Puncak Alam, Malaysia, e-mail: hassnah739@uitm.edu.my

Mohd Saufi ANAS
Faculty of Hotel & Tourism Management, Universiti Teknologi MARA (UiTM)
Cawangan Selangor, Kampus Puncak Alam, Malaysia, e-mail: saufianas94@gmail.com

Alfian THOMAS
Faculty of Hotel & Tourism Management, Universiti Teknologi MARA (UiTM)
Cawangan Selangor, Kampus Puncak Alam, Malaysia, e-mail: alfian.thomas@gmail.com

Citation: Wee, H., Anas, M.S., & Thomas, A. (2023). EXPLORING SMART CITY CHARACTERISTICS FOR "TOURISM-FOR-ALL" INITIATIVES IN URBAN DEVELOPMENT: A SYSTEMATIC LITERATURE REVIEW. *GeoJournal of Tourism and Geosites*, 50(4), 1466–1482. https://doi.org/10.30892/gtg.50427-1145

Abstract: The study presents a systematic literature review conducted following a rigorous search protocol that identified 7900 articles published in SCOPUS-indexed journals in 2001-2021. These articles were filtered using the PRISMA approach, resulting in the selection of 61 relevant papers. The research outcome offers essential insights into the core characteristics of smart cities in urban development, encompassing five primary dimensions: government, citizens, technology, mobility, and the environment, over the past two decades. The findings of this study benefit smart city stakeholders, recommends using the "Tourism-For-All" destination concept in urban development, and contributes to the emerging "Purple Tourism" framework.

Key words: Systematic Literature Review, Smart City, Tourism-for-All, Urban Development, Purple Tourism

* * * * * *

INTRODUCTION

The world population is expected to reach 9.8 billion by 2050 (United Nations, 2018). It is anticipated that more than twice as many people will live in cities (6.7 billion) as in rural areas (3.1 billion). On a global scale, more than 1.3 million people are relocating to urban areas every day, rapidly expanding urbanization. It is estimated that by 2040, more than 65% of the global population will reside in urban communities or cities (Pooja et al., 2022). Rapid urbanization creates new issues and challenges, such as demands for a higher quality of life, infrastructure needs, and people confronted with environmental burdens. The Smart City concept provides opportunities to address these issues, solve urban problems, and provide a better living environment for citizens (Yin et al., 2015). The initiatives are consistent with the Fourth Industrial Revolution, particularly in the development of smart cities and the creation of "Tourism-For-All" (TFA) on a global scale. Hence, it is vital to analyse exactly what kinds of shifts the stakeholders are experiencing and how to ensure that these efforts create benefits for all and revolutionize tourism.

A city, often known as an "urban region," is a place where people live and work since they relocated from the countryside (Winkowska et al., 2019). A metropolitan city requires the attention of numerous parties to continue developing and producing a better life for its citizens. As a result, the smart city concept has emerged as a viable option for residents seeking long-term sustainability. "Smart city" is a concept for constructing a city that leverages technology and the internet (Talari et al., 2017). There is also no denying that this programme is part of a transition process that is currently creating large and major changes in urban development (Hårsman Wahlström et al., 2020). The collection of informational data on everyday activities to enhance municipal management and local activity planning is a general element of smart city development. Nevertheless, there have been numerous definitions proposed for the concept of a smart city. Terminologies also vary by replacing the term "smart" with alternative adjectives such as "intelligent" or "digital". Some definitions used the term "community" instead of "city". The term "smart city" can be seen as a vague idea and is not always used consistently (Albino et al., 2015). The British Standards Institute defines a smart city as "the effective integration of physical, digital, and human systems in the built environment to deliver a sustainable, prosperous, and inclusive future for its citizens" (BSI 2014). In general, a smart city is one that leverages information technology in its daily operations and influences the lifestyles of its citizens (Camboim et al., 2019; Sedova and Balakina, 2020). The creation of "smart cities" is currently viewed as a prominent trend. Because the worldwide urban population is predicted to reach 70% by 2050, most locations should follow suit globally (Albino et al., 2015). Incorporating the smart city concept into urban development also

* Corresponding author

helps policymakers and urban planners focus on offering environmentally friendly and cost-effective solutions to urban concerns including energy management, transportation, healthcare, and government (Silva et al., 2018; Anand et al., 2017).

A previous study, however, spanning 20 years (2001–2021), demonstrates a paucity of studies exhibiting the essential characteristics of smart cities that could serve as a reference for future academics. This is because most smart city studies place a strong emphasis on experimental investigations and analysis of the quality of various smart city characteristics. As a result, this issue must be solved in order to help researchers better understand the smart city concept and its modern aspects, as well as to open the door to more diverse smart city research. As a result, this study was developed in order to answer the research question, "What are the features of smart cities based on 20 years of research publications?" A comprehensive literature evaluation was done to answer the research question, with the Scopus database serving as the primary platform for searching for previous studies. Creating TFA structures for individuals with special needs, such as children, the elderly, pregnant women, and people with disabilities, is essential to ensuring their completeness and contentment.

Due to the prospects for citation and spin-off publishing, modern scholars are placing a great deal of emphasis on destination competitiveness challenges, particularly the global development of the smart city concept. The framework is more general for the country's adaptation than for its unique geographical region. As a result, the use of a one-size-fits-all strategy is no longer applicable due to the proliferation of new destinations that offer a variety of products, allowing tourists to choose a location that meets their unique needs and expectations. Examining the environment's compatibility in relation to the Sustainable Development Goals (SDGs) outlined for the United Nation's 2030 Agenda for Sustainable Development (United Nations, 2015), SDGs targets No. 10 (reduce disparities), No. 11 (sustainable cities and communities), and No. 12 (responsible consumption and production) is critical for this nation to maintain its competitive edge.

As a result of the scarcity of comprehensive studies on smart city characteristics, this study intends to synthesize smart city characteristics by undertaking a systematic literature review (SLR) linked to smart city in urban development over the last 20 years (2001-2021). Because of the global trends of rapid urbanization, it is critical to investigate what kind of smart city development research has been concentrated on during the last two decades. These findings could serve as a road map for the "Tourism-For-All" components that contribute to the comprehensive future framework of the new "purple tourism" environment that would meet the demands and aspirations of present urban communities.

LITERATURE REVIEW

Smart City and Urban Development

The term "Smart City" is to-date widely used, but little clarity appears in the definition behind it and particularly on its actual meaning. Smart city is developed not specifically due to the emergence of the digital age but also physical infrastructures and endowment of a city that characterize an urban area and its functions. There are beyond those characteristics but something less 'hard' and not so easy to identify, as the quality of knowledge communication and 'social infrastructure,' or social and intellectual capitals. In such an (urban) environment, mood and attitude, the concept of Smart City arises, as a device or, better, as a framework where 'traditional' urban production factors are coupled with the social, cultural capital, utilizing extensive use of information, communication and technologies (ICTs) (Murgante and Borusso, 2011). Identifying what makes a city smart is related to the different dimensions, which are connected to concepts quite consolidated in references dealing with urban topics. In smart meaning, the technological component is mainly related to ICT features and infrastructures. These play an essential role, in particular, as facilitators of processes of innovation, sharing, and active participation by citizens/users, as well as of the development of elements typical of knowledge economics.

Following some of the most exciting interpretations (Roche et al., 2012), smart cities are cities in which a 'technological layer' is overlaid onto the existing urban structure and fabric. It allows its citizens and users to connect to the net, interact among them, and with other different players such as public administration, suppliers of goods and services, and so forth, actually optimizing a city and its spaces. Since the world population is growing and such growth is expected to be mainly concentrated in cities, technology can play an essential role in limiting soil consumption and enhancing the quality of life (Yigitcanlar et al., 2018). Nevertheless, one of the risks today is that decision-makers, politicians, citizens, enterprises focus just on the fashion of the technological side of "smartness," with little attention to insert it into a process of urban planning and project. In a smart city, the technological infrastructure related to ICT is central, in the same way as in the past, the realization of new buildings, roads, railways, telephone, and energy distribution lines and networks are built. Such infrastructures both supported population needs and influenced how such populations interacted with the urban space. Infrastructures of a smart city should play a similar role, therefore needing focused planning, as their use, must not be limited to the short terms. However, it should persist and persists, having in mind that to-date settings will influence how citizens will interact with the city in the present and future times.

In a smart city, the network metaphor is overlaid onto the urban metaphor; in such sense acting as a new, different infrastructure capable of directing relations and interactions and influence and shape by such interactions. Similarly, to a public transport network developing in an embryonic city to connect and serve places and then evolving and giving birth to 'new' places (Roche et al., 2012; Perveen et al., 2020). The city should, therefore, set as an "enabling platform for the activities that citizens can develop, linking those inherited from the past to those that can be realized in the future, so it is not focused on just applications but on the possibility that citizens realize them" (Schwab, 2016).

Tourism-For-All and Smart City

There is no specific holistic definition of the term "Tourism-For-All" concept. World Tourism Day 2016, however, refers to the term as the concept of promoting universal accessibilities for the tourism supply chain. Federal policymakers also coined the term for tourism, which can be enjoyed equally by everybody, regardless of one's abilities, in any destination. Moreover, across the globe, urbanization is progressing more rapidly than ever before. The global urbanization rate exceeded 50% in 2007 and is expected to exceed 70% by 2050. The urban population, which was 1.4 billion in 1970, will increase to 6.3 billion by 2050, with 60% of the world's population expected to be concentrated in urban areas (UN World Urbanization Prospect, 2014). Besides, the World Health Organization (WHO) estimated that roughly 1 billion (15%) of the world’s population would experience some form of disability soon. Most people will experience some form of obstacle, as they grow older. Thus, this older adult requires specific accessibility needs to enjoy tourism activities, as well as a better-tailored service, product, and infrastructure. For instance, in Europe, about 27% of the population and 12% of the tourism market were reported (EU Study, 2014). These figures include senior travellers, people with disabilities, and families with small children. It is indeed an excellent opportunity for tourism destinations because these market segments frequently travel during the low season.

The provision of facilities for people with disabilities or people with special needs is not only imperative because of human rights, but it also allows businesses an exceptional opportunity. However, a change in mindset and the model of tourism service provision is needed in order to meet this significant market demand. Accessible environments and services contribute to improving the quality of the tourism product and increasing tourism destinations' competitiveness. Thus, it is vital for responsible and sustainable tourism strategies and policies to focus significant attention on accessibility issues. This situation has led to various ongoing discussions about how to solve new urban problems. One of the most sought-after solutions is the development of "smart cities," which employ a strategy for technology, innovation, sustainability, accessibility, and inclusivity along the entire tourism cycle (pre-visit, during, and post-visit) and thus involve residents as well as tourists in the tourism planning process. The specific definition of a smart city differs according to the economic level and city policy of the country. Accordingly, a smart city is a conceptual urban development model said to be a key to the transformation of the tourism sector, which means city development based on information and communication technology (ICT). By incorporating ICT advancements, stakeholders can better predict and regulate tourist flows to manage destinations more efficiently and effectively. Tourism's impact is difficult to measure due to shifts in demographics caused by fluctuations in tourist flows. However, it can be seen as a city that uses ICT and digitalization in the tourism sector to improve city competitiveness, growth, quality of life, and pursue urban sustainable development (Buuse and Kolk, 2019; Chan, 2023). Chan (2023) believes that the growth of tourism destinations involves active engagement among key players and, most importantly, an understanding of the significance and acceptance of sustainable practices and benefits. The TFA destination initiatives are growing rapidly in urban development due to the current challenges in strategizing a sustainable and inclusive citizenship in planning a new “Purple Tourism” tourism concept that will include the preservation of local culture and heritage.

MATERIALS AND METHODS

Conducting Systematic Literature Review

A systematic review of the literature is a study that aims to answer research questions by examining the results of prior, high-quality research. A thorough process has been followed and examined in order to undertake this investigation as indicated in Figure 1: Technical Roadmap of the Systematic Literature Review Research and Figure 2: Data Collection and Selection Flow Diagram based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The objective of a systematic literature review in the field of management studies is to provide transparency, clarity, accessibility, and exhaustive coverage of a particular issue (Thorpe et al., 2006). It has also been described as "a review in which a complete search is conducted for relevant articles on a particular topic and the results are subsequently examined and synthesised according to a predetermined stated procedure" (Klasse et al., 1998).

To produce the findings in this section, a thorough protocol has been developed to produce a good systematic literature review. In addition, all articles that are relevant and in accordance with the criteria of the study will be presented and analysed in the next section. Thus, the structure of this SLR formation can be summarised in seven simple steps, namely:

1). Construct research questions
2). Selection of appropriate keywords (Identification process)
3). Identify appropriate databases as data retrieval platforms. (Identification process)
4). Specify search limitations such as timeframes, languages used and some appropriate features. (Screening process)
5). Build a review strategy
6). Analyse study findings from selected documents. (Eligibility process)
7). Present the findings in the form of tables and descriptions.

The flow of the process was presented in PRISMA (2020). It is a flow diagram that provides a framework for researchers to conduct a systematic review. It maps out the number of records identified, included, and excluded from the systematic review. PRISMA is a useful tool for researchers to ensure that their systematic review is conducted in a transparent and reproducible manner (Amin et al., 2022).

Formulation of Research Questions

The research question in this section was created using PICo as presented in Table 1, which is one of the methodologies included in the Research Questions Development Tool (RQDT). PICo is a technique that assists authors in developing unique and relevant research questions to aid in the review process. Okoli (2015) conducted a study that emphasized the importance of developing particular research questions to avoid the occurrence of unnecessary article searches. PICo is made up of three components: population (or issue), interest, and context. As a result, this study takes into account "20 years of research publications" (population), "the characteristic" (interest), and "smart cities" (context), and the study's research question is:

What is the characteristic of a smart city based on 20 years of research publications?

Identification and Screening Process

Scopus database was chosen as the major source for literature searches by the researcher. Furthermore, in order to grasp and analyse the study, the researcher chose a research paper written fully in English. The terms "characteristic" and "smart city" were used as key concepts in this investigation (Table 2). To find as much information about a topic as possible, it is necessary to use synonyms to generate a diverse set of keywords.

The researcher began the literature search using the Scopus database after finding the terms that had been diversified using the synonym search strategy indicated in Table 3. This is a reference to a study conducted by Kraus et al. (2020), who discovered that while many articles can be identified by using various keywords, if the search results are irrelevant to the topic, it is feared that the study will be a bad study for systematic literature review. As a result, the researcher decides to narrow the area of the search while still responding to the research topic.

This study identified a total of 7,900 articles by using the specified search string. The articles are filtered depending on a variety of criteria shown on the database display (Table 4). This selection or screening criterion is based on the research objectives posed by Kitchenham and Charters (2007), who observe that reviewing all 7,900 articles is essentially impractical. Okoli (2015) suggests setting a publication time constraint to aid in the review process. The researcher has established a time limit of 20 years, from 2001 to 2021, based on the database Scopus search results (last search: September 20, 2021). In order to ensure the quality of the review, only articles with final paper status are chosen (Johnson and Hennessy, 2019). In addition, only English-language articles were chosen to avoid any misunderstandings regarding the study's findings (Linares-Espinos et al., 2018). 545 articles were located using all of these criteria. Because it is essential to obtain data that is truly pertinent to the topic being investigated, the researcher initiated the eligibility process for each article discovered. The exclusion criteria in Table 5 were applied in this research.

Table 1. PICo table

Population or Problem	Interest	Context
20 years Research Publications	The characteristic	Smart City

Table 2. Keywords and expended keywords (Source: www.thesaurus.com)

Keyword	Expended Keywords
Characteristic	Aspect/attribute/component/characteristic/element
Smart City	Smart city / Smart-city

Table 3. Search string used for data searching

Database	Search String
Scopus	TITLE-ABS-KEY ("aspect*" OR "attribute*" OR "component*" OR "characteristic*" OR "element*") AND ("Smart Cit*" OR "Smart-Cit*")

Table 4. Inclusion criteria for screening stage
Note: Criteria depend on databases' choice

SCOPUS Database	**Year:** 2001 - 2021 **Subject area:** Business, Management & Accounting Social sciences **Document Types:** Article **Publication stage:** Final **Source Types:** Journal **Language:** English

Table 5. Exclusion criteria for screening stage

Exclusion Criteria	Topics not related to Smart City Characteristic.
	Articles that do not have a clear methodology.
	Variables are only mentioned as topics but not the main discussion of the study.
	Article in the form of a review (Systematic Literature Review)

Only 61 relevant papers were successfully obtained for the final analysis after this eligibility process was repeated three times to avoid errors. Figure 1 shows the technical road map of the systematic literature review research in the study in three main stages: Research Design (Stage 1), Data Assembly (Stage 2), and Analysis (Stage 3).

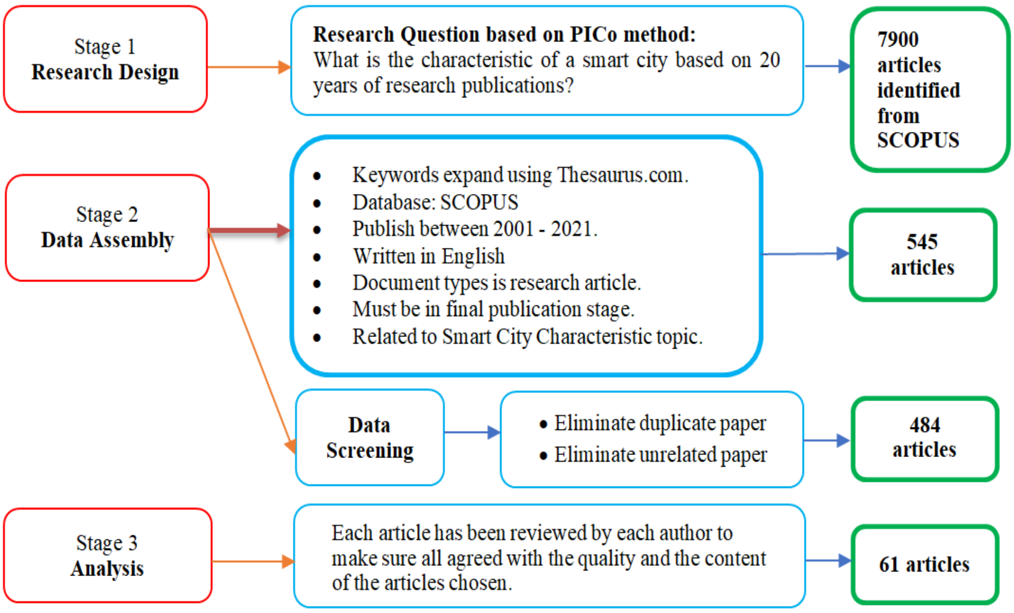


Figure 1. Technical roadmap of the systematic literature review research

Data Analysis

For this study, an analysis method was carried out in order to answer the predefined research questions. This approach is carried out following the final selection of items relevant to the characteristics of smart cities.

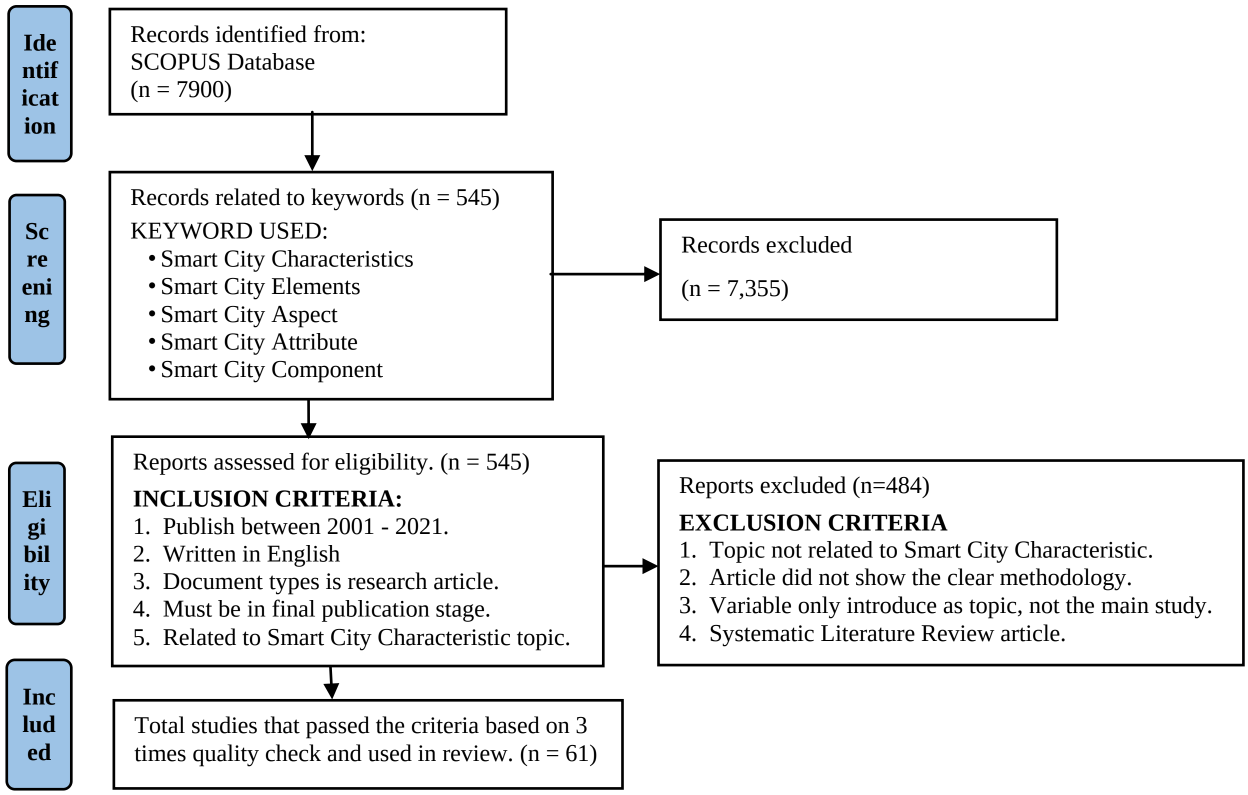


Figure 2. Data collection and selection flow diagram adopted from PRISMA (2020)

To ensure that the final data obtained from the identification, screening, and eligibility processes is transparent and does not have any bias, the researcher has used the PRISMA method. This method is very useful to carry out a transparent analysis for a systematic literature review (Amin et al., 2022). To measure the level of quality in each selected article, the researcher has used three main criteria based on quality assessment (QA) questions, namely:

QA1: Have the review's inclusion and exclusion criteria for this study been clearly stated and understood by each researcher?

QA2: Does the literature found include all relevant studies related to the research topic?

QA3: Are the smart-city characteristics identified in the research paper carefully explained and provide a clear methodology?

For the systematic literature review study related to smart-city characteristics, the researchers did not use any software to identify the level of article quality. However, this study has followed the guidelines provided by PRISMA to ensure that it is conducted in a fair and systematic manner. The researcher has also used the QA questions mentioned above in as many as three studies to verify the quality of the research papers included in this study.

Therefore, by following the criteria that have been set, researchers can evaluate the quality and level of relevance of the studies used in this SLR without using any software.

RESULTS AND DISCUSSIONS

Following completion of the identification, screening, and eligibility processes, 61 relevant articles were identified.

The findings of this study have been classified into five major sections based on what smart cities have in common: government, citizens, technology, mobility, and the environment.

According to the data analysis in Figure 3, the study on smart city characteristics is more likely to emphasize government-related topics, with 28 articles (43%). Following that is research focusing on citizens (13 articles = 20%), technology (13 articles = 20%), mobility (4 articles = 12%), and the environment (3 articles = 5%). The government is the most crucial aspect of the research on smart cities between 2001 and 2021 as indicated in Table 6.

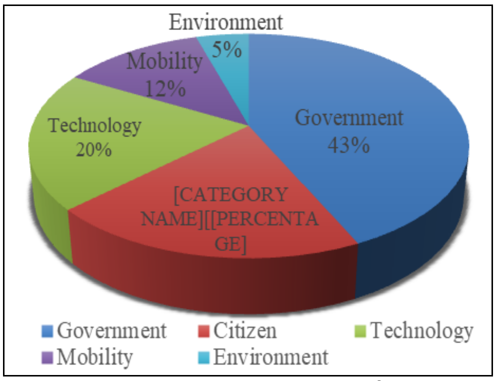


Figure 3. The percentage of topics related to smart city characteristics

Table 6. The percentage of topics related to smart city characteristics (Source: Researcher own analysis)

Characteristics	Articles Founded	Percentage
Government	28	43%
Citizen	13	20%
Technology	13	20%
Mobility	4	12%
Environment	3	5%
Total	**61**	**100%**

Table 7. Findings related to government characteristic; Journal Quality and Ranking (Source: Researcher own analysis)

Title of Article (Authors)	Journal of Publication	Findings
Alleviating corporate environmental pollution threats toward public health and safety: The role of smart city and artificial intelligence (Liu et al., 2021)	Safety Science	E-government development has a major restraining influence on corporate environmental pollution because it creates an efficient information exchange platform between government and corporations. ***Governments have less of an information gap with businesses because they have access to more environmental data, and businesses can tell when environmental regulations are getting stricter because of government work***.
One size does not fit all: Framing smart city policy narratives within regional socio-economic contexts in Brussels and Wallonia (Esposito et al., 2021)	Cities	The authors advise policymakers to take a place-based approach to smart city development in order to create and implement smart city initiatives that are well suited to their socioeconomic circumstances***. Smart technology should be viewed as a means to an end rather than a goal in itself, they argue.***
Investigating smart city development based on green buildings, electrical vehicles and feasible indicators (Razmjoo et al., 2021)	Sustainability	The findings revealed that implementing strategies and embracing change in government policies would assist in accelerating the net-zero energy vision, paying attention to design parameters, improving transportation policies while embracing change, implementing efficient indicators for GBs and EVs, and implementing strategies to reduce the cost of EV production while maintaining high quality. ***Therefore, governments should put in place the right policies, like investing more in EVs and making GBs more environmentally friendly***.
Understanding the Influences of Urban-Specific Contexts for Smart City Development Using Structural Equation Modeling (Nicolas et al., 2021)	Journal of Urban Planning and Development	The findings confirm the significance of the national development level in smart city development perspectives, ***acknowledge that smart city strategy orientations differ depending on the geographic criteria*** (for example, focusing on hard infrastructure in Asia and soft infrastructure in Europe), and begin quantifying the potential influences of urban density and city size.
Achieving resilience through smart cities? Evidence from China (Zhou et al., 2021)	Habitat International	Smart cities may ***increase urban resilience by enhancing their structural effects, technological effects, and distribution effects***. Smart city development has a significant positive impact on urban economic and social resilience, but it has a negative impact on urban ecology and infrastructure resilience.
The institutional change from E-Government toward Smarter City; comparative analysis between royal borough of Greenwich, UK, and Seongdong-gu, South Korea (Kim and Kim, 2021)	Journal of Open Innovation: Technology, Market, and Complexity	It revealed that the process of transforming each country's smart city system was influenced not only by the degree of prior e-government, but also by the wider socio-cultural surroundings of each autonomous territory. In this regard, rather than blindly following the success case formula***, designing implementation strategies and solutions that take into consideration each location and socio-cultural qualities is required*** for the growth, expansion, and construction of smarter cities.
The analysis of smart governance scenarios of the urban culture in multicultural cities based on two concepts of "cultural intelligence" and "smart governance." (Faraji et al., 2021)	GeoJournal	A lack of focus on smart city administration would inhibit the appropriate and efficient management of culture in vast, diverse cities. Both parts of "cultural intelligence" and "intelligent governance" are required to control smart urban culture. Smart governance leads ***to better quality of life and better management of cities, as well as more effective government in multicultural cities***.
City size and functional specialization as factors of smart management: A case of Lviv Oblast, Ukraine (Lozynskyy et al., 2021)	Problems and Perspectives in Management	There is no discernible link between the size of cities and the extent of the deployment of smart technology. ***The adoption of smart technology is affected by its geographical characteristics, which include a high degree of tourism growth***. The peculiarity of the sale of a tourism product contributes to the greatest development of smart-city technologies in tourist destinations. In industrial cities, smart solutions are not being adopted to their full potential.
Information Sharing as a Dimension of Smartness: Understanding Benefits and Challenges in Two Megacities (Gil-Garcia et al., 2021)	Urban Affairs Review	Megacities offer some of the benefits of state governments, such as ***the availability of financial resources and technological capabilities, as well as the management flexibility and strong leadership that distinguish local administrations***. These distinctions and particularities, when combined, create a distinct and dynamic setting for information sharing in megacities.
Ecosystems for smart cities: tracing the evolution of governance structures in a dutch smart city initiative. (Ooms et al., 2020)	International Entrepreneur-ship and Mana-gement Journal	A clear strategy should be present in both the initiation and growth phases of a smart city***. For local governments to receive support from other governments, a stimulating regulatory environment for smart city planning and development is essential***.
Smart city-ranking of major Australian cities to achieve a smarter future. (Tariq et al., 2020)	Sustainability (Switzerland)	Cities in need of economic growth should prioritize upskilling their citizens in order to attract knowledge-intensive industries. ***Smaller cities should be encouraged by state governments to pursue smart energy and environmental projects***. Dedicated infrastructure, such as in-land rail and private bus lanes, can help relieve traffic congestion on the road network.
Temporal and spatial differences in the resilience of smart cities and their influencing factors: Evidence from non-provincial cities in China (Dong et al., 2020)	Sustainability (Switzerland)	The government should continue to strengthen the development of central systems for big data in smart cities. Additionally, ***investments in scientific and technological R&D must be enhanced continuously***. Both the training of scientific and technological talent and investment in research and development should be increased.
A Hyperconnected Smart City Framework: Digital Resources Using Enhanced Pedagogical Techniques (Naqvi et al., 2020)	Australasian Journal of Information Systems	A security breach can have a significant impact on the operations of the city and the quality-of-service outcomes. It can also result in trust issues among the citizens and the administration. ***Security and privacy of this data are paramount in the real-time decision-making process***.

Participation in e-government services and smart city programs: A case study of Malaysian local authority (Lim et al., 2020)	Planning Malaysia	It should be noted that the culture of authentic participation in Malaysia ***would be difficult to achieve in the absence of such citizen demands,*** which will eventually result in tokenism involvement and a loss of public confidence at the grassroots level.
The value of Big Data in government: The case of 'smart cities' (Löfgren and Webster, 2020)	Big Data and Society	Formal national and global regulation is likely in the long run, but it will take many years to build and establish. ***What is required are some fundamental, agreed-upon minimum self-regulatory principles***. These should be based on voluntary agreements between local or city governments and the main commercial actors.
Capturing citizen voice online: Enabling smart participatory local government (Alizadeh et al., 2019)	Cities	A study suggests that citizen involvement is minimal yet significant. So far, just a tiny percentage of the population has taken part in the online discussions. Those who do engage, however, leave valuable insights that have the potential to inform the decision-making process. Hence, it offers the potential of currently available and peer-reviewed data mining and machine learning algorithms to ***collect citizen voices online and feed them into the decision-making process of local governments***.
Towards a smart city concept in small cities (Ruohomaa et al., 2019)	Technology Innovation Management Review	The paper presents three cases of smart city development in small cities in Finland. Each case shows how a city can take remarkable steps toward building a smart city by selecting a specific theme. ***The examples emphasize the critical role of public sector actors in supporting ecosystem-based development work.***
A relational exploratory study of business incubation and smart cities - Findings from Europe (Blanck et al., 2019)	Cities	According to the study, ***innovation is the primary engine of smart urban development rather than public funding,*** which is often featured in the mainstream supply-driven innovation model.
Driving elements to make cities smarter: Evidence from European projects (Camboim et al., 2019)	Technological Forecasting and Social Change	To become smarter, ***cities must upgrade the elements related to their various dimensions, which are techno-economic activity, environ-urban configuration, and socio-institutional structures, in an integrated manner*** guided by an integrated and comprehensive governance model.
Smart City Planning from an Evolutionary Perspective (Komninos et al., 2019)	Journal of Urban Technology	***Cities are driven by innovation and multi-actor decision-making.*** They also take advantage of initiatives, partnerships, and policy frameworks at regional and national levels. Smart specialization strategies will define a policy mix and actions through a company-driven process of discovery and innovation.
Big Data and government: Evidence of the role of Big Data for smart cities (Hong et al., 2019)	Big Data and Society	***Government use of Big Data could reduce the risk of bureaucratic institutions being captured by the elite or those with vested interests,*** they say. Evidence based policymaking could also provide the government with more accurate information, they argue.
Financial sector development and smart cities: The Indian case (Arora, 2018)	Sustainable Cities and Society	The study highlighted large interstate variations across the smart cities in financial development. ***Smart cities should have a developed financial system which provides access to financial services and facilitates investment in health, education and businesses and strengthening human capital***, according to the World Bank's latest report on the development of 'smart cities'.
Advertising-cities face to smart-cities: The trends of integration policies for information new technologies in Madrid (Jácomo, 2018)	International Journal of E-Planning Research	The Smart City model has emerged as a new reference for the urban management renewal of cities through the development of specific or partial projects, such as the renovation and improvement of infrastructures and public services. ***ICTs' implementation and extension have an undeniable importance for a better efficiency and rationality of urban functioning, as well as to facilitate citizens' lives.***
A roadmap for smart city services to address challenges faced by small businesses in South Africa (Du Plessis and Marnewick, 2017)	South African Journal of Economic and Management Sciences	This research sought to identify which challenges had the greatest impact on small businesses. ***The lack of government support was found to be the most detrimental.***
Exploring the politico-cultural dimensions for development of smart cities in India (Das, 2017)	International Review for Spatial Planning and Sustainable Development	Politico-cultural perspective could provide a platform for the fruitful engagement among the various stakeholders. It could be able to develop a sense of belonging and ***make all stakeholders part of the development process, which is highly essential for development of smart cities*** and their long-term sustainability in India.
Implementation of social media concepts for e-Government: Case study of a social media tool for value co-creation and citizen participation (Díaz-Díaz and Pérez-González, 2016)	Journal of Organizational and End User Computing	The determination and involvement of the government is important for the success of a social participation project. Governments can match the topics that are enquired about on the platform with the public administration's policies. ***This strategy should pursue concrete actions to encourage the implementation of ideas, as well as a protocol to answer enquiries on the platform.***
Analysing smartness in European cities: A factor analysis based on resource efficiency, transportation and ICT. (Corsini et al., 2016)	International Journal of Global Environmental Issues	The presence of an open, dynamic business model based on a network of shared relationships seems to be an important requisite to improve city smartness. ***A specific policy agenda for the development of smart cities has to be based on the homogeneity of strengths and weaknesses in order to foster dialogue between local and regional actors***.
Current trends in smart city initiatives: Some stylised facts (Neirotti et al., 2014)	Cities	***Policy makers are urged to try to understand these factors (natural resources and energy, transport and mobility, buildings, living, government, as well as economy and people) in order to shape appropriate strategies***. This study is in particular based on a framework that could also be applied to make a better selection of investment opportunities.

In fact, it is evident that citizen and technology caught the interest of academics and were the focus of their research throughout that period. A study on smart cities must, without a doubt, be based on research that is focused on technology. Nevertheless, mobility was found to be the increasing focus area of smart city research and followed by current research trend that pay attention to the environmental features.

Government

The analysis starts with the first character, government. A city is a place that emphasizes local development, such as house construction, businesses, and commercial activities (Parr, 2007). A total of 28 publications (43%) associated with the government were successfully discovered using the systematic literature review methodology technique. Figure 4 indicates journal quality and ranking for the 28 empirical articles that comprise Q1, Q2, and Q2 journal rankings with the respective H-index between 11 and 155 in the SCOPUS database related to government characteristics in smart city development within the years 2001-2021. Findings displayed in Table 7 indicated that a city is a planned development area that requires competent leadership to plan and govern. Based on the summary of findings shown in Table 7, the government is seen as having the highest level of leadership and is crucial in urban development planning. As a result, a government must implement numerous vital policies that will lead to more planned and effective development (Díaz-Díaz and Pérez-González, 2016; Gil-Garcia et al., 2021; Esposito et al., 2021), such as e-government (Liu et al., 2021) and the development of a smart city (Esposito et al., 2021). The phrase "policy" refers to the objective, decision, and planning of a government to handle political, social, and economic matters in one location (Reyeset al., 2014). The policy makers must understand the strategies for making better decisions (Komninos et al., 2019) in investment policy (Neirotti et al., 2014), including smart city development (Corsini et al., 2016; Jácomo, 2018). Issues related to technology (Dong et al., 2020; Camboim et al., 2019; Hong et al., 2019; Jácomo, 2018), transportation (Tariq et al., 2020), financial (Arora, 2018), stakeholder (Das, 2017), and security and privacy of data (Naqvi et al., 2020) should be the essence of smart city development.

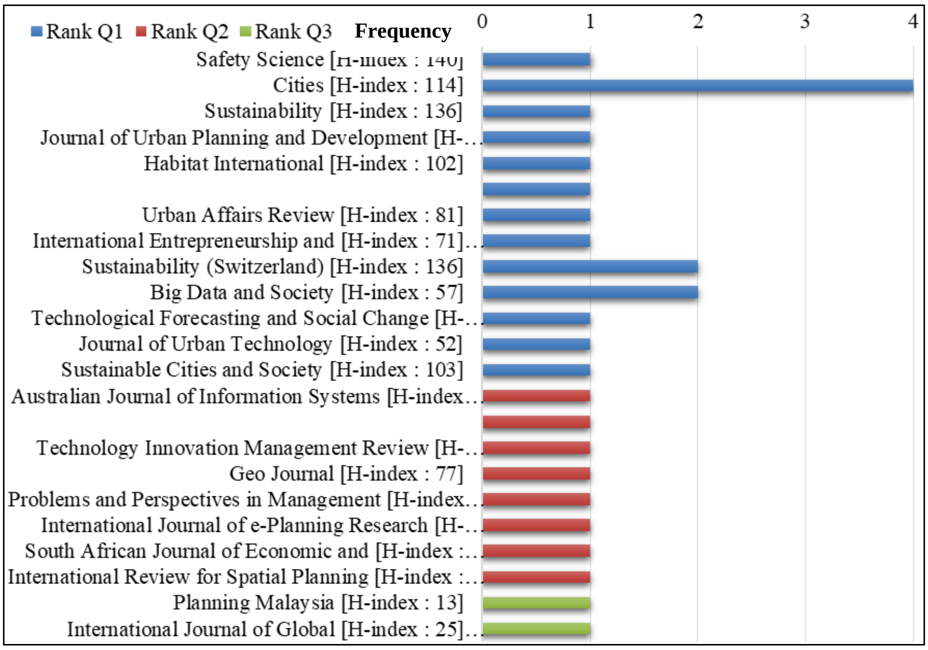


Figure 4. Journal quality and ranking for government characteristic (Source Scimago.com)

Thus, smart specialization strategies will define a policy mix and actions through a company-driven process of discovery and innovation in a smart city model (Komninos et al., 2019; Blanck et al., 2019). Therefore, it is evident that the government plays a critical role in the global growth of smart cities. The government has to propose the policy and strategy for smart city development towards the "Tourism-For-All" destination concept and implementation that align with the United Nations sustainable development goals No. 10 (reduce disparities), No. 11 (sustainable cities and communities), and No. 12 (responsible consumption and production) for this nation to keep its competitive edge.

Citizen

Out of 61 discoveries, the search results of this systematic literature review yielded 13 articles (20%). Figure 5 presents the journal quality and ranking of the articles that comprise Q1, Q2, and Q3 journal rankings with the respective H-index between 9 and 152 in the SCOPUS database related to citizen characteristics of smart cities. Table 8 shows the summary of findings from articles related to citizen participation in a smart city from the particular journal.

The findings in Table 8 indicate that the citizen is the second-most important smart city character. Citizens refer to the residents of the smart city (White et al., 2021). If there is no population, then there is no city. Unquestionably, a city needs an engaged resident or citizen to ensure the seamless operation of all activities and operations (Granier and Kudo, 2016; Macke et al., 2018; Simonofski et al.,

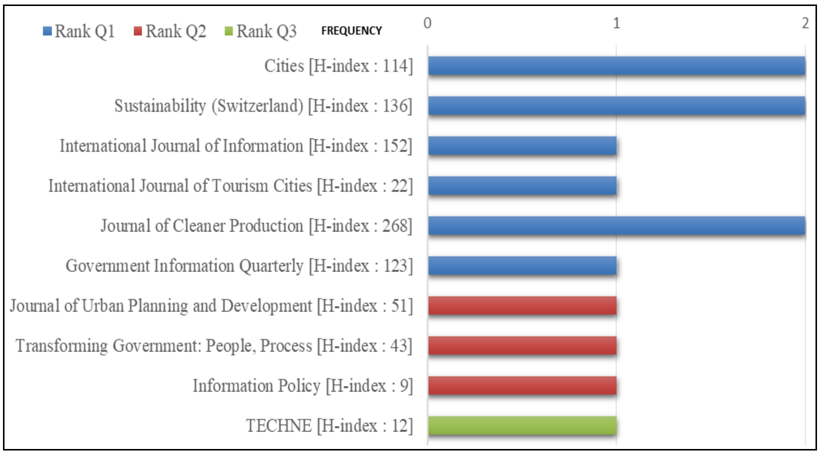


Figure 5. Journal quality and ranking for citizen characteristic (Source: Scimago.com)

2021). The city's parameters must depend on the number of residents in the area. According to Winkowska et al. (2019), the city will be created when rural residents migrate and settle in urban areas.

Table 8. Findings related to citizen characteristic (Source: Researcher own analysis)

Title of Article (Authors)	Journal of Publication	Findings
A digital twin smart city for citizen feedback. (White et al., 2021)	Cities	An accurate 3D model of a city can be published online and walked around by the public to view proposed changes in urban planning and policy. Citizens can also engage with components of the plan and report concerns in their neighborhood. ***This open and public concept enables an extra virtual feedback loop in which residents may participate and provide comment on planned city developments.***
Intelligence quotient test for smart cities in the United States. (Liu et al., 2021)	Journal of Urban Planning and Development	According to the findings of the study, there is no substantial relationship between city wealth and a smart city IQ score. Essentially, the following statement is false: the higher the IQ score, the wealthier the city (as measured by GDP). This discovery holds true for both overall IQ and component IQ values. ***The IQ findings also revealed that the richest city is virtually evenly split from high to low IQ.***
Investigating context factors in citizen participation strategies: A comparative analysis of Swedish and Belgian smart cities. (Simonofski et al., 2021)	International Journal of Information Management	Author identified five context factors impacting citizen participation strategies in two smart cities (Namur and Linköping): the smart city consideration, the drivers for participation, the degree of centralization, the legal requirements and the citizens' characteristics***.*** ***It revealed that similar stakeholders were involved (Administration, University and Businesses) and similar participation methods were applied (direct interaction, living lab, open data and online platform).***
Social participation in the definition of budgetary instruments. (Felix Júnior et al., 2020).	Transforming Government: People, Process and Policy	Public managers do not believe the population needs more training to reach a level of social participation. ***The existence of civic groups that are free of political involvement and public hearings that may have active participation in society is also clear.***
Investigating visitors' perception of smart city dimensions for city branding in Hong Kong. (Chan et al., 2019)	International Journal of Tourism Cities	From the perspective of visitors, four aspects determine what a smart city is: ***energy consumption in an urban environment, smart city administration, and smart city living.*** The first two characteristics are also determinants of a successful smart city brand in the eyes of tourists. The factor analysis results reveal four elements for evaluating what a smart city is from the standpoint of visitors: energy consumption in an urban environment, smart city government, and smart city living.
Smart sustainable cities evaluation and sense of community. (Macke et al, 2019)	Journal of Cleaner Production	The focus to ***principles like as social justice, effective resource management, transparency, accessibility, and poverty reduction helps the city achieve excellent results in smart sustainable initiatives***. Given these findings, achieving these goals through public policy will boost people' well-being by creating fertile ground for municipal development.
Smart city communication via social media: Analysing residents' and visitors' engagement. (Molinillo et al., 2019)	Cities	Visitors may react more emotionally by sharing information with others and expressing approval or interest through "likes." This is despite the fact that most of these cities had respectable levels of followers and interaction through their official social media sites. Advice ***also applies to aspects that make cities "smart," such as WiFi connections, integrated transport, public services and online access to these services***.
Joining forces for public value creation? Exploring collaborative innovation in smart city initiatives. (Neumann et al., 2019)	Government Information Quarterly	Both types of ***relationships (agency and stewardship) between a local government and a utility company have been found to contribute to higher levels of innovativeness in the local government or city in general***. Utility firms offer benefits over entirely private enterprises, including as tighter relationships and mutual trust with local governments.
Smart city development and residents' well-being. (Lin et al., 2019)	Sustainability (Switzerland)	Smart city ***development considers not just the general demands of urban populations, but also their specific needs.*** Also, smart cities need a high level of security and secrecy, and the perception of the network security environment serves as the foundation for enhancing the usefulness, convenience, and SWB experiences.
A study on determinant factors in smart city development: An analytic hierarchy process analysis. (Myeong et al., 2018)	Sustainability (Switzerland)	To begin, ***increasing public engagement and developing diverse communication channels are critical strategies for building better smart cities.*** The term "smart city" does not just refer to cities that use cutting-edge technology. The ultimate purpose of smart city development, ***rather than the development of sophisticated technologies itself, is to improve the quality of life of individuals, families, and local communities through modern ICT.*** As a result, rather than a top–down policy strategy, a bottom–up policy approach is necessary in the process of establishing a smart city.
Smart city and quality of life: Citizens' perception in a Brazilian case study. (Macke et al., 2018)	Journal of Cleaner Production	Citizens, policymakers, and scholars should all work together to make decisions in a smart city, researchers suggest. ***The selected smart city idea places a strong emphasis on a citizen-centric approach.*** It aims to consider citizens' needs in order to preserve and deliver a good quality of life.
Smart city actions to support sustainable city development. (Kankaala et al., 2018)	TECHNE	The cities are not anymore solely enablers but also active actors. ***They are seen as platforms for innovation and co-creation between citizens, companies, research organizations and public sector***. The more active cities are in this, the better they will succeed in capitalizing on the novel role of cities.
How are citizens involved in smart cities? Analysing citizen participation in Japanese "smart Communities." (Granier and Kudo, 2016)	Information Polity	Organization planned several meetings with residents***, even going door-to-door at times, and placed a significant focus on "community," which has been highlighted as a vital aspect in public participation, particularly in Japan.***

Table 9. Findings related to technology characteristic; Journal quality and ranking for technology characteristic (Source: Researcher own analysis)

Title of Article (Authors)	Journal of Publication	Findings
Characteristics of conceptually related smart cities services from the perspective of sustainability. (Kim and Yang, 2021)	Sustainability (Switzerland)	The sum of frequencies on each CRSCs characteristic and the total number of characteristics in each indication suggest that ***both SSC and CRSCs place a high value on urban planning, ICT infrastructure, and data indicators. The three important factors are linked in order to achieve sustainability through public engagement***.
Smart city model based on systems theory. (Lom and Pribyl, 2021)	International Journal of Information Management	The primary distinction between traditional and smart cities is that in traditional cities, systems communicate exclusively with their surroundings. It indicates that most systems are stand-alone and not compatible with other systems. ***Systems in smart cities are connected by energy or information relationships, and information management is becoming increasingly crucial.***
Access to ICT in Poland and the co-creation of Urban space in the process of modern social participation in a smart city-a case study. (Szarek-Iwaniuk and Senetra, 2020)	Sustainability (Switzerland)	The smart city idea includes participatory planning that depends on information and communication systems. E-participation and Public Participation GIS tools provide up a plethora of possibilities for successful city management**.** ***Measures that encourage collaboration between communities and authorities (both local and central) and ICT tools contribute to the establishment of smart cities.***
Smart cities and cyber security: Are we there yet? A comparative study on the role of standards, third party risk management and security ownership. (Vitunskaite et al., 2019)	Computers and Security	The government serves as a policymaker and a coordinator, defining and enforcing technological standards and defining baseline security needs. ***It demands for a clear description of roles and duties, as well as critical data handling and management processes and procedures. It would result in security being built in from the start and driving excellent security practises in other firms and manufacturers***. The implementation of the proposed framework will allow and encourage secure cooperation while not restricting innovation.
Enhancing social networking in smart cities: Privacy and security borderlines. (Moustaka et al., 2019)	Technological Forecasting and Social Change	***Individual privacy protection (smart individuals) can lead to global security (smart life) in SC, and vice versa.*** The chaotic nature of the Internet and OSN, combined with new threats emerging by bypassing previously developed protection tools, expose individuals to privacy and security risks. The use of behavioural patterns in social networking, as well as some appropriate measures and GDPR enforcement, are expected to result in the successful treatment of privacy and security issues.
Implementing citizen centric technology in developing smart cities: A model for predicting the acceptance of urban technologies. (Sepasgozar et al., 2019)	Technological Forecasting and Social Change	For starters, ***it will guarantee that the technology used is acceptable for local cultural situations***. It will also be well-suited to assisting underdeveloped countries in participating in the smart city boom while conserving resources.
To the smart city and beyond? Developing a typology of smart urban innovation. (Nilssen, 2019)	Technological Forecasting and Social Change	This contradiction between rhetoric and actual execution shows that technology is not merely a tool for improving urban circumstances but has strategic value in achieving political agreement. As a result, ***mere technology advancement is inadequate to assure a city's smartness.***
The role of Internet of Things (IoT) in smart cities: Technology roadmap-oriented approaches. (Park et al., 2018)	Sustainability (Switzerland)	Demonstration sites for IoT technology testing inside a smart city infrastructure should be built. ***This would enable participants to assess the efficiency, economic feasibility, and impacts of new IoT technology and recommended services.*** Other related technologies in the ICT sector should be explored and developed concurrently in order to promote IoT technologies.
Critical success factors to establish 5G network in smart cities: Inputs for security and privacy. (Chatterjee et al., 2017)	Journal of Global Information Management	It is essential that each network element be developed with the security concerns in mind. ***Security elements in concepts such as smart cities should be enabling rather than restricting.*** Every element of such linked devices should be secure in a transparent, effective, and resilient manner.
Impact of the smart city industry on the Korean national economy: Input-output analysis. (Kim et al., 2016)	Sustainability (Switzerland)	The development of the ICT industry is crucial if national and local strategies for sustainable cities are to support smart city implementation. The importance of service industry sectors facilitated by ICT infrastructure is consistent with previous research, which showed that ***ICT applications resulted in wealth creation through the interconnection of human and social capital via activated knowledge networks.***
Main criteria in the development of smart cities determined using analytical method. (Tahir and Malek, 2016)	Planning Malaysia	Smart cities develop not only as an innovative and technological change for future urban life***, but also as a vital instrument to overcome poverty and inequality, unemployment, and energy management. Many cities across the globe have begun to use smart*** urban technology in order to become smart cities. They retain a scientific leadership position to ensure economic competitiveness in the development and modernization of their society.
Towards an effective framework for building smart cities: Lessons from Seoul and San Francisco. (Lee et al., 2014)	Technological Forecasting and Social Change	The extent and depth of civic engagement platforms vary from city to city depending on the city's social and human capital. ***A strategic balance between open data, which encourages app development, and privacy concerns may need leaders developing a clear direction for each city's public data utilization***.
Geomatics for smart cities - concept, key techniques, and applications. (Li et al., 2013)	Geo-Spatial Information Science	***Data or information from smart sensor networks may be updated and released through the infrastructure architecture of a digital city, resulting in improved human-machine interaction.*** Massive volumes of data acquired in real time in a smart city can be rapidly evaluated and processed utilizing cloud computing platforms, which will eventually help urban administration through smart sensor networks.

Thus, the expanding population may aid in the development of infrastructure in that locality (Kankaala et al., 2018), and a bottom-up policy approach is necessary in the process of establishing a smart city (Myeong et al., 2018). In order to illustrate that the practice of democracy and the development of a smart city can be achieved successfully, residents and the government must pay close attention and work together (Neumann et al., 2019; Felix Júnior et al., 2020). Therefore, the role of citizenship in smart city development is essential for the success and sustainable future of the city that is moving towards "Tourism-For-All" implementation. The need to create comprehensive structures for individuals with special needs, such as children, the elderly, pregnant women, and people with disabilities, is essential to ensuring their completeness and contentment.

Technology

The researcher discovered that technology influences 13 articles, or 20% of the total. The results of the systematic literature review search technique are indicated in Tables 9 and Figure 6. Figure 6 exhibits the journal quality and ranking found for the thirteen articles published in Q1, Q2, and Q3 journals with the respective H-index between 13 and 155. Table 9 presents a summary of the key findings related to technology issues in smart cities between the years 2001 and 2021.

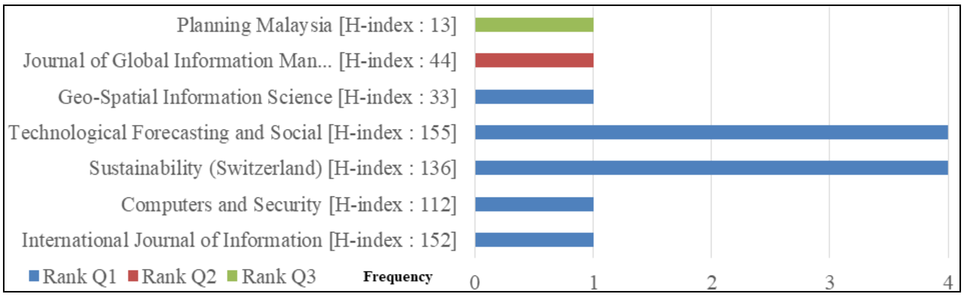


Figure 6. Journal quality and ranking for technology characteristic (Source: Scimago.com)

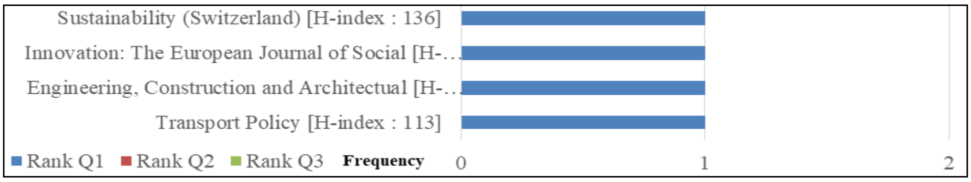


Figure 7. Journal quality and ranking for mobility characteristic (Source: Scimago.com)

The summary of findings indicated in Table 9 makes it evident that technology plays a critical role in the creation of smart cities. The importance of technology has been explained based on the notion of a "smart city", which is a city that uses information and communication technology (ICT) in the planning process and management operations of the city (Li et al., 2013; Lee et al., 2014; Tahir and Malek, 2016; Kim et al., 2016; Park et al., 2018; Nilssen, 2019; Szarek-Iwaniuk and Senetra, 2020; Lom and Pribyl, 2021). According to Bulu (2013), the usage of technology in the city is more focused on infrastructural technology that allows the city to support the rising population. According to the author, using technology in the city allows for more effective and efficient city management while also providing well-being to the urban population. Nevertheless, challenges in maintaining the safety and security of the ICT and its capability (Chatterjee et al., 2017; Moustaka et al., 2019; Sepasgozar et al., 2019; Kim and Yang, 2021) to meet citizen expectations require continuous efforts by the government and related smart city development agencies. Thus, in order to fulfil the "Tourism-For-All" implementation, the authorities and agencies have to strategize the ICT structure to meet the expectations of people with special needs.

Mobility

A database search employing the systematic literature review technique revealed that mobility affects 12% of all papers, or 4 papers in total. Figure 7 exhibits the journal quality and ranking found for the four articles published in Q1 journals with the respective H-index between 41 and 136. Table 10 presents a summary of the key findings related to mobility issues in smart cities between the years 2001 and 2021.Table 10 exhibits mobility characteristics. A summary of key findings proved that transportation is a vital component that cannot be disregarded when considering the expansion of a city. The transportation available in a given location is referred to as mobility. Mobility services, on the other hand, differ fundamentally from traditional forms of travel and are more complex (Calderón and Miller, 2020). Another factor that contributes to urban development is the development of transportation. The mobility system enables the community or people in urban regions to explore and travel to their hearts' content. Even rapid mobility development, such as a public transport system or traffic management system, has the potential to improve city life (Badii et al., 2019).

With today's technologies, the transportation system can be improved to be more efficient (de Wijs et al., 2016). In line with the smart city concept (Kozowski et al., 2021), policymakers are focused on mobility management to support urban growth. Because of the increased number of vehicles in the city centre as a result of migration, authorities are planning to deploy technology to control car movement and parking in urban areas (Zawieska and Pieriegud, 2018; Suresh et al., 2020) so that road conditions do not deteriorate. At the same time, they bring comfort and convenience to residents of smart cities. As a result, the transport and mobility structures in a smart city should be developed to accommodate people with special requirements, in accordance with the "Tourism-For-All" destination concept.

Table 10. Findings related to mobility characteristic (Source: Researcher own analysis)

Title of Article (Authors)	Journal of Publication	Findings
Analysis of the system of controlling paid parking zones (Kozłowski et al., 2021)	Sustainability (Switzerland)	The research presented in this paper focuses on cutting-edge technology used in smart cities, where the ***parking enforcement issue is a critical component of public transportation policy formulation.*** The authors' assessment results indicate that the system's operational functionality is appropriate, demonstrating that the desired performance levels were effectively reached.
Developments in the UK road transport from a smart cities' perspective(Suresh et al., 2020)	Engineering, Construction and Architectural Management	A city planner is a major actor in developing a strategy for a cities or countries successful growth. ***By recruiting firms and customers, smart road transportation transformation can provide a period of financial development***.
Smart city as a tool for sustainable mobility and transport decarbonization (Zawieska and Pieriegud, 2018)	Transport Policy	***Increased usage of alternative fuels and energy sources has the greatest potential to minimize GHG emissions***. In Poland, where energy production is still reliant on the burning of coal, increased demand for electric energy may result in a rise in GHG emissions.
How smart is smart? Theoretical and empirical considerations on implementing smart city objectives – a case study of Dutch railway station areas (de Wijs et al., 2016)	Innovation: The European Journal of Social Science Research	***In the city, railway stations are seen as "hubs" for information exchange***. Human and social capital components of smart cities are less significant than railway station areas. This might be due to the fact that this smart city attribute is considered as less significant and/or visible than, say, technology and (economic) sustainability.

Environment

The environment is one of the major aspects of a smart city. Natural disasters, such as major floods and landslides caused by rapid development without regard for the environment, endanger the surrounding population and damage city infrastructure, preventing the development of a smart city. Therefore, three (5%) of the 61 examined publications emphasise the environment. Figure 8 exhibits the journal quality and ranking found for the three articles published in Q1 journals with the respective H-index between 103 and 155. A summary of the key findings related to environmental issues in smart cities between the years 2001 and 2021 is reflected in Table 11.

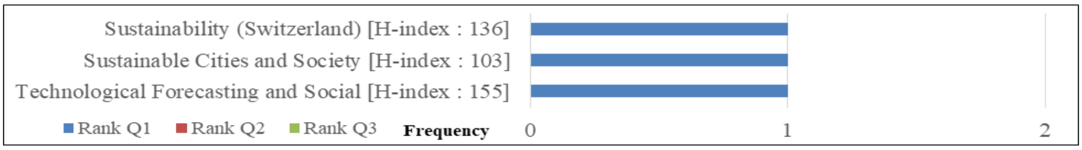


Figure 8. Journal quality and ranking for environment characteristic (Source: Scimago.com)

Table 11. Findings related to environment characteristic

Title of Articles (Authors)	Journal of Publication	Findings
A smart city is a less polluted city (Zhen Chu et al., 2021)	Technological Forecasting and Social Change	The smart city mitigates the negative side effects of urban growth (for example, pollution) while allowing cities to allocate resources more efficiently. ***The author argues that technological growth driven by innovation promotes the good environmental consequences of smart cities.***
Comparative assessments and insights of data openness of 50 smart cities in air quality aspects (Mak and Lam, 2021)	Sustainable Cities and Society	According to the World Health Organization's (WHO) World Urban Development Study 2016-2020 report by the WHO and the UN Environment Programme, ***future smart city development should depend on big data and machine learning methods, as well as frequent air quality evaluations (UNEP).***
Clustering of European smart cities to understand the cities' sustainability strategies Cantuarias - Villessuzanne et al., 2021)	Sustainability (Switzerland)	***Some clusters establish dynamic capacities to address economic, environmental, and social concerns***. For the first cluster, these cities have recognised the chance to become smart and are in the process of transforming themselves. Other cluster includes sophisticated smart solutions for dealing with various difficulties. These cities developed their main competencies in response to their unique problems.

According to the findings in Table 11, smart city development should prioritise environmental sustainability. In 2016, the United Nations created an environment programme (UNEP) to assess air quality in 50 smart cities (Mak and Lam, 2021). Among the focused techniques to ensure smart city air quality is well controlled for future nations is the use of technologies such as big data and machine learning. Furthermore, a smart city should continuously minimise the negative consequences of urban development (Chu et al., 2021), so that the use of diverse technological developments in smart city development contributes to environmental care. A sustainable environment has emerged as a major worldwide concern. As a result, the "Tourism-For-All" component must include a sustainable environmental strategy to ensure a high quality of life in the smart city. A smart city is a technologically advanced urban concept that aims to enhance city residents' quality of life. Over the past two decades, specialists have conducted numerous studies on smart cities. The lack of research on the characteristics of smart cities is one of the study's limitations. Therefore, the researchers conducted a systematic literature review to investigate the development of smart city characteristics over the past two decades (2001–2021). Using the approach of identification, screening, and eligibility to search the SCOPUS database, researchers were able to locate multiple publications that define the characteristics of a smart city. 43% of all findings are attributed to government policy, which is the first characteristic. This demonstrates that for a smart city to prosper rapidly and efficiently, the governing government must create appropriate regulations and promote the city's development. The majority of articles suggested that the strategy should focus on strengthening and enhancing the characteristics of existing smart city development, such as community development, technological development, transportation development, and environmental care.

The researcher then determined that the citizen is a significant figure in a smart city, accounting for 20% of the total findings. This demonstrates that the development of a city should prioritise its occupants' intellectual development and quality of life because the citizen can assume many roles, including participants, hosts, investors, volunteers and community members (Lobo et al., 2023). The government should also invite smart city residents to weigh in on development plans. This would benefit the development strategy.

It is also believed that government and citizen cooperation will accelerate the development of smart cities. Incorporating the concept of TFA and the use of technologies in the creation of a smart city will result in a more interesting, efficient, inclusive, and economically, socially, and environmentally sustainable tourism offer. When residents as well as tourists are involved in the creation of smart cities, feedback (i.e., surveys) will be provided that will continuously and accurately measure, integrate, and provide data for effective decision-making, prioritisation, and anticipation experiences for tourists while managing local resources efficiently. Moreover, creativity and innovation are crucial when designing experiences for increasingly demanding residents and tourists. Therefore, both residents and tourists can assist in ensuring maximal accessibility of offered sites, products, and services, thereby removing mobility barriers. It enables destination managers to examine sustainable tourism management through different lenses.

The advent of digital technology has facilitated enhanced channels of communication between tourists and marketers (Fallah et al., 2023) in urban tourism. Smart cities have an apparent and undeniable dependence on technology. A study percentage of 20% demonstrates the importance of research and technological advancement. Despite this, a number of studies indicate that the development of technology, particularly in ICT, will inevitably raise privacy and security concerns. People who desire to feel safe in a smart city share this concern; consequently, smart city authorities must give this issue top priority. The concept of smart cities is also closely linked to smart tourism, which goes hand in hand with improvements in technology such as Artificial Intelligence (AI), the Internet-of-Things (IoT), Big Data or fifth-generation technology (5G). Each concept has a similar goal: to increase resource management efficiency, competitiveness, and sustainability through the adoption of innovative technology. For example, in a smart city concept, AI could serve as a forecasting tool for destination management. Future planning can be made with historical and contextual data to make better decisions. In the tourism context, it is used to understand the tourist demand of each season and destination in order to design marketing strategies, financial management, human resource allocation, and support facility management. However, a smart destination requires more than technology. A comprehensive modernization process, starting with the city's tourism intelligence plan, is necessary to create a sustainable, innovative, and accessible destination model in economic, socio-cultural, and environmental aspects (Aguirre et al., 2023).

The subsequent characteristic is mobility. This study defines mobility as the smart city's transport management system. This is due to an effective and efficient mobility management system that may enhance the lives of smart city residents and is consistent with the smart city's primary goal. The number of tourists and vehicles can significantly increase when a certain location is promoted as a smart city through marketing campaigns that attract tourists. Both aspects have an impact on traffic, whether through congestion or the difficulty of finding parking. As a result, the study's findings help to remind destination managers to work hand in hand to remedy these challenges and give a better solution and experience for local residents and tourists. As an alternative to becoming a smart city, the city of Malaga, Spain, erected LED street lighting and built multiple kilometres of bicycle lanes, as well as several rental stations. Furthermore, the destination manager has built smart irrigation systems in parks and gardens to save water, as well as a plan to reduce air pollution and noise. Despite the fact that there are overwhelming needs and demands for mobility infrastructure, the smart city's transport management system should strive to improve the quality of life of its local citizens while also generating more sustainable areas.

The final character is the environment, which influences 5% of successfully located articles. Urban officials must prioritise environmental preservation and protection despite the accelerated development of smart cities. The researchers emphasise environmental protection despite the fact that only three studies in the past two decades have examined the characteristics of the smart city. The majority of them emphasise the use of technology to control the environment and provide convenience and well-being for residents. Smart systems for controlling environmental quality, irrigation, garbage, and water supply are some of the solutions that can be utilised to construct a smart city.

The dearth of environmental regulatory studies has made the implementation of sustainable environmental practises in smart cities more difficult. But with the right legislation and policies implemented by the local municipality (Ivancsóné Horváth et al., 2023), the government may overcome these difficulties. In Malaysia, for example, the Ministry of Housing and Local Government (KPKT) has developed an indicator to evaluate the environment in a smart city: the preservation of green areas, the enhancement of trees in public areas, the strengthening of integrated and sustainable solid waste management, the improvement of air quality and water quality, and its monitoring system. In conclusion, the development of a smart city necessitates the collective resolution of numerous obstacles. For instance, the ecosystem will be impacted by the rising number of vehicles. In addition, the city is notorious for its high electricity consumption, making it the biggest obstacle to creating a smart city with lower electricity consumption. Thus, the development of smart cities may assure the stability of the environment for the community and encompass all elements of sustaining and developing the diversity of the environment for future uses.

CONCLUSION

This study employs a systematic literature review based on PRISMA approach to gather information regarding the characteristics of a smart city. However, this investigation is limited to queries using only SCOPUS database. In fact, one of the researcher's requirements is that the selected paper must have a clear methodology, and only research publications are accepted. Among the five essential characteristics of a smart city, the government plays a crucial role in devising policies and strategies for its growth. Citizen participation and technology are secondary characteristics that contribute significantly to the growth of a smart city. Followed by mobility and environmental characteristics, which necessitate more innovative initiatives to develop the smart city comprehensively as a worthy cause for future urban development such as the “Tourism-For-All” (TFA) destination concept.

The smart city characteristics would be fitting well into this TFA structure provided the facilities for individuals with special needs, such as children, the elderly, pregnant women, and people with disability are well-provided to mitigate the disparities issue and creating sustainable cities and communities in the smart city.

The outcomes of this study would benefit the urban development authorities in countries where smart cities are their current development strategy. Researchers advise future researchers to expand their literature searches by utilising additional databases and incorporating the latest trends and features of smart city development beyond 2021. It is envisaged that this study will be expanded by incorporating more pertinent eligibility requirements towards the development of the TFA implementation and comprehensive framework of the new "purple tourism" environment.

Author Contributions: Conceptualization, H.W.; methodology, H.W. and M.S.A.; software, M.S.A.; validation, H.W., M.S.A., and A.T.; formal analysis, M.S.A.; data curation, H.W. and A.T.; writing - original draft preparation, M.S.A and A.T.; writing - review and editing, H.W. and A.T.; visualization, M.S.A.; supervision, H.W.; project administration, H.W. All authors have read and agreed to the published version of the manuscript.

Funding: The authors gratefully acknowledge the support of Universiti Teknologi MARA (UiTM) for funding this research through its Special Research Grant (GPK) (Reference: 600-RMC/GPK5/3 (273/2020) and GIP (Reference: 600-RMC/GIP 5/3 (001/2022)). The authors further express their gratitude for the permission to conduct this research from the university Research Ethics Committee, as indicated in their official correspondence of December 16, 2022 (Reference: 600-TNCPI (5/1/6) REC12/2022 (ST/MR/246).

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Albino, V., Berardi, U., & Dangelico, R.M. (2015). Smart cities: Definitions, dimensions, performance, and initiatives. *Journal of Urban Technology*, 22(1), 3–21. https://doi.org/10.1080/10630732.2014.942092

Aguirre, A., Zayas, A., Gomez-Carmona, G., & Lopez Sanchez, J.A. (2023). Smart tourism destinations really make sustainable cities: Benidorm as a case study. *International Journal of Tourism Cities*, 9(1), 51-69. https://doi.org/10.1108/IJTC-01-2022-0006

Alizadeh, T., Sarkar, S., & Burgoyne, S. (2019). Capturing citizen voice online: Enabling smart participatory local government. *Cities*, 95, 102400. https://doi.org/10.1016/j.cities.2019.102400

Amin, Z.M., Anwar, N., Mohd Shoid, M.S., & Samuri, S. (2022). Method for conducting systematic literature review (SLR) for Cyber Risk Assessment. *Environment-Behaviour Proceedings Journal*, 7(SI10), 255–260. https://doi.org/10.21834/ebpj.v7isi10.4130

Anand, A., Winfred Rufuss, D.D., Rajkumar, V., & Suganthi, L. (2017). Evaluation of sustainability indicators in smart cities for India using MCDM approach. *Energy Procedia*, 141, 211–215. https://doi.org/10.1016/j.egypro.2017.11.094

Arora, R.U. (2018). Financial sector development and smart cities: the Indian case. *Sustainable Cities and Society*, 42, 52-58. https://doi.org/10.1016/j.scs.2018.06.013

Badii, C., Bellini, P., Difino, A., & Nesi, P. (2019). Privacy and security aspects on a Smart City IoT Platform. In 2019 IEEE SmartWorld, Ubiquitous Intelligence & Computing, Advanced & Trusted Computing, Scalable Computing & Communications, Cloud & Big Data Computing, Internet of People and Smart City Innovation (SmartWorld/SCALCOM/UIC/ATC/CBDCom/IOP/SCI), 1371-1376, IEEE. https://doi.org/10.1109/SmartWorld-UIC-ATC-SCALCOM-IOP-SCI.2019.00250

Blanck, M., Ribeiro, J.L.D., & Anzanello, M.J. (2019). A relational exploratory study of business incubation and smart cities-Findings from Europe. *Cities*, 88, 48-58. https://doi.org/10.1016/j.cities.2018.12.032

British Standards Institute. (2014). *Smart city framework. Guide to establishing strategies for smart cities and communities*. PAS 181:2014. BSI, London

Buuse, D.V.D., & Kolk, A. (2019). An exploration of smart city approaches by international ICT firms. *International Journal of Technological & Social Change*, 142, 220-234. https://doi.org/10.1016/j.techfore.2018.07.029

Calderón, F., & Miller, E.J. (2020). A literature review of mobility services: definitions, modelling state-of-the-art, and key considerations for a conceptual modelling framework. *Transport Reviews*, 40(3), 312-332. https://doi.org/10.1080/01441647.2019.1704916

Camboim, G.F., Zawislak, P.A., & Pufal, N.A. (2019). Driving elements to make cities smarter: Evidences from European projects. *Technological Forecasting and Social Change*, 142, 154–167. https://doi.org/10.1016/j.techfore.2018.09.014

Cantuarias-Villessuzanne, C., Weigel, R., & Blain, J. (2021). Clustering of European Smart Cities to Understand the Cities' Sustainability Strategies. *Sustainability*, 13(2), 513. https://doi.org/10.3390/su13020513
Chan, C.S., Peters, M., & Pikkemaat, B. (2019). Investigating visitors' perception of smart city dimensions for city branding in Hong Kong. *International Journal of Tourism Cities,* 5(4), 620-638. https://doi.org/10.1108/IJTC-07-2019-0101
Chan, J.K. (2023). Sustainable rural tourism practices from the Local Tourism Stakeholders' Perspectives. *Global Business & Finance Review,* 28(3), 136-149. https://doi.org/10.17549/gbfr.2023.28.3.136%20
Chatterjee, S., Kar, A.K., & Gupta, M.P. (2017). Critical success factors to establish 5G network in smart cities: Inputs for security and privacy. *Journal of Global Information Management (JGIM),* 25(2), 15-37. https://doi.org/10.4018/JGIM.2017040102
Chu, Z., Cheng, M., & Yu, N.N. (2021). A smart city is a less polluted city. *Technological Forecasting and Social Change,* 172, 121037. https://doi.org/10.1016/j.techfore.2021.121037
Corsini, F., Rizzi, F., & Frey, M. (2016). Analysing smartness in European cities: A factor analysis based on resource efficiency, transportation and ICT. *International Journal of Global Environmental Issues,* 15(3), 235-254. https://doi.org/10.1504/IJGENVI.2016.076957
Das, D.K. (2017). Exploring the politico-cultural dimensions for development of smart cities in India. *International Review for Spatial Planning and Sustainable Development*, 5(3), 79-99. http://dx.doi.org/10.14246/irspsd.5.3_79
De Wijs, L., Witte, P., & Geertman, S. (2016). How smart is smart? Theoretical and empirical considerations on implementing smart city objectives–a case study of Dutch railway station areas. Innovation: *The European Journal of Social Science Research,* 29(4), 424-441. https://doi.org/10.1080/13511610.2016.1201758
Díaz-Díaz, R., & Pérez-González, D. (2016). Implementation of social media concepts for e-government: Case study of a social media tool for value co-creation and citizen participation. *Journal of Organizational and End User Computing (JOEUC),* 28(3), 104-121. https://doi.org/10.4018/JOEUC.2016070107
Dong, X., Shi, T., Zhang, W., & Zhou, Q. (2020). Temporal and spatial differences in the resilience of smart cities and their influencing factors: Evidence from non-provincial cities in China. *Sustainability,* 12(4), 1321. https://doi.org/10.3390/su12041321
du Plessis, H., & Marnewick, A. (2017). A roadmap for smart city services to address challenges faced by small businesses in South Africa. *South African Journal of Economic and Management Sciences,* 20(1), 1-18. https://hdl.handle.net/10520/EJC-a782d7be3
Esposito, G., Clement, J., Mora, L., & Crutzen, N. (2021). One size does not fit all: Framing smart city policy narratives within regional socio-economic contexts in Brussels and Wallonia. *Cities,* 118, 103329. https://doi.org/10.1016/j.cities.2021.103329
EU Study. (2014). Economic Impact and Travel Patterns of Accessible Tourism in Europe. Downloaded 30 May 2021. https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=web&cd=&ved=0CAMQw7AJahcKEwjY6cj-tNP7AhUAAAAAHQAAAAAQAg&url=https%3A%2F%2Fwww.accessibletourism.org%2Fresources%2Ftoolip%2Fdoc%2F2014%2F07%2F06%2Fstudy-a-economic-impact-and-travel-patterns-of-accessible-tourism-in-europe---fi.pdf&psig=AOvVaw3pEUNPp3LNboQHhMzW35E8&ust=1669811925962860
Fallah, M., Karami, T., & Kojouri, K.M. (2023). The Art Of Human Participation Against Artificial Intelligence With Geospatial Information System In The Tourism Industry. *GeoJournal of Tourism and Geosites,* 49(3), 919–933. https://doi.org/10.30892/gtg.49309-1093
Faraji, S.J., Jafari Nozar, M., & Arash, M. (2021). The analysis of smart governance scenarios of the urban culture in multicultural cities based on two concepts of "cultural intelligence" and "smart governance". *GeoJournal,* 86(1), 357-377. https://doi.org/10.1007/s10708-019-10074-6
Gil-Garcia, J.R., Pardo, T.A., & De Tuya, M. (2021). Information sharing as a dimension of smartness: Understanding benefits and challenges in two megacities. *Urban Affairs Review,* 57(1), 8-34. https://doi.org/10.1177/1078087419843190
Granier, B., & Kudo, H. (2016). How are citizens involved in smart cities? Analysing citizen participation in Japanese "Smart Communities". *Information Polity,* 21(1), 61-76. https://doi.org/10.3233/IP-150367
Hårsman Wahlström, M., Kourtit, K., & Nijkamp, P. (2020). Planning Cities4People–A body and soul analysis of urban neighbourhoods. *Public Management Review*, 22(5), 687-700. https://doi.org/10.1080/14719037.2020.1718190
Hong, S., Hyoung Kim, S., Kim, Y., & Park, J. (2019). Big Data and government: Evidence of the role of Big Data for smart cities. *Big Data & Society*, 6(1), 1-11. https://doi.org/10.1177/2053951719842543
Ivancsóné Horváth, Z., Kupi, M., & Happ, E. (2023). The Role of Tourism Management For
Sustainable Tourism Development in Nature Reserves In Hungary. *GeoJournal of Tourism andGeosites*, 49(3), 893–900. https://doi.org/10.30892/gtg.49306-1090
Jácomo, L. (2018). Advertising-Cities Face to Smart-Cities: The Trends of Integration Policies for Information New Technologies in Madrid. *International Journal of E-Planning Research (IJEPR),* 7(3), 22-35. https://doi.org/10.4018/IJEPR.2018070102
Johnson, B.T., & Hennessy, E.A. (2019). Systematic reviews and meta-analyses in the health sciences: Best practice methods for research syntheses. *Social Science and Medicine*, 233, 237-251. https://doi.org/10.1016/j.socscimed.2019.05.035
Júnior, L.A.F., da Costa, W.P.L.B., de Almeida Guimarães, L.G., Pereira, G.R.B., & El-Aouar, W.A. (2020). Social participation in the definition of budgetary instruments. *Transforming Government: People, Process and Policy*, 14(5), 737-755. https://doi.org/10.1108/TG-12-2019-0118
Kankaala, K., Vehiläinen, M., Matilainen, P., & Välimäki, P. (2018). Smart city actions to support sustainable city development. *TECHNE-Journal of Technology for Architecture and Environment,* 1, 108-114. https://doi.org/10.13128/Techne-23569
Kim, C., & Kim, K.A. (2021). The institutional change from E-Government toward Smarter City; comparative analysis between royal borough of Greenwich, UK, and Seongdong-gu, South Korea. *Journal of Open Innovation: Technology, Market, and Complexity,* 7(1), 42. https://doi.org/10.3390/joitmc7010042
Kim, K., Jung, J.K., & Choi, J.Y. (2016). Impact of the smart city industry on the Korean national economy: Input-output analysis. *Sustainability*, 8(7), 649. https://doi.org/10.3390/su8070649
Kim, N., & Yang, S. (2021). Characteristics of Conceptually Related Smart Cities (CRSCs) Services from the Perspective of Sustainability. *Sustainability,* 13(6), 3334. https://doi.org/10.3390/su13063334
Kitchenham, B.A., & Charters, S.M. (2007). *Guidelines for performing systematic literature reviews in software engineering.* EBSE Technical Report
Komninos, N., Kakderi, C., Panori, A., & Tsarchopoulos, P. (2019). Smart city planning from an evolutionary perspective. *Routledge eBooks,* 26(2), 3-19. https://doi.org/10.1080/10630732.2018.1485368
Kozłowski, M., Czerepicki, A., Jaskowski, P., & Aniszewski, K. (2021). Analysis of the System of Controlling Paid Parking Zones. *Sustainability,* 13(8), 4211. https://doi.org/10.3390/su13084211
Kraus, S., Breier, M., & Dasi-Rodriguez, S. (2020). The Art of Crafting a Systematic Literature Review in Entrepreneurship Research. *International Entrepreneurship and Management Journal,* 16, 1023-1042. https://doi.org/10.1007/s11365-020-00635-4

Lee, J.H., Hancock, M.G., & Hu, M.C. (2014). Towards an effective framework for building smart cities: Lessons from Seoul and San Francisco. *Technological Forecasting and Social Change*, 89, 80-99. https://doi.org/10.1016/j.techfore.2013.08.033

Li, D., Shan, J., Shao, Z., Zhou, X., & Yao, Y. (2013). Geomatics for smart cities-concept, key techniques, and applications. *Geo-spatial Information Science,* 16(1), 13-24. https://doi.org/10.1080/10095020.2013.772803

Lim, S.B., Malek, J.A., Hussain, M.Y., & Tahir, Z. (2020). Participation in E-Government Services and Smart City Programs: A Case Study of Malaysian Local Authority. *Planning Malaysia Journal,* 18(3). https://doi.org/10.21837/pm.v18i13.794

Lin, C., Zhao, G., Yu, C., & Wu, Y.J. (2019). Smart city development and residents' well-being. *Sustainability,* 11(3), 676. https://doi.org/10.3390/su11030676

Linares-Espinós, E., Hernández, V., Domínguez-Escrig, J.L., Fernández-Pello, S., Hevia, V., Mayor, J., & Ribal, M.J. (2018). Methodology of a systematic review. *Actas Urológicas Españolas (English Edition)*, 42(8), 499-506. https://doi.org/10.1016/j.acuroe.2018.07.002

Liu, F., Shi, Y., & Chen, Z. (2021). Intelligence quotient test for smart cities in the United States. *Journal of Urban Planning and Development,* 147(1), 04020053. https://doi.org/10.1061/(ASCE)UP.1943-5444.0000637

Liu, W., Xu, Y., Fan, D., Li, Y., Shao, X.F., & Zheng, J. (2021). Alleviating corporate environmental pollution threats toward public health and safety: The role of smart city and artificial intelligence. *Safety Science,* 143, 105433. https://doi.org/10.1016/j.ssci.2021.105433

Lobo, C., Costa, R.A., & Chim-Miki, A.F. (2023). Events image from the host-city residents'
perceptions: impacts on the overall city image and visit recommend intention. *International Journal of Tourism Cities,* Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/IJTC-10-2022-0242

Löfgren, K., & Webster, C.W.R. (2020). The value of Big Data in government: The case of 'smart cities'. *Big Data & Society,* 7(1), 2053951720912775. https://doi.org/10.1177/2053951720912775

Lom, M., & Pribyl, O. (2021). Smart city model based on systems theory. *International Journal of Information Management,* 56, 102092. https://doi.org/10.1016/j.ijinfomgt.2020.102092

Lozynskyy, R., Hrymak, O., Kushnir, L., Terletska, O., & Vovk, M. (2021). City size and functional specialization as factors of smart management: A case of Lviv Oblast, Ukraine. *Problems and Perspectives in Management,* 19(2), 384-397. http://dx.doi.org/10.21511/ppm.19(2).2021.31

Macke, J., Casagrande, R.M., Sarate, J.A.R., & Silva, K.A. (2018). Smart city and quality of life: Citizens' perception in a Brazilian case study. *Journal of Cleaner Production,* 182, 717-726. https://doi.org/10.1016/j.jclepro.2018.02.078

Macke, J., Sarate, J.A.R., & de Atayde Moschen, S. (2019). Smart sustainable cities evaluation and sense of community. *Journal of Cleaner production,* 239, 118103. https://doi.org/10.1016/j.jclepro.2019.118103

Mak, H.W.L., & Lam, Y.F. (2021). Comparative assessments and insights of data openness of 50 smart cities in air quality aspects. *Sustainable Cities and Society,* 69, 102868. https://doi.org/10.1016/j.scs.2021.102868

Molinillo, S., Anaya-Sánchez, R., Morrison, A.M., & Coca-Stefaniak, J.A. (2019). Smart city communication via social media: Analysing residents' and visitors' engagement. *Cities,* 94, 247-255. https://doi.org/10.1016/j.cities.2019.06.003

Moustaka, V., Theodosiou, Z., Vakali, A., Kounoudes, A., & Anthopoulos, L.G. (2019). Enhancing social networking in smart cities: Privacy and security borderlines. *Technological Forecasting and Social Change,* 142, 285-300. https://doi.org/10.1016/j.techfore.2018.10.026

Murgante, B., Borruso, G., & Lapucci, A. (2011). Sustainable Development: concepts and methods for its application in urban and environmental planning. In: Murgante, B., Borruso, G., La-pucci, A. (eds.) *Geocomputation, Sustainability and Environmental Planning.* SCI, 348, 1–15. Springer, Heidelberg https://doi.org/10.1007/978-3-642-19733-8_1

Myeong, S., Jung, Y., & Lee, E. (2018). A study on determinant factors in smart city development: An analytic hierarchy process analysis. *Sustainability,* 10(8), 2606. https://doi.org/10.3390/su10082606

Naqvi, N., Rehman, S., & Islam, M. (2020). A hyperconnected smart city framework: Digital resources using enhanced pedagogical techniques. *Australasian Journal of Information Systems,* 19(1), 1-42. https://doi.org/10.3127/ajis.v24i0.2531

Neirotti, P., De Marco, A., Cagliano, A.C., Mangano, G., & Scorrano, F. (2014). Current trends in Smart City initiatives: Some stylised facts. *Cities,* 38, 25-36. https://doi.org/10.1016/j.cities.2013.12.010

Neumann, O., Matt, C., Hitz-Gamper, B.S., Schmidthuber, L., & Stürmer, M. (2019). Joining forces for public value creation? Exploring collaborative innovation in smart city initiatives. *Government Information Quarterly,* 36(4), 101411. https://doi.org/10.1016/j.giq.2019.101411

Nicolas, C., Kim, J., & Chi, S. (2021). Understanding the influences of urban-specific contexts for smart city development using structural equation modeling. *Journal of Urban Planning and Development,* 147(2). https://doi.org/10.1061/(ASCE)UP.1943-5444.0000670

Nilssen, M. (2019). To the smart city and beyond? Developing a typology of smart urban innovation. *Technological Forecasting and Social Change,* 142, 98-104. https://doi.org/10.1016/j.techfore.2018.07.060

Okoli, C. (2015). A guide to conducting a standalone systematic literature review. *Communications of the Association for Information Systems,* 37, 879-910. https://hal.science/hal-01574600/

Ooms, W., Caniëls, M.C., Roijakkers, N., & Cobben, D. (2020). Ecosystems for smart cities: tracing the evolution of governance structures in a dutch smart city initiative. *International Entrepreneurship and Management Journal,* 16(4), 1225-1258. https://doi.org/10.1007/s11365-020-00640-7

Park, E., Del Pobil, A.P., & Kwon, S.J. (2018). The role of Internet of Things (IoT) in smart cities: Technology roadmap-oriented approaches. *Sustainability,* 10(5), 1388. https://doi.org/10.3390/su10051388

Parr, J.B. (2007). Spatial Definitions of the City: Four Perspectives. *Urban Studies*, *44*(2),
381–392. http://www.jstor.org/stable/43084455

Perveen, S., Yigitcanlar, T., Kamruzzaman, M., & Agdas, D. (2020). How can transport impacts of urban growth be modelled? An approach to consider spatial and temporal scales. *Sustainable Cities and Society, 55,* [102031]. https://doi.org/10.1016/j.scs.2020.102031

Pooja, G., Sundar, R., Harshini, R., Arjuna, S., & Ram Kumar, C. (2022). Recent Trends and Challenges in Smart Cities. *EAI Endorsed Trans Smart Cities*, 6(3), p. e4. https://doi.org/10.4108/eetsc.v6i3.2273

PRISMA. (2020). Prisma. http://www.prisma-statement.org/PRISMAStatement/

Razmjoo, A., Nezhad, M.M., Kaigutha, L.G., Marzband, M., Mirjalili, S., Pazhoohesh, M., & Piras, G. (2021). Investigating smart city development based on green buildings, electrical vehicles and feasible indicators. *Sustainability,* 13(14), 7808. https://doi.org/10.3390/su13147808

Roche, S., Nabian, N., Kloeckl, K., & Ratti, C. (2012). Are 'Smart Cities' Smart Enough? In: Global Geospatial Conference 2012. Global Spatial Data Infrastructure Association. Available online: https://gisandscience.com/2012/05/17/are-smart-cities-smart-enough/

Ruohomaa, H, Salminen, V., & Kunttu, I. (2019). Towards a Smart City Concept in Small Cities. *Technology Innovation Management Review*, 9(9): 5-14.. http://doi.org/10.22215/timreview/1264

Sarki, Z., & Saad, G.A.M. (2018). Preparedness and Challenges of Police in Using Forensic Science: A Review of Some Related Literature. *Journal of Social Sciences and Humanities,* 2, 14-24. ESTEEM *Journal of Social Sciences and Humanities*, 2, 14-24e-ISSN 2600-2774

Sedova, A., & Balakina, A. (2020). Reinventing cities towards being smarter. In *IOP Conference Series: Materials Science and Engineering*, 869. https://doi.org/ 10.1088/1757-899X/869/2/022023

Sepasgozar, S.M., Hawken, S., Sargolzaei, S., & Foroozanfa, M. (2019). Implementing citizen centric technology in developing smart cities: A model for predicting the acceptance of urban technologies. *Technological Forecasting and Social Change,* 142, 105-116. https://doi.org/10.1016/j.techfore.2018.09.012

Silva, B.N., Khan, M., & Han, K. (2018). Towards sustainable smart cities: A review of trends, architectures, components, and open challenges in smart cities. *Sustainable Cities and Society,* 38, 697–713. https://doi.org/10.1016/j.scs.2018.01.053

Simonofski, A., Vallé, T., Serral, E., & Wautelet, Y. (2021). Investigating context factors in citizen participation strategies: A comparative analysis of Swedish and Belgian smart cities. *International Journal of Information Management,* 56, 102011. https://doi.org/10.1016/j.ijinfomgt.2019.09.007

Suresh, S., Renukappa, S., Abdul-Aziz, A.R., Paloo, Y., & Jallow, H. (2020). Developments in the UK road transport from a Smart Cities perspective. *Engineering, Construction and Architectural Management,* 28(4), 845-862. https://doi.org/10.1108/ECAM-12-2019-0687

Szarek-Iwaniuk, P., & Senetra, A. (2020). Access to ICT in Poland and the co-creation of urban space in the process of modern social participation in a smart city—A Case Study. *Sustainability,* 12(5), 2136. https://doi.org/10.3390/su12052136

Tahir, Z., & Malek, J.A. (2016). Main criteria in the development of smart cities determined using analytical method. *Planning Malaysia,* 14(5). https://doi.org/10.21837/pm.v14i5.179

Talari, S., Shafie-khah, M., Siano, P., Loia, V., Tommasetti, A., & Catalão, J.P. (2017). A Review of Smart Cities Based on the Internet of Things Concept. *Energies, 10,* 421. https://doi.org/10.3390/en10040421

Tariq, M.A.U.R., Faumatu, A., Hussein, M., Shahid, M.L.U.R., & Muttil, N. (2020). Smart city-ranking of major Australian cities to achieve a smarter future. *Sustainability,* 12(7), 2797. https://doi.org/10.3390/su12072797

Thorpe, R., Holt, R., Macpherson, A., & Pittaway, L. (2005). Using knowledge within small and medium-sized firms: a systematic review of the evidence. *International Journal of Management Reviews,* 7(4), 257-281. https://doi.org/10.1111/j.1468-2370.2005.00116.x

United Nations. (2018). World Urbanization Prospects: The 2018 Revision. Available online: https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2020/Jan/un_2018_worldcities_databooklet.pdf

United Nations. (2015). Transforming Our World: The 2030 Agenda for Sustainable Development. https://sdgs.un.org/publications/transforming-our-world-2030-agenda-sustainable-development-17981

United Nations. (2014). World Urbanization Prospects: The 2014 Revision. Available online: https://www.un.org/en/development/desa/publications/2014-revision-world-urbanization-prospects.html

Vitunskaite, M., He, Y., Brandstetter, T., & Janicke, H. (2019). Smart cities and cyber security: Are we there yet? A comparative study on the role of standards, third party risk management and security ownership. *Computers & Security,* 83, 313-331. https://doi.org/10.1016/j.cose.2019.02.009

White, G., Zink, A., Codecá, L., & Clarke, S. (2021). A digital twin smart city for citizen feedback. *Cities,* 110, 103064. https://doi.org/10.1016/j.cities.2020.103064

Winkowska, J., Szpilko, D., & Pejić, S. (2019). Smart City Concept in The Light of The Literature Review. *Engineering Management in Production and Services,* 11(2), 70-86. https://doi.org/10.2478/emj-2019-0012

Yigitcanlar, T., Kamruzzaman, M., Buys, L., Ioppolo, G., Sabatini-Marques, J., Costa, E., & Yun, J. (2018). Understanding 'smart cities': Intertwining development drivers with desired outcomes in a multidimensional framework. *Cities*, 81, 145-160. https://doi.org/10.1016/j.cities.2018.04.003

Yin, C., Xiong, Z., Chen, H., Wang, J., Cooper, D., & David, B. (2015). A literature survey on smart cities. *Science China Information Sciences,* 58(10), 1-8. https://doi.org/10.1007/s11432-015-5397-4

Zawieska, J., & Pieriegud, J. (2018). Smart city as a tool for sustainable mobility and transport decarbonisation. *Transport Policy,* 63, 39-50. https://doi.org/10.1016/j.tranpol.2017.11.004

Zhou, Q., Zhu, M., Qiao, Y., Zhang, X., & Chen, J. (2021). Achieving resilience through smart cities? Evidence from China. *Habitat International,* 111, 102348. https://doi.org/10.1016/j.habitatint.2021.102348

Article history: Received: 14.08.2023 Revised: 09.10.2023 Accepted: 07.11.2023 Available online: 11.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1483-1493
DOI 10.30892/gtg.50428-1146

INFLUENCES OF FINANCIAL COMPENSATIONS AND ROLE STRESS ON TOURISM EMPLOYEES' JOB SATISFACTION: EVIDENCES FROM SAUDI ARABIA

Abu Elnasr E. SOBAIH*
Management Department, College of Business Administration, King Faisal University, Al-Ahsaa, Saudi Arabia; Hotel Management Department, Faculty of Tourism and Hotel Management, Helwan University, Cairo, Egypt, e-mail: asobaih@kfu.edu.sa

Abdulaziz ALOMRAN
Management Department, College of Business Administration,
King Faisal University, Al-Ahsaa, Saudi Arabia, e-mail: 222453577@student.kfu.edu.sa

Salaah Eddin JOUBRAN
Education, Training, Consultancy Services, Cardiff, UK, e-mail: info@et-cs.uk

Citation: Sobaih, A.E.E., Alomran A., & Joubran, S.E. (2023). INFLUENCES OF FINANCIAL COMPENSATIONS AND ROLE STRESS ON TOURISM EMPLOYEES' JOB SATISFACTION: EVIDENCES FROM SAUDI ARABIA. *GeoJournal of Tourism and Geosites*, 50(4), 1483–1493. https://doi.org/10.30892/gtg.50428-1146

Abstract: This study examines the influences of financial compensations (whether direct or indirect) and role stress on tourism employees' job satisfaction in the Kingdom of Saudi Arabia (KSA). This is because job satisfaction has become a major concern for service organisations, which rely on employees for fulfilling their business goals. To achieve this purpose, a pre-tested questionnaire survey has been self-distributed to a sample of tourism employees in KSA. The results of statistical data analysis showed a positive relationship between financial compensations and job satisfaction. Both direct and indirect financial compensations have positive influences on job satisfaction of tourism employees. Unlike the results of most pervious research studies, the results showed that role stress has a significant positive influence on job satisfaction of tourism employees. The results of follow up interviews with a sample of respondents showed that most respondents were expatriates or foreign employees, who had expectations of high role stress before they undertake their tourism job role outside their country. They found the level of role stress generate their creativity and make a differentiation for them among other tourism employees. This leads employees to prove their ability at work hence, employee seeks to accomplish many tasks at the same time in order to get an attention of their managers/employers and ensure that they win the job for the next year by renewing their contract. Thus, such employees get thanks and appreciation by the manager/employer and is reflected in their job satisfaction. The study confirmed positive significant influence of both types of financial compensation and role stress on job satisfaction. It concludes that condition of employment should have special consideration when examining factors affecting employees' attitudes, i.e. job satisfaction

Key words: financial compensation, direct financial compensation, indirect financial compensation, role stress, tourism workers, condition of employment

* * * * * *

INTRODUCTION

Employees demonstrate positive attitudes and behaviour when they are satisfied with their job (Millan et al., 2013). Different factors are associated with the satisfaction of an employee from his/her job, which are the motivation to do well, the appreciation from management, good payment, and appropriate working environment (Sobaih et al., 2019; Heimerl et al., 2020). The current study is focusing on two main factors, which can either increase or decrease the job satisfaction of an employee. These are the compensations provided to an employee. Since there might be a big difference between what workers are expecting and what they will receive, the study would provide the most suitable options for an employer through which the employer can enhance the level of job satisfaction for the workers (Saban et al., 2020). In this matter, it is evident that the good salary and the most feasible and agile workplace with high safety are the main concerns of any employee in any private sector of the Kingdom of Saudi Arabia (KSA) (Bello and Alhyasat, 2020). Whenever employees are satisfied with their employment, they are inspired to put more effort in their work and a company's core efficiency improves as a result.

Today's business environment is characterized by variety, difficulties, and unpredictability, investing in people is seen as one of the most effective strategies to fulfil business mission and goals. In many cases, employees could serve as the competitive advantage (Bonner et al., 2023). In service industry such as tourism, employee play a critical part in the success of the business and compensations influence how well employees perform (Albataineh, 2017). The connection between an employee and an employer is said to be centered on compensation (Gerhart et al., 1995). While employees seek the best compensation packages, organizations seek to cut costs wherever possible. However, it is important for organizations to ensure that employee expectations are met and that employees have positive job outcomes (Sobaih et al., 2019). There are various definitions of pay in business, but the most straightforward one is what an employer provides to recruit, inspire, and retain talent people (Gomez-Mejia et al., 2004). It is what the employee receives in exchange for

* Corresponding author

signing a contract with the employer in terms of monetary compensation. Job role stress is regarded as one of the tactics and ways of organizational transformation and job growth. It is one of the contemporary administrative practices that enables a huge workforce to do several structured tasks, whether on the technical and administrative sides or in management, leadership or supervision (Sobaih et al., 2023). Role stress is described as someone who works at various responsibilities or in various situations for predetermined amounts of time in order to increase the workload on employees and enable them to develop a wider range of knowledge, skills, and competencies (Jerez Gómez et al., 2004). Today, having a flexible, skilled, well-trained, and multi-skilled workforce is something that every business and organization aspires to. Such personnel can efficiently manage the task, speed up the work process, and cut back on time and resources used for operations. Any organization's human resources are its most important resource. The most critical elements in determining an organization's success are its people resources, both in terms of quality and capacity (Sobaih et al., 2023).

Job satisfaction is a crucial component of business success (Bonner et al., 2023). Pleased employees are more dedicated to their work, and vice versa, a dissatisfied employee can seriously affect business performance and profitability (Pan, 2015; Sobaih et al., 2019). According to Budhwar and Debrah (2009), job satisfaction is a key determinant of how employees feel about their jobs and used to forecast employee behavior at work, such as turnover and absenteeism. The association between job satisfaction and other important factors, such as employee development, leadership and management, working activity, working atmosphere and working hours, has been thoroughly analyzed and searched (Heimerl et al., 2020; Sobaih, 2015, 2018). Nonetheless, the antecedents such as compensation and role stress are associated with job satisfaction have not yet been appropriately studied in tourism industry in countries such as KSA and require further investigation. As a result, this study critically examines the relationship between financial compensations (which are direct and indirect financial compensations) as well as role stress on tourism employee job satisfaction.

The tourism industry has a humble reputation as an employer, especially in relation to working environment including poor salaries and job stress (Sobaih, 2015). Workers face a major problem of role stress (Ali and Farooqi, 2014), which could affect their performance and job satisfaction (Shah et al., 2011). Some scholars (e.g. Kim et al., 2009) argue that role stress (role conflict/ambiguity) has a significant influence on job satisfaction for certain types of workers than for other types of workers. Moreover, workers in the Saudi tourism industry are often paid less compared to that governmental and public job (Sobaih, 2023). However, the Saudi tourism industry is dominated by forging workers as it is still has a poor image for career by Saudis (Sobaih, 2023, Sobaih and Elnasr, 2023). Hence, creating job satisfaction for tourism employees is a challenge for employers in the Saudi tourism industry, especially for the new Saudi workers. In order to better understand how workers in the Saudi tourism industry are encouraged to attain job satisfaction and raise performance level, more in-depth study are needed to address this issue. However, as highlighted earlier employees are the most important component of a business since job satisfaction is essential to its success as well as achieving competitive advantages

THE CONCEPTUAL FRAMEWORK

Abraham Maslow's Hierarchy of Needs 1954 theory asserts that everybody have their own fundamental wants that must be addressed (Maslow, 1954). When self-perfection is attained, these fundamental requirements become factors in determining whether or not a person is satisfied. According to Compton (2023), failing to address basic human requirements will disrupt a person's spirit and prevent them from finding fulfillment in their growth, careers, or work. The physiological requirements, security needs, love needs, self-esteem needs, and level of self-perfection are considered to be among the fundamental needs (Maslow, 1954). According to Bin Nordin et al. (2020), the right to feel secure and well-being extends to one's right to feel safe in one's own body, in one's family, on one's property, and even at work. According to Akgunduz et al. (2023), achieving job satisfaction will be possible after meeting such needs. In agreement with this assertion, employee work satisfaction will be attained if they are able to meet all of the mentioned criteria, including receiving a sufficient income, feeling accepted, having their labor needs equitably distributed by managers, and being properly rewarded for their efforts. Maslow's hypotheses has had a significant impact on research in the area of human development (Compton, 2023). The criteria outlined in this theory are quite helpful in assessing employees' subjective job satisfaction. Fanning and Hickel (2023) asserted that employees can achieve success if they are treated fairly in terms of the assignment of duties and are recognized for their hard work. While Akgunduz et al. (2023) claimed that workers can work happily when something is valued when done successfully.

This study is aimed at identifying different types of features, which are relating to financial compensation and role stress, which are offered, by the Saudi tourism industry to its employees and how it influence the job satisfaction. In addition, this research is focused on understanding how features of financial compensation and role stress that might affect job satisfaction of employees at the Saudi tourism industry. The research covers two types of financial compensation which are direct monetary compensation and indirect monetary compensation. It also covers the impact of role stress on job satisfaction. Finally, this study seeks to understand how employee of tourism industry will be affected by financial compensation, role stress and how the job satisfaction will be affected by these kinds of variables.

Compensation play an important role in determining performance in important tasks and are positively associated with job satisfaction (Gerhart et al., 1995). Yaseen (2013) found that providing good compensation systems, such as valid salaries, evaluations, opportunities for promotion, and meaningful work, increase job satisfaction. The compensation system that an organization provides to its employees plays a vital role in determining employee job satisfaction and retention. One-way employers can retain their workforce is by offering superior compensation packages (Anwar and Qadir, 2017). The fundamental goal of any recognition and reward program is to define a payment system and communicate it to employees, hence, they link rewards employee job satisfaction and performance (Gerhart et al., 1995). Financial compensation for workers is typically understood to be the pay they will receive in exchange for their efforts (Bessette, 2014). There are various definitions of pay in business, but the simplest explanation is it provided by the business owner or managers to keep, and inspire their workers (Gomez-Mejia et al., 2004). It refers to what workers get in terms of monetary tangible advantages and returns as a part of his or her contract with the organisation (Bernadin and Russel, 1993). Furthermore, pay was described by Kim et al. (2013) is a methodical technique to calculating the value of an employee's contribution to the firm. According to Sopiah (2013), giving remuneration to workers is crucial because management uses it as a tool to enhance output, inspire staff, and boost job satisfaction. According to Sopiah (2013), "financial compensation is highly significant for the workers because with it, the organization may directly meet the workers' demands, particularly the needs of physiology". However, the employees must also expect that they will be compensated in line with the sacrifices made in the form of non-financial benefits that are very crucial for the employees, particularly in terms of their career growth.

Compensation is what workers receive in exchange of their effort at the job (Sudiarditha et al., 2019), whether periodic salaries or hourly wages. Financial compensation is everything an employee receives in return for their work for a firm, often in the form of direct monetary compensation and indirect monetary compensation Compensations has two categories: direct compensation, e.g. salary and indirect compensation, e.g. fringe benefits (McNamara, 2006). The two main types of compensation were also agreed by Gomez-Mejia et al. (2004), who showed that base pay is similar to direct financial compensation, while fringe benefits similar to indirect financial compensation. This classification is similar to Odunlade's (2012) classification cash compensation and fringe compensation. Financial compensations are valued and flexible based on an employee's performance, talent, seniority, and other factors (Gupta and Shaw, 2014). According to Bernadin and Russel (1993), base pay or direct monetary compensation is the money an employee receives in exchange for his work and effort. It consists primarily of salary, wages, commissions and bonuses, overtime pay, and additional benefits like stock options and share appreciation. Fringe benefits or indirect monetary compensation includes a retirement plan, health insurance, educational evaluation, childcare, travel/meals coupons, and others of this nature (Cascio, 1992). The key principle of compensations is the principle of fairness, which refers to the amount of compensation paid to employees must be balanced with how well the job performed, job characteristics, job risks, responsibilities and job position (Sudiarditha et al., 2019). If an employee believes they are being paid unfairly, he or she becomes dissatisfied (Heimerl et al., 2020). Based on this, the following hypothesis (H) are suggested:

H1: Direct financial compensation has a significant positive influence on job satisfaction of tourism employees.

H2: Indirect financial compensation has a significant positive influence on job satisfaction of tourism employees.

The association between job satisfaction and role stress has been negatively described in earlier studies. Higher stages of role stress are associated with lower job satisfaction. It was confirmed that role stress is significantly and negatively related to job satisfaction (Woods et al., 2023). Previous studies have shown that role stress and job stress is strongly negatively correlated with job satisfaction (Dodanwala et al., 2022). A study that observed the same relationship in the hospitality industry found that the job stressor, especially interpersonal strain, was significantly negatively correlated with job satisfaction (Antonova, 2016). Role stress defines everything about organizational roles that have negative consequences for individuals (Budhwar and Debrah, 2009). Role stress has two dimensions: role ambiguity and role conflict (Ho et al., 2009). Role conflict refers to a kind of role requirement that arises when an individual's workplace has constraints for two or more of her roles, making it difficult for her to fulfill one role in another (Jawahar et al., 2007). Role ambiguity, nevertheless, refers to roles that lack evidence about their duties, rights, powers, and role performance (Bashir and Ramay, 2010). Behaviours such as intention to quit is connected to role stress. It could be concluded that employees experiencing role ambiguity and role conflicts lead to undesirable situations within organizations. Role theory predicts that more roles lead to employee stress when conflict or ambiguity is present (Grandey and Cropanzano, 1999). Drawn on this, the following H are suggested:

H3: Role stress has a significant negative influence on job satisfaction of tourism employees.

METHODS

The study used a questionnaire survey to examine the research hypotheses. This tool helps researchers to understand of practices, attitudes, or opinions of a respondents (Creswell, 2003). The questionnaire had three main parts. The first part is the demographics of the participants while the second part deal with the respective variables of the research: direct and indirect compensation, role stress and job satisfaction. All questions for the variables are close-ended questions that would be answered by respondents according to their personal experience of their job. Likert scale of five points was adopted for data collection in section two to five. Questions in sections two to five were drawn from previous research studies. Job satisfaction was examined with six items developed by Meyer et al., (2002). An example of these items is "When I get up in the morning, I feel like going to work.". Direct financial compensation was examined with seven items developed by Al-Nsour (2012). An example of these items is "My organization provides enough payment to meet the requirements of life". Indirect financial compensation was examined with nine items developed by Al-Nsour (2012). An example of these items "The organization ensures appropriate social security and health insurance for employees". Role stress was assessed with nine items (five items for role overload and four for role conflict). An example of role overload is "I often have to do more work than I can handle". An example of role conflict is "I often have to bend rules or policy in order to carry out an assignment". Full questionnaire items are shown in Appendix A. Part 3 provided a space for respondents to provide any comment related to the influences of financial compensation and role stress on their job satisfaction.

The questionnaire was designed in a way that would make it interesting and simple for respondents to understand. Additionally, the questionnaire was carefully designed to collect only relevant information and included questions that were essential for achieving the study's objectives. It was created for a specific audience and was written in both Arabic and English. The language was double-checked by two bilingual experts. The questionnaire was designed in an anonymous way, and all answers were confidential. That helped respondents maintain their anonymity and prevent personal identification. In the first section of the questionnaire, there were multiple-choice questions about demographic factors. In the second section of the questionnaire, Likert scale questions were used to gauge the respondents' motivation, behavior, attitudes, and opinions. Respondents were accessed after the approval of their management. The questionnaire was piloted with 16 university professor to maintain it accuracy and validity. They were notified that the collected data for study purposes and their managers have no access to their responses to tackle any power bias. Data were collected for two months: June to July 2023. A summary of the steps adopted in this study is presented in Figure 1.

1. Sampling

The size of the sample is the number of the units chosen from the population. Sample is selected from certain populations because it is not easily for the researcher to cover the whole populations or people within a certain institution (Saunders et al., 2023). The population of this study are the tourism workers in KSA. This include any workers in hotels, restaurants, travel agencies and leisure centers. According to the new published figures by the General Authority of Statistics in KSA, the number of workers in tourism-related activities are 767.819.00 workers and the percentage of Saudis is 26.8%. The total number of distributed forms were 600 forms targeting about 400 responses. There were 448 respondents participated in this survey with complete responses for analysis. The response rate was about 75%. This sample size is appropriate according to previous research suggestions (Krejcie and Morgan, 1970).

Step 1: Setting the aim or the study and undertaking a literature review on the financial compensation and role stress and their relationship with job satisfaction of tourism employees

Step 2: Phase 1 of data collection: undertake a quantitative approach through a pre-tested questionnaire survey

Step 3: a Pilot study of the questionnaire; To check the face and content validity, it reviewed by 16 professors

Step 4: Selection of the research sample; Total number of 448 tourism employees participated in the first phase of data collection

Step 5: Questionnaire distribution and collection; A consent was obtained from all participants in the study

Step 6: Checking the quality collected data; Considering completed forms and data reliability with $\alpha > 0.7$

Step 7: Data analysis; SPSS was used, frequencies for demographics, descriptive analysis, correlation and regression analysis

Step 8: Phase 2 of the study: Follow up Interviews; 18 interviews were conducted to probe the results of the questionnaire

Step 9: Phase 2 of the study: Analysis of the Interviews and presentation of key findings
The interpretation of interviews was conducted and key findings were presented

Figure 1. A summary of the steps undertaken for this research data collection and analysis

2. Data analysis

The data gathered through questionnaires were analyzed using a computer software for data analysis “IBM SPSS Statistics version 29”. The results were analyzed with tables and graphs that were created to show the distinct frequencies of the various elements. Four stages of statistical analysis were applied in this research. The first stage includes an analysis of the sample demographics using frequencies and percentages. In the second stage was checking the reliability of the instrument using Cronbach's Alpha coefficient, and Split-half method (see Table 1). The third stage was to figure out variables correlations to each other after checking the data normality. Moreover, the final stage was to apply stepwise multiple regression.

Table 1. Coefficients of Cronbach's Alpha and Split-half of Questionnaire

Dimensions	Number of items	Cronbach's Alpha coefficient	Split-half Reliability	
			Two parts correlation coefficient	Split-half reliability coefficient
Job satisfaction	6	.88	.762	.86
Direct financial compensation	7	.83	.708	.81
Indirect financial compensation	9	.85	.599	.74
Role stress	9	.86	.546	.69

3. Follow up interviews

The findings of the analyzed survey informed the interviews with a sample of employees, who responded to the questionnaire. The purpose of the interviews were to gain more insights about the findings, particularly the influence of role stress on jobs satisfaction since unexpected result was revealed in this aspect from the questionnaire analysis.

A sample of the questionnaire respondents were invited to participate in face-to-face interviews to give more thoughts about the influences of financial compensations and role stress on their job satisfaction. Interviews were conducted after the consent of participants at their convenient times. Themes discussed with interviewees included the effect of direct and indirect financial compensation and role stress their job satisfaction. There were 18 interviews conducted. All interviewees were foreign workers. The average of each interview was about 30 minutes. All interviews were recorded after the consent of interviewees. There were no personal information collected to protect the privacy of participants. Thematic analysis was conducted of the collected data from interviews.

FINDINGS

1. Respondents' charachteristics

The total number of respondents was 448. Of them, 324 (72.3%) were male and 124 (27.7%) were female (Table 2). Regarding the age of respondents, four categories, ranging in age from 18 to 60 years, have been identified. According to the results, 36 respondents (8.0%) are belonging to the age category 18 to 30 years. In addition, 380 respondents (84.8%) are belonging to the age group 31 to 40 years old. Moreover, 20 respondents (4.5%) fall under the age category 41 to 50 years. Finally, 12 respondents (2.7%) are from the age group of 51 to 60 years old.

With regard to the position of respondents, 83.9% of them are employees. Additionally, 6.3% are supervisors and 9.8% are the having the manager level jobs. The vast majority of respondents (93%) were non-Saudis and only 7 % are Saudis reflecting the dominance of foreigners in this sample and in the Saudi tourism industry (Sobaih 2023). Regarding the number of working hours, 412 respondents (92%) work 51 to 60 hours per week, which represents the vast majority; 24 (5.4%) work more than 60 hours of work each week and 12 (2.7%) of respondents work 51 to 60 hours per week.

Table 2. Characteristics' Respondents

Variables	n=448	
	Frequency	**Percentage %**
Gender:		
Male	324	72.3%
Female	124	27.7%
Age:		
18-30 years	36	8.0%
31-40 years	380	84.8%
41-50 years	20	4.5%
51-60 years	12	2.7%
Nationality		
Saudis	45	7%
Non-Saudis	416	93%
Job title:		
Employee	376	83.9%
Supervisor	28	6.3%
Line Manager	44	9.8%
Weekly working hours:		
40 to 50 Hours	12	2.7%
51 to 60 Hours	412	92.0%
Over 60 Hours	24	5.4%

Table 3. Descriptive results

Items	**Min**	**Max**	**M**	**SD**
Job Satisfaction	**1.38**	**5.00**	**3.67**	**0.83**
JS1	1.00	5.00	3.34	1.06
JS2	2.00	5.00	3.79	0.99
JS3	1.00	5.00	3.66	1.07
JS4	1.00	5.00	3.60	1.12
JS5	1.00	5.00	3.97	1.03
JS6	1.00	5.00	3.66	0.99
Direct Financial Compensation	**1.00**	**5.00**	**2.98**	**0.79**
DFC1	1.00	5.00	3.21	1.15
DFC2	1.00	5.00	2.46	1.06
DFC3	1.00	5.00	2.42	0.98
DFC4	1.00	5.00	3.57	1.30
DFC5	1.00	5.00	3.47	1.22
DFC6	1.00	5.00	3.44	1.07
DFC7	1.00	5.00	2.27	1.10
Indirect Financial Compensation	**1.78**	**5.00**	**3.38**	**0.79**
IFC1	1.00	5.00	3.96	1.09
IFC2	1.00	5.00	3.02	1.13
IFC3	1.00	5.00	3.58	1.29
IFC4	2.00	5.00	4.12	0.95
IFC5	1.00	5.00	3.78	1.32
IFC6	1.00	5.00	3.46	0.96
IFC7	1.00	5.00	2.68	1.15
IFC8	1.00	5.00	2.90	1.29
IFC9	1.00	5.00	2.92	1.29
Role Stress	**1.00**	**4.89**	**3.21**	**0.76**
RS1	1.00	5.00	3.59	1.11
RS2	1.00	5.00	3.28	1.06
RS3	1.00	5.00	3.15	1.22
RS4	1.00	5.00	3.37	1.08
RS5	1.00	5.00	2.72	1.03
RS6	1.00	5.00	3.11	0.93
RS7	1.00	5.00	3.37	1.10
RS8	1.00	5.00	3.25	1.19
RS9	1.00	5.00	3.06	1.14

2. Despcirptive results

According to Table 3, the results indicated the first dimension (job satisfaction) had a minimum response value of 1.38, and a maximum response value of 5.00. The highest average was awarded to the fifth item (I am satisfied with what I achieve at work) with means 3.97 and standard deviation 1.03. The weighted average of the first dimension's items was 3.67 (total degree is out of 5) and standard deviation 0.83, which indicate that the study sample responses for this dimension came with a degree of (agree) as a general trend according to 5-point Likert scale since its lie in the interval (3.40 – 4.19) which consider high level .With regard to the second dimension (direct financial compensation) had a min answer of 1.00, and a maxi answer of 5.00. "The organization provides overtime payment to employees after working hours" has the highest mean cores 3.57 and standard deviation 1.30. The weighted average of the second dimension's items was 2.98 (total degree is out of 5) and standard deviation 0.79, which indicate that the study sample responses for this dimension came with a degree of (Neutral) which consider medium level. The third dimension (indirect financial compensation) had a min answer of 1.78, and a max answer of 5.00. "The organization gives smooth annual leave for employees in accordance with rules and regulations" has the highest mean score 4.12 and standard deviation 0.95.

The weighted average of the third dimension's items was 3.38 (total degree is out of 5) and standard deviation 0.79, which indicate that the study sample responses for this dimension came with a degree of (Neutral) which consider medium level. Regarding the fourth dimension (role stress) had a mini answer of 1.00, and a max answer of 4.89. "I often have to do more work than I can handle" has the highest mean score 3.59 and standard deviation 1.11. The weighted average of the fourth dimension's items was 3.21 (total degree is out of 5) and standard deviation 0.76, which indicate that the study sample responses for this dimension came with a degree of (Neutral) which consider medium level.

3. Examining the research hypotheses

To ensure that all variables have a normal multivariate, a histogram and a P-P-Plot were used to test the assumption of normality. The relationship between the regression-standardized residual and the frequency of the dependent variable is depicted in Figure 2. The data line has a good symmetrical shape, which means the data is normal.

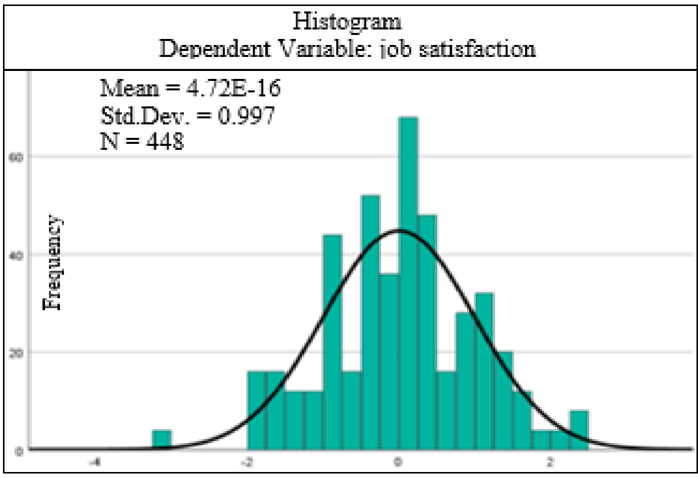


Figure 2. Regression Standarized Residual - Histogram Plot

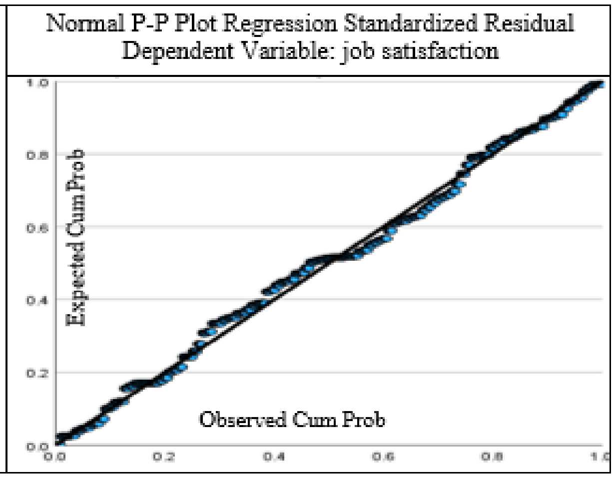


Figure 3. Regression Standarized Residual- Normal P-P Plot

The following P-P plot of the regression-standardized residual, shown in Figure 3, explains the observed cumulus prob versus the expected cumulus prob. It could be seen that all the dots fit along the regression line, which means that our data is normally distributed. The ANOVA test is used to determine if the overall model is significant or not. According to the data presented in Table 4, The results of the ANOVA test shows that the model is valid for predicting the job satisfaction of tourism employees in KSA through the variables of (direct financial compensation, indirect financial compensation, role stress), as the (F) values are statistically significant at the significance level of ($\alpha \leq .01$).

Table 4. Multiple Regression Test- ANOVA Test

Model	Sources of Variation	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	161.387	1	161.387	493.593	<.001
	Residual	145.826	446	.327		
	Total	307.213	447			
2	Regression	165.981	2	82.990	261.489	<.001
	Residual	141.233	445	.317		
	Total	307.213	447			
3	Regression	168.345	3	56.115	179.414	<.001
	Residual	138.869	444	.313		
	Total	307.213	447			

The results of Table 5 indicate that the variables of (indirect financial compensation, role stress, direct financial compensation) explain (54.8%) of the variance in (job satisfaction). Accordingly, it turns out that it is possible to predict the job satisfaction of the employees in the Saudi Arabia's private sector through the variables of (direct monetary compensation, indirect monetary compensation, role stress). According to the aforementioned table, it could be noted that the percentages of the contribution of the independent variables included in the multiple regression equation are arranged according to their importance and their strength of impact is as follows.

The variable of indirect financial compensation has more contribution in the job satisfaction, as it explains (52.5%) of the total variance percentage. The variable of role stress is added in the second step, raising the explained variance percentage to (54%). The variable of direct financial compensation is added in the third step, contributing with the two variables of (indirect financial compensation and role stress) in raising the explained variance percentage to (54.8%).

Table 5. Multiple Regression Test- Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.725	.525	.524	.57181
2	.735	.540	.538	.56336
3	.740	.548	.545	.55926

It turns out of the findings of Table 6 that the statistically significant gradual contribution of the variables that have an impact on job satisfaction is as follows. The variable of indirect monetary compensation has the highest contribution percentage (52.5%). It is followed by the variable of role stress with a percentage of (1.5%). Finally, the variable of direct monetary compensation has a percentage of (0.8%). Table 7 presents the correlation between variables. The association between the dependent variable and each of the independent variables are shown in the table below.

Table 6. Percentage of Contribution of Variables in Job Satisfaction Prediction

Variables	R Square	Explained Variance Percentage %	Variable Contribution	Variable Contribution Percentage %
indirect financial compensation	.525	52.5%	.525	52.5%
role stress	.540	54%	.015	1.5%
direct financial compensation	.548	54.8%	.008	0.8%

Table 7. Correlation between variables

Variables	job satisfaction	direct financial compensation	indirect financial compensation	role stress
job satisfaction	1.000			
direct monetary compensation	.611**	1.000		
indirect monetary compensation	.725**	.731**	1.000	
role stress	.280**	.355**	.222**	1.000

Table 7 shows that direct financial compensation has a positive relationship on employee job satisfaction; on the other side, indirect financial compensation has a positive impact on employee job satisfaction. While role stress has a weak positive relationship with employee job satisfaction. The first hypothesis (H1) assumes that job satisfaction is positively affected by the direct financial compensation. According to the results presented in Table 7, it can be seen that the direct financial compensation significantly predicts job satisfaction (T = 2.749, P =.006, β = 0.134). Since it significantly predicts the job satisfaction, the unstandardized coefficients (B) will determine exactly how the direct financial compensation impacts Employee job satisfaction; in this case, the value of (B) is positive and equal to (0.140). That means as the independent variable increases by 1.00 unit, the dependent variable increases by 0.140 unit. Thus, it can be said that when the direct financial compensation increases employee job satisfaction will increase (Table 8).

Table 8. Multiple Regression Results; Dependent Variable: job satisfaction

Independent variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.775	.146	-	5.310	<.001
indirect financial compensation	.632	.049	.605	12.911	<.001
role stress	.107	.037	.098	2.873	.004
direct financial compensation	.140	.051	.134	2.749	.006

The second hypothesis (H2) assumes that job satisfaction is positively affected by the indirect financial compensation. According to the results presented in Table 8 it can be seen that the indirect financial compensation significantly predicts job satisfaction (T = 12.911, P = <.001, β = 0.605). Since it significantly predicts job satisfaction, the unstandardized coefficients (B) will determine exactly how the indirect financial compensation impacts job satisfaction; in this case, the value of (B) is positive and equal to (0.632). That means as the independent variable increases by 1.00 unit, the dependent variable increases by 0.632 unit. Hence, it can be said that when the indirect financial compensation increases job satisfaction will increase.

The third hypothesis (H3) assumes that job satisfaction is negatively affected by the role stress. According to the results presented in Table 7, it can be seen that the role stress is significantly predicts Employee job satisfaction (T = 2.873, P =.004, β =.098). Since it significantly predicts the job satisfaction, the unstandardized coefficients (B) will determine exactly how the role stress impacts Employee job satisfaction; in this case, the value of (B) is positive and equal to (0.107). That means as the independent variable increases by 1.00 unit, the dependent variable increases by 0.107 unit. Hence, it can be said that when the role stress increases job satisfaction will increase. Therefore, the third hypothesis (H3) is rejected.

4. The results of interviews

Interviewees commented on the importance of financial compensations and influences on their job satisfaction. As all interviewees were foreign workers, the main motive for their travel to KSA was better financial compensations compared to their home countries, e.g. India, Pakistan, Philippines and Egypt. Exchange rate of employees from these counties makes financial compensations obtained in KSA is significantly higher than compensations received in the same job in their home countries. Interviewees ensured that financial compensations (whether direct or indirect) is the main factor that affect their job satisfaction. They confirmed that when financial compensations increase, their job satisfaction increase.

Interviewees were also asked why their indirect financial compensations have more influence on their job satisfaction than their direct financial compensations as the results of the questionnaire showed. They argued that direct financial compensations is already known by them since they signed their job contract. Examples of these compensations are salary and overtime payment. However, indirect financial compensations change based on their productivity. Such compensations increase when their productivity increase. This indirect compensation include monthly/annual ceremony recognition, health insurance, career opportunities and education cost support for their family members. These indirect compensations make a difference for them and significantly influence their job satisfaction. Despite foreign employees, understand that they receive lower financial compensations compared to their local counterparts; they reported their satisfaction with compensations and hence reported their job satisfaction.

A key value for undertaking the interviews with a sample of employees is to understand why and how role stress (role overload and role conflict) positively influence their job satisfaction. Interviewees argued that they do perceive role overload nor role conflict at their current jobs. Hence no role stress as they enjoy their job role at the tourism industry. For example, they confirmed that their job tasks meet their expectations and they can handle their work. The interviewees commented that the assignment and tasks received are adequate and have no problem doing their duties. These tasks and assignments are expected by them before doing their job, which fits with policy and rules of their organisations.

They found working hours adequate despite they work more than 60 hours a week but are satisfied with them. They also argued that they feel happy to assist their new colleagues during their job to complete their tasks. Interviewees did not observe role stress. However, they found the current level of role stress is a motive for doing more duties and produce more to get more financial compensations. Additionally, they found their current level of stress at their job distinct them and their performance from other employees and encourage them to innovate at their work. Hence, they were satisfied with their job.

DISCUSSIONS

Financial compensations for employees are crucial because it enables them to directly meet their requirements, particularly physiological needs. Financial compensations is critical for job satisfaction. If an employee is unhappy with his/her job because it is unjust or there is inadequate financial compensations, he or she may choose to quit (Heimerl et al., 2020). The results of this study showed that job satisfaction is influenced significantly and positively by direct financial compensation. This is consistent with another study by Sopiah (2013), in which the study showed that indicate that there is a significant positive effect of direct compensations on employee job satisfaction.

This is especially true for the tourism jobs, where employees are often less paid compared to the other sectors (Sobaih, 2015), albeit their direct finical compensation significantly affect their job satisfaction Heimerl et al., 2020). In other words, the higher their salaries, the higher their job satisfaction is going to be harvested.

Indirect financial compensations are when employees compensated for their higher productivity or superior performance. This includes ensuring that the organizations provides health insurance that cover all members of the employees' family ensure the organization grants certificates of appreciation and recognition of efficient employees. The results of this study showed that indirect financial compensations have a significant influence on tourism employees h=job satisfaction. This is consistent with the work of Sopiah (2013) on banking that a significant positive effect of non-financial compensation on employee job satisfaction. In service industry such as tourism jobs, employees bear the hardship of working due the monetary compensations that they earn at the end of the month/year such as their proportion from 12 % service charge in hotels and restaurants. The results of interviews confirmed that indirect financial compensations are important for tourism employees especially when they provide superior performance to distinct them form other employees.

Unlike the results of previous research studies (e.g. Khattak et al., 2011), the results showed that role stress positively influence job satisfaction of tourism employees. This is because most workers are foreigners, who have expectations of high role stress. However, their current role stress are not a concern, as they did not perceive neither role overload nor role conflict. Employees recognize that tourism jobs have high role stress and expect this before they join the job; hence, they seek to create for him/her self a value and distinguishing mark from others in front of the management. The role stress create a kind of challenge between employees, thus they could accomplish many tasks in same time in order to get an attention and differentiation between subordinates. Thus, they get thanks, appreciation, and an attention from the employer, which is reflected in job satisfaction for employee. The study of Antonova (2016) showed that the role stress does not result in effects that negatively affect the creative ability of employees only, but also has effects that positively affect the creative ability of employees, and it is reflected in the job satisfaction of the employees. Moreover, it has been proved by study of Akgunduz et al. (2023) there is benign stresses that bosses place on employees in order to preserve their creativity. This is inconsistent with another study by Khattak et al. (2011), in which the study showed that the job stress and job satisfaction have negative relationship.

The above results confirm that the condition of employment could affect employees' perceptions of the job and role stress as foreign employees are the dominant category of employment in the Saudi tourism industry, despite the saudization policy to localize these jobs (Sobaih, 2023; Sobaih and Elnasr, 2023). These kind of employees are employed with expectations of high role stress but found the current role stress a motive for superior performance and pushes them for a distinction from other employees. Therefore, they receive indirect compensations such as recognition and hence perceive job satisfaction. The current study, however, has limitation as it did not explore the perspective of Saudi employees nor compare their perceptions with non-Saudis due to limited number of respondents from Saudis employees. Hence, further research could undertake such study to compare between expertise and national employees in relation to the impact of financial compensations and role stress on their job satisfaction.

CONCLUSIONS

From the findings of this study, it is concluded that, as much as most people would agree, financial compensation have a significant positive influence on employee job satisfaction. Both types of financial compensations (direct and indirect) have a positive effect on employee job satisfaction. Role stress resulted in a different result than expected, as there was a positive relationship with the job satisfaction of tourism employees. This is a unique outcome of this research, as earlier studies supported a negative relationship between role stress and employee job satisfaction. The condition of employment was identified as the reason for expecting role stress and dealing with it as a motive for superior work. This gives an opportunity for further research to clarify this outcome.

The research questionnaire

Dear respondent,

This questionnaire was developed for collecting the required necessary information regarding the factors influencing job satisfaction of tourism employees working in the Saudi Arabian. In order accomplish the desired research findings; your valuable participation and information provision is significantly needed. Your provided information will be secured with a superior level of privacy and will be only used for this particular research and not for any other purpose. The survey length may take about 10-15 minutes of your valuable time to finish answering the questions. Please ensure to answer each question correctly, as the quality of this particular research study depends on your responses to each question.

Thank you for your cooperation.

Part I: Demographics

What is your Gender?

☐ Male ☐ Female

Which of the following age groups do you belong to?

☐ 18-30 years; ☐ 31-40 years; ☐ 41-50 years; ☐ 51-60 years

What is the job title?

☐ Employee; ☐ Supervisor; ☐ Line Manager

What is your nationality?

☐ Saudi; ☐ Non-Saudi

How many working Hours in week?

☐ 40 to 50 Hours; ☐ 51 to 60 Hours; ☐ Over 60 Hours

Part II: Research variables

The following table shows the questions for financial compensations and role that are affecting job satisfactions of tourism employees in Saudi Arabia. Please circle only one answer rating from 1-5.

Table 9. The research scale items; *1= Strongly disagree and 5 = Strongly agree

Items and scores		1*	2	3	4	5
Job Satisfaction (Meyer et al., 2002)						
JS1	"When I get up in the morning, I feel like going to work".					
JS2	"I feel happy when I am working intensely".					
JS3	"I am satisfied with my job".					
JS4	"I am happy with the way my colleagues and superiors treat me".					
JS5	"I am satisfied with what I achieve at work".					
JS6	"I feel good at work".					
Direct Financial Compensation (Al-Nsour, 2011)						
DFC1	"My organization provides enough payment to meet the requirements of life".					
DFC2	"The organization provides rewards for skilled employees commensurate with their performance".					
DFC3	"The organization provides bonuses for workers according to their post and consistent with their level of performance".					
DFC4	"The organization provides overtime payment to employees after working hours".					
DFC5	"The organization provides transportation allowances for those who live in far areas".					
DFC6	"The organization provides a fair and adequate compensation on retirement".					
DFC7	"The organization provides financial incentives to employees when they work professionally".					
Indirect Monetary Compensation (Al-Nsour, 2011)						
IFC1	"The organization ensures appropriate social security and health insurance for employees".					
IFC2	"The organization is keen to give a fair opportunity for employees in complaints and suggestions".					
IFC3	"The organization provides appropriate working place and well-furnished ones for employees".					
IFC4	"The organization gives smooth annual leave for employees in accordance with rules and regulations".					
IFC5	"Health insurance granted by the organization covered all members of the employees' family".					
IFC6	"Disciplinary sanctions for employees characterized by a just and objective rules".					
IFC7	"The organization allows career opportunities and development for employees".					
IFC8	"The organization holds annual ceremony in honour of creative employees".					
IFC9	"The organization grants certificates of appreciation and recognition of efficient employees".					
Role Stress (Monideepa et al., 2007)						
Role overload						
RS1	"I often have to do more work than I can handle".					
RS2	"I am often required to do difficult tasks".					

RS3	"I often work beyond actual or official working hours".					
RS4	"I often attend to many problems or assignments at the same time".					
RS5	"I never seem to have enough time to do my actual work".					
Role conflict						
RS6	"I am often asked to do things that are against my better judgment".					
RS7	"I often receive an assignment without adequate resources and materials to execute them".					
RS8	"I often have to bend rules or policy in order to carry out an assignment".					
RS9	"I often receive incomplete requests from two or more people".					

Part III: Further comment of suggestion related to the above factors

………
………

Author Contributions: Conceptualization, A.E.E.S. and A.A.; methodology, A.E.E.S. and A.A.; software, A.A.; validation, A.E.E.S. and A.A.; formal analysis, A.E.E.S.; S.E.J and A.A.; investigation, A.E.E.S.; S.E.J and A.A.; data curation, A.E.E.S. and A.A. writing - original draft preparation, A.E.E.S. and A.A.; writing - review and editing, A.E.E.S. and S.E.J.; visualization, A.E.E.S. and A.A.; supervision, A.E.E.S.; project administration, A.E.E.S. All authors have read and agreed to the published version of the manuscript.

Funding: This work was supported by the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia [GRANT4160]

Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Deanship of Scientific Research Ethical Committee, King Faisal University (project number: GRANT4160, date of approval: 1 June 2023).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: Special thanks extended to the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia [GRANT4160]

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Akgunduz, Y., Bardakoglu, O., & Kizilcalioglu, G. (2023). Happiness, job stress, job dedication and perceived organizational support: a mediating model. *Journal of Hospitality and Tourism Insights*, 6(2), 654-673. https://doi.org/10.1108/JHTI-07-2021-0189

Albataineh, W.A.M. (2017). *The Impact of Compensation Types on Behavioral Productivity and Job Satisfaction of Employees: Construction Sector in Jordan as Case Study* (Doctoral dissertation, Yarmouk University). Yarmouk University Repository. (Accessed 1 September 2023). http://repository.yu.edu.jo/bitstream/123456789/14349/1/683505.pdf

Ali, S., & Farooqi, Y.A. (2014). Effect of work overload on job satisfaction, effect of job satisfaction on employee performance and employee engagement (a case of public sector University of Gujranwala Division). *International Journal of Multidisciplinary Sciences and Engineering*, 5(8), 23-30.

Al-Nsour, M. (2012). Relationship between incentives and organizational performance for employees in the Jordanian Universities. *International journal of business and management*, 7(1), 78. http://dx.doi.org/10.5539/ijbm.v7n1p78.

Antonova, E. (2016). Occupational Stress, Job Satisfaction, and Employee Loyalty in Hospitality Industry: A Comparative Case Study of Two Hotels in Russia: Master Thesis. Modul University.

Anwar, K., & Qadir, G.H. (2017). A study of the relationship between work engagement and job satisfaction in private companies in Kurdistan. *International Journal of Advanced Engineering, Management and Science*, 3(12), 239944. https://dx.doi.org/10.24001/ijaems.3.12.3

Bashir, U., & Ramay, M.I. (2010). Impact of Stress On Employees Job Performance A Study On Banking Sector Of Pakistan. *International Journal of Marketing Studies*, 2(1), 122-126.

Bello, Z., & Alhyasat, W. (2020). Compensation Practices on Job Satisfaction of Faculty Members in Private HEI in Saudi Arabia: Mediating Role of Talent Management. *International Journal of Human Resource Studies*, 10(4), 3747-3759. https://doi.org/10.5296/ijhrs.v10i4.17838

Bernadin, H.J., & Russel, J.E. (1993). Human resource management. International edition, Singapura: McGraw Hill, Inc.

Bessette, D. (2014). Total Compensation and How it is Used in an Organization's Human Resources Strategy. In April 2014 11th *International Conference on Information Technology: New Generations* (pp. 573-574). IEEE. https://doi.org/10.1109/ITNG.2014.12

Bin Nordin, M.N., Mustafa, M.Z.B., & Razzaq, A.R.B.A. (2020). Regression between Headmaster Leadership, Task Load and Job Satisfaction of Special Education Integration Program Teacher. *Universal Journal of Educational Research*, *8*(4), 1356-1362. https://doi.org/10.13189/ujer.2020.080428.

Bonner, R.L., Neely, A.R., Stone, C.B., Lengnick-Hall, C.A., & Lengnick-Hall, M.L. (2023). Triaging your human capital: an integrative perspective on strategic human capital asset allocation. *Management Research Review*, 46(3), 467-482. https://doi.org/10.1108/MRR-12-2020-0735

Budhwar, P.S., & Debrah, Y.A. (2009). Human resource management in developing countries. The Sage Handbook of Human Resource Management, *Sage*, London, 393-406.

Cascio, W.F. (1992). *Managing human resources: Productivity, quality of work life, profits*. McGraw-Hill, New York.

Compton, W.C. (2023). Maslow and the Good Person. *Journal of Humanistic Psychology*, 00221678221146212.

Creswell, J.W. (2003). *A framework for design. Research design: Qualitative, quantitative, and mixed methods approaches.* Thousand Oaks, CA: SAGE Publications Ltd.

Dodanwala, T.C., Santoso, D.S., & Yukongdi, V. (2022). Examining work role stressors, job satisfaction, job stress, and turnover intention of Sri Lanka's construction industry. *International Journal of Construction Management*, 1-10. https://doi.org/10.1080/15623599.2022.2080931

Fanning, A.L., & Hickel, J. (2023). Compensation for atmospheric appropriation. *Nature Sustainability*, 1-10. https://doi.org/10.1038/s41893-023-01130-8.

Gerhart, B.A., Minkoff, H.B., & Olsen, R.N. (1995). *Employee compensation: Theory, practice, and evidence*. Working Paper, 95 – 04, CAHRS / Cornell University, Ithaca, NY.

Gomez-Mejia, L.R., Balkin, D.B., Cardy, R.L., & Carson, K.P. (2004). *Managing human resources*. Pearson Education; 6 edition

Grandey, A.A., & Cropanzano, R. (1999). The conservation of resources model applied to work–family conflict and strain. *Journal of vocational behavior*, *54*(2), 350-370. https://doi.org/10.1006/jvbe.1998.1666.

Gupta, N., & Shaw, J.D. (2014). Employee compensation: The neglected area of HRM research. *Human resource management review*, *24*(1), 1-4. https://doi.org/10.1016/j.hrmr.2013.08.007

Heimerl, P., Haid, M., Benedikt, L., & Scholl-Grissemann, U. (2020). Factors influencing job satisfaction in hospitality industry. *SAGE open*, *10*(4), 2158244020982998. https://doi.org/10.1177/215824402098299

Ho, W.H., Chang, C.S., Shih, Y.L., & Liang, R.D. (2009). Effects of job rotation and role stress among nurses on job satisfaction and organizational commitment. *BMC health services research*, *9*, 1-10. https://doi.org/10.1186/1472-6963-9-8.

Jawahar, I.M., Stone, T.H., & Kisamore, J.L. (2007). Role conflict and burnout: The direct and moderating effects of political skill and perceived organizational support on burnout dimensions. *International Journal of Stress Management*, *14*(2), 142. https://doi.org/10.1037/1072-5245.14.2.142

Jerez Gómez, P., Céspedes Lorente, J.J., & Valle Cabrera, R. (2004). Training practices and organisational learning capability: Relationship and implications. *Journal of European industrial training*, *28*(2/3/4), 234-256. https://doi.org/10.1108/03090590410527636.

Khattak, M.A., Urooj, S.F., Khattak, J., & Iqbal, N. (2011). Impact of role ambiguity on job satisfaction: Mediating role of job stress. *International Journal of Academic Research in Business and Social Sciences*, *1*(3), 516-531.

Kim, B.P., Murrmann, S.K., & Lee, G. (2009). Moderating effects of gender and organizational level between role stress and job satisfaction among hotel employees. *International Journal of Hospitality Management*, *28*(4), 612-619. https://doi.org/10.1016/j.ijhm.2009.04.001

Kim, H., Sutton, K.L., & Gong, Y. (2013). Group-based pay-for-performance plans and firm performance: The moderating role of empowerment practices. *Asia Pacific Journal of Management*, *30*, 31-52. https://doi.org/10.1007/s10490-011-9255-7

Krejcie, R.V., & Morgan, D.W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, *30*(3), 607-610. https://doi.org/10.1177/001316447003000308

Maslow, A.H. (1954). The instinctoid nature of basic needs. *Journal of personality*.347–326 ,(3)22 .

McNamara, K., (2006). *Evolutionary Trends*. In: eLS. John Wiley & Sons Ltd, Chichester.

Meyer, J.P., Stanley, D.J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of vocational behavior*, *61*(1), 20-52. https://doi.org/10.1006/jvbe.2001.1842

Millán, J.M., Hessels, J., Thurik, R., & Aguado, R. (2013). Determinants of job satisfaction: a European comparison of self-employed and paid employees. *Small business economics*, *40*, 651-670. https://doi.org/10.1007/s11187-011-9380-1

Odunlade, R.O. (2012). Managing employee compensation and benefits for job satisfaction in libraries and information centres in Nigeria. *Library Philosophy and Practice*, *714*(1), 1-12.

Pan, F.C. (2015). Practical application of importance-performance analysis in determining critical job satisfaction factors of a tourist hotel. *Tourism Management*, *46*, 84-91. https://doi.org/10.1016/j.tourman.2014.06.004.

Saban, D., Basalamah, S., Gani, A., & Rahman, Z. (2020). Impact of Islamic work ethics, competencies, compensation, work culture on job satisfaction and employee performance: the case of four star hotels. *European Journal of Business and Management Research*, *5*(1) 1-8. https://doi.org/10.24018/ejbmr.2020.5.1.181

Saunders, M.N., Lewis, P., & Thornhill, A. (2023). *Saunders Research Methods*. Pearson Higher Ed.

Shah, S.S.H., Jaffari, A.R., Aziz, J., Ejaz, W., Ul-Haq, I., & Raza, S.N. (2011). Workload and performance of employees *Interdisciplinary Journal of Contemporary Research in Business 3*(5), 256-267.

Sobaih, A.E.E. (2015). Hospitality employment issues in developing countries: The case of Egypt. *Journal of Human Resources in Hospitality & Tourism*, *14*(3), 221-243. https://doi.org/10.1080/15332845.2014.904167.

Sobaih, A.E.E. (2018). Human resource management in hospitality firms in Egypt: Does size matter?. *Tourism and Hospitality Research*, *18*(1), 38-48. https://doi.org/10.1177/1467358415619675.

Sobaih, A.E.E. (2023). Challenges in Effective Implementation of Saudization Policy in the Restaurant Sector. *Sustainability*, *15*(9), 7654. https://doi.org/10.3390/su15097654.

Sobaih, A.E.E., & Elnasr, A.E.A. (2023). Local versus Foreign Worker Perceptions, Commitment and Attitudes toward Careers in Restaurants and Cafés: Evidence from Saudi Arabia. *Sustainability*, *15*(6), 5244. https://doi.org/10.3390/su15065244.

Sobaih, A.E.E., Hasanein, A.M., Aliedan, M.M., & Abdallah, H.S. (2022). The impact of transactional and transformational leadership on employee intention to stay in deluxe hotels: Mediating role of organisational commitment. *Tourism and Hospitality Research*, 22(3), 257-270. https://doi.org/10.1177/1467358420972156.

Sobaih, A.E.E., Ibrahim, Y., & Gabry, G. (2019). Unlocking the black box: Psychological contract fulfillment as a mediator between HRM practices and job performance. *Tourism Management Perspectives*, *30*, 171-181. https://doi.org/10.1016/j.tmp.2019.03.001.

Sopiah, S. (2013). The effect of compensation toward job satisfaction and job performance of outsourcing employees of Syariah banks in Malang, Indonesia. *Int. J. Learn. Dev*, *3*(2), 77-91.

Sudiarditha, I.K.R., Susita, D., & Kartini, T.M. (2019). Compensation and work discipline on employee performance with job satisfaction as intervening. *Trikonomika*, 18(2), 80-87. https://doi.org/10.23969/trikonomika.v18i2.1755.

Tourism Establishments Statistics (2021). The General Authority for Statistics, (Accessed 1 September 2023). https://www.my.gov.sa/wps/portal/snp/agencies/agencyDetails/AC138/!ut/p/z0/04_Sj9CPykssy0xPLMnMz0vMAfIjo8zivQIsTAwDQz9LQwNzQwCnS0tXPwMvYwNDAz0g1Pz9L30o_ArAppiVOTr7JuuH1WQWJKhm5mXlq8f4ehsaGyhX5DtHg4AommQOg!!/#:~:text=The%20General%20Authority%20for%20Statistics,sector%20to%20support%20decision%2Dmaking.

Woods, S., Sebastian, J., Herman, K.C., Huang, F.L., Reinke, W.M., & Thompson, A.M. (2023). The relationship between teacher stress and job satisfaction as moderated by coping. *Psychology in the Schools*, 60(7), 2237-2256. https://doi.org/10.1002/pits.22857.

Yaseen, A. (2013). Effect of compensation factors on employee satisfaction-a study of doctor's dissatisfaction in Punjab. *International Journal of Human Resource Studies*, *3*(1), 142.

Article history: Received: 14.09.2023 Revised: 10.10.2023 Accepted: 08.11.2023 Available online: 12.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1494-1505
DOI 10.30892/gtg.50429-1147

GEOSPATIAL MODELING OF THE DISTRIBUTION OF TOURIST ATTRACTIONS FOR THE FUNCTIONAL DELIMITATION OF COASTAL ZONES

Anna A. MIKHAYLOVA
Immanuel Kant Baltic Federal University, Kaliningrad, Russia, e-mail: tikhonova.1989@mail.ru

Vladimir N. BOCHARNIKOV
Pacific Geographical Institute FEBRAS, Vladivostok, Russia, e-mail: vbocharnikov@mail.ru

Evgeniya E. GIRICHEVA
Far Eastern Federal University, Vladivostok, Russia, e-mail: evg.giricheva@yandex.ru

Dmitry V. HVALEY
Immanuel Kant Baltic Federal University, Kaliningrad, Russia, e-mail: DKHvalei1@kantiana.ru

Andrey S. MIKHAYLOV*
Institute of Geography of the RAS, Moscow, Southern Federal University,
Rostov-on-Don, Russia, e-mail: mikhailov.andrey@yahoo.com

Citation: Mikhaylova, A.A., Bocharnikov, V.N., Giricheva, E.E., Hvaley, D.V., & Mikhaylov, A.S. (2023). GEOSPATIAL MODELING OF THE DISTRIBUTION OF TOURIST ATTRACTIONS FOR THE FUNCTIONAL DELIMITATION OF COASTAL ZONES. *GeoJournal of Tourism and Geosites*, 50(4), 1494–1505. https://doi.org/10.30892/gtg.50429-1147

Abstract: Coastline attracts people for recreational, residential, entrepreneurial, and industrial activity, resulting in a worldwide phenomenon of coastalization – the shift to the coasts. The proximity to marine coasts is, therefore, a competitive advantage and a development resource for coastal regions around the globe. However, the efficient use of coastal economic-geographical position depends on the numerous external and internal factors, and requires, firstly, a functional delimitation of the coastal zone, and, secondly, an integrated coastal zone management. This article studies the relationship between the proximity to the seacoast and the development of the tourism sector. The aim is to identify the geographical boundaries of using the seaside position in the interest of tourism development; in other words, we identify the functional boundaries of the coastal zone associated with tourist attractions. The research area covers two Russian regions located on the Baltic Sea (Kaliningrad Oblast) and the Sea of Japan (Primorsky Krai). The findings reveal that the optimal zone for developing coastal tourism is within a 10km of the sea, with the most preferable zone extending no further than 1km from the coast. The density of tourist attractions has a positive correlation with the concentration of service sector facilities and infrastructure.

Key words: coastal tourist attractions; coastal region; economic potential; coastal area; tourism; coastal eco-system; coastline; sustainable development

* * * * * *

INTRODUCTION

Planet Earth is the realm of the hydrosphere that covers over 70% of the entire globe. The sea and its coasts are of historical interest for mankind, and the World Ocean remains to be the vital resource for the wealth of nations. Countries with access to the sea have been able to benefit from this advantageous economic-geographical position throughout history (Hoegh-Guldberg et al., 2013). Coastal location has always provided the best access to the worldwide trade and the use of a diversity marine resources (Li et al., 2023; North, 1958). Recent developments in geo-information analysis and remote sensing have improved our understanding of the natural and anthropogenic processes that occur in the coastal zone. Studies have evaluated the population change in coastal areas as an indicator of their development. Burke et al. (2001) estimate that by mid-1990s about 39% of the world's population (or 2.2 bln people) lived on 20% of the landmass, or 100-km coastal zone of 1.6 mln km long. An early study by Small and Nicholls (2003) showed that the world's most favored area for human settlement is the 5-kilometer coastline predominantly concentrated in small and medium-sized cities and densely populated rural areas. The altitude of the territory also plays an important role: the population density in the coastal zone decreases faster with altitude than with distance from the coast. The favorable height for population concentration is below 20 m above sea level. The United Nations (2023) approach also includes a two-dimensional measurement of the coastal zone, with a range of 100 km from the coast and a threshold of 50 m above sea level. The first indicator aims to measure anthropogenic pressure on coastal ecosystems and the second to measure their vulnerability to the influence of natural factors.

Crowell et al. (2007) raise the methodological problem of classifying municipalities as coastal and the associated inaccuracy in estimates of the coastal population. Using the example of the USA, the authors show that when including the

* Corresponding author

administrative units with 100 km of coastal zone, which actually do not have access to “big water”, as well as those bordering the Great Lakes, the share of “coastal” population increases from 30 to 53%. As a recommendation, the authors propose to apply a wider set of criteria for classifying territories as coastal. According to Maul and Duedall (2019), the development of the world’s coastal territories are determined by three factors of anthropogenic origin: higher population density, being twice the world average; growing migration inflows (especially the coastal areas of China and Southeast Asia); and urbanization (14 of the 17 largest cities in the world are coastal). Neumann et al. (2015) provide estimates of the coastal population growth in the horizon of 2030 and 2060, projecting the strongest growth in Asia and Africa, moderate growth in Europe and North America, and population stabilization for Latin America and the Caribbean.

Non-demographic factors have a significant impact on coastal ecosystems, and the most important among them are economic factors. In 2012 at the United Nations’ “Rio+20” conference the economies related to the use of marine resources were named blue economy. According to the OECD (2016), in 2010, the maritime industries accounted for 2.5% of global value added and 1% of jobs. Second among the blue growth activities is the marine and coastal tourism sector. A review by Kabil et al. (2021) shows an active growth of interest in the topic of the Blue Economy after 2012, but the issues of marine and coastal tourism still occupy an insufficient place in the scientific agenda. Aspects related to the location of marine and coastal tourism infrastructure is particularly underrepresented. Coastal regions lead in attracting tourism, making marine and coastal tourism one of the fastest growing sectors of the global economy and tourism segments. One in two tourists visited the coastal zone for tourism and recreational purposes, and the contribution of coastal regions to the global tourism sector is estimated at 30% (Kabil et al., 2021). By 2030, the share of marine and coastal tourism is expected to reach 26% of the global ocean economy with an increase in total employment to 8.6 million people (Dwyer, 2018). For individual countries, the figures for tourism’s contribution to blue growth are even higher: in China (Liu et al., 2020), for example, it already accounted for 47.8% of the value added of major maritime industries in 2018.

Previous studies on the geography of coastal tourism have shown spatial asymmetry of tourism activities (Mou et al., 2020; Kubo et al., 2020). China’s experience shows skewness of tourist attractions (TAs) of coastal regions to the coast, resulting in structural holes and imbalance of tourist flows (Mou et al., 2020). The factor of transport accessibility has a significant impact: shorter (about 10 km) tourist routes with a higher concentration of TAs are preferred. An example of Spain shows that increase tourist accommodation facilities (rural estates) in the coastal zone over time results in a gradual reduction of the average distance to the sea (Vojnović, 2005). Proximity to the city has a positive effect as well. The analysis of the land transformation as a result of the development of tourist infrastructure (Boavida-Portugal et al., 2016) showed that the main zone of urban land use is concentrated within 500 m from the coastline, and the most promising tourist zone is located within 2-5 km from the sea. The experience of Japan (Kubo et al., 2020) showed an average median distances traveled by a tourist to the beach of 35.5 km in summer and 12.5 km in winter. Also, a number of researchers point out the significance of socio-economic factors when assessing the demand (Liu et al., 2023) and latent economic value of coastal tourism facilities (Boto-Garcia and Leoni, 2023).

In this regard, assessing the use of coastal location for tourism development is becoming increasingly important. The aim of the study is to define the functional coastal zone by assessing the spatial location of coastal tourist attractions (CTAs) – objects related to coastal tourism or marine resources. The main objective is to quantify the characteristics of the coastal territories, to identify the existing practices of use and the potential opportunities in the development of coastal areas. We test the hypothesis that the location of TAs is positively influenced by factors of proximity to the sea, state border and urban settlement. In this study we examine the location of TAs in relation to the coastline of the Kaliningrad Oblast and Primorsky Krai. Based on the functional approach to the delimitation of the coastal zone, the paper focuses assessing the territorial distribution of the marine and coastal tourism industry in the coastal regions.

MATERIALS AND METHODS

Research data for analyzing spatial patterns in the location of coastal tourist attractions

The study adopts the methodology proposed by Ciacci et al. (2023), who view both natural and infrastructural objects of the coastal zone as an asset (for tourism industry) to economic development potential of coastal regions.

An important methodological task was to determine the types of activities that can be identified as part of coastal tourism cluster – organizations operating in the field of recreation, entertainment, leisure, transport, and services. Open data on the location of the following types of facilities were used: a) Tourist attractions (places of interest, natural objects, infrastructural objects, sports facilities), b) Tourist accommodation facilities, c) Public catering establishments (cafes and restaurants), d) Retail stores. Additionally, CTAs were identified according to one of the criteria: a) they are part of the coastal ecosystem; b) functionally, historically or thematically related to the sea; c) utilize the image of the sea; d) located on the coast, but not directly related to the marine theme.

The territory of the regions was segregated into proximity zones (hereinafter referred to as cells) by distance:

- from the seacoast (for the Kaliningrad Oblast – the Baltic Sea, incl. the Kaliningrad and Curonian Lagoons; for the Primorsky Krai – the Sea of Japan, incl. the Peter the Great Gulf);
- from the administrative border of the nearest urban settlement (city, town), located within the administrative boundaries of the studied regions;
- from the state border (for the Kaliningrad Oblast – with Poland and Lithuania, for the Primorsky Krai – with China and North Korea).

Zoning of the territory was done using the built-in tools of the QGis 3.28 program. Zoning step is 1 km. For each region, a three-dimensional matrix “Border – Sea – City” was built (Fig. 1). Mutual overlay of grids gives 21802 cells for the Kaliningrad Oblast and 246445 cells for the Primorsky Krai. Within the cells, tourism facility objects were counted.

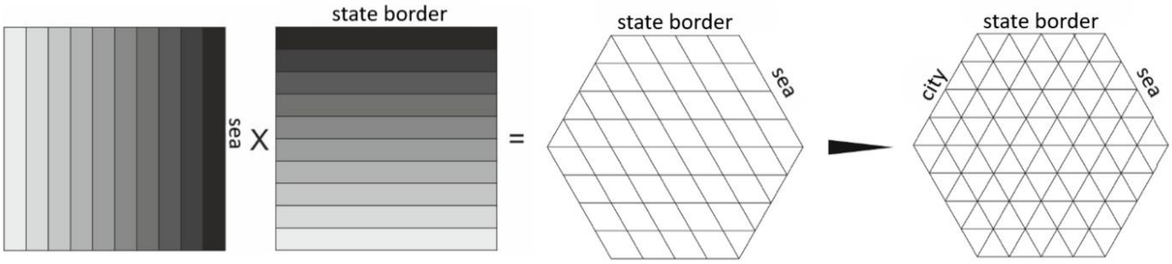


Figure 1. Geoinformation model for delimitation of the territory of coastal regions (Source: developed by the authors)

The influence of location factors on the concentration of TAs was measured using methods of econometric analysis – correlation and variance analysis, and the method of principal components. The analysis accounted for distance from the state border, coastline, and urbanized area, as well as two factors indicating the provision of infrastructure – availability of mobile Internet and a Infrastructure Diversity Index reflecting the density of roads and the provision of places for tourist accommodation facilities, public catering establishments, retail stores.

To calculate the CI, the Min-Max Scaler was applied using Cohen's (1960) formula:

$$y_{ij} = \frac{x_{ij} - x_{i,min}}{x_{i,max} - x_{i,min}}, \qquad i = 1,2,3. \tag{1}$$

Where, x_{1j} – density of retail stores and public catering establishments per 1 km^2 in a cell j, x_{2j} – density of tourist accommodation facilities in a cell j, x_{3j} – density of roads in a cell j, $x_{i,max}$, $x_{i,min}$ – maximum and minimum values of factor i for all cells, y_{ij} – normalized value of factor i in cell j.

To calculate the integral indicator, the principal component analysis was used. It enables to transform three factors to one with minimal loss of information. After receiving the coefficients of the first principal component, we used them as weighting coefficients w_i factors when determining the authors' Infrastructure Diversity Index:

$$I_j = w_1 y_{1j} + w_2 y_{2j} + w_3 y_{3j} \tag{2}$$

The causality in the distribution of TAs was assessed based on analysis of variance. A preliminary categorization of quantitative factors was carried out using the boundary method. As a result, for each factor a criterion was obtained for dividing the analyzed cells into groups, which were compared in pairs for each factor using the Mann-Whitney U test. It allows testing the significance of the difference between two independent groups of variables when the distributions of values in the samples are different from normal. To conduct the test, the null and alternative hypotheses were formulated:

H_0: The two groups of distribution of TAs regarding the factor do not differ.

H_1: Two groups of distribution of TAs regarding the factor differ from each other.

The null hypothesis is rejected if p-value of the U-statistic is smaller than the threshold α. In this study, a significance level of α =0.05 was used, that is, differences between groups are considered statistically significant at the 95% confidence level. Statistical analysis of data and their visualization were carried out in the R environment using the psych, dplyr, ggplot2 packages.

Data sources and processing

A new source of tourism information is data from user content, incl. posts on social media: Instagram, Twitter, Facebook, etc. (Mikhaylova et al., 2021), photo hosting, for example, Flickr (Liu et al., 2023), digital travel diaries (Mou et al., 2020), online tourist reviews (Liu et al., 2023), ads on tourist accommodation, such as Airbnb (Boto-Garcia and Leoni, 2023), etc. Modern information technologies make it possible to study not only the location of tourism objects and tourist flows, but also tourists' perception over tourist destinations. Another source of data on tourism geography is anonymized mobile phone network (Kubo et al., 2020). In this study, the main sources of geoinformation data (as of April 2023) were:

- open tourist atlas of the world "OpenTripMap" (opentripmap.com), aggregating data from the OpenStreetMap and Wikimedia projects and portals of the Ministry of Culture and The Federal Subsoil Resources Management Agency of the Russian Federation.
- online hotel booking service www.ostrovok.ru used to source data on tourist accommodation facilities in the studied regions.

The raw dataset was additionally processed as different TAs could have identical titles, one object could have multiple tags, etc. Each TA was verified by osm identification number and by geographic coordinates on the GoogleMaps or YandexMaps websites. The final list of TAs was manually supplemented with missing objects, resulting in 1302 for the Kaliningrad Oblast and 1186 for Primorsky Krai. The number of objects in the categories "tourist infrastructure" and "accommodation" for the Kaliningrad Oblast was 1734 and 3364 units, and for the Primorsky Krai – 3318 and 1097 units.

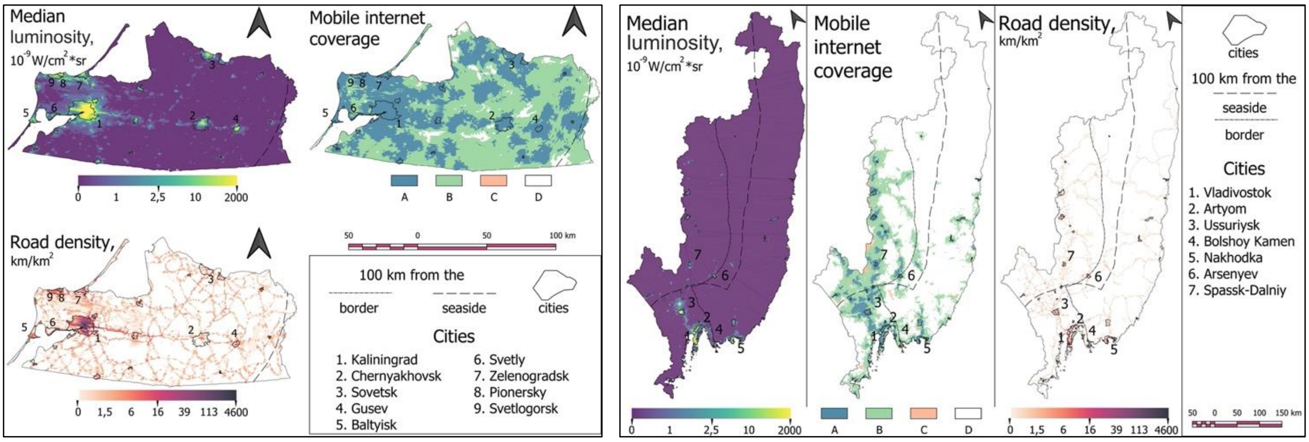
Three additional factors were taken into account that reflect the infrastructure provision of the territory and influence the development of tourism (Figure 2):

1. Earth remote sensing data on night-time lights. Excessive luminosity is an indicator of urbanization and human activity, and, thus, an anthropogenic load on natural ecosystems. The data source is www.lightpollutionmap.info, which displays light pollution-related content on Microsoft Bing base layers. VIIRS scanner data is presented for 2022.

2. Coverage of the territory with mobile Internet. Earlier studies show a mixed relationship between mobile coverage and tourism development (Adeola and Evans, 2019). However, the wider the experience in using ICT, the higher the need for them in tourist destinations (Law et al., 2018). Mobile Internet is important for introducing modern digital technologies

in tourism (Kounavis et al., 2012). The source of the data was mobile Internet coverage maps, presented on the websites of telecom operator companies – Megafon, Beeline, Tele2, MTS. The data was initially collected within the framework of the Russian Science Foundation project 21-77-00082 and presented as of April 2023. For each zone/cell, the main type of mobile Internet was determined, represented on at least 50% of its territory.

3. The density of highways of inter-settlement level and above. The density of the road network is important in managing tourism flows (Talebi et al, 2019). Studies by Zhang and Ju (2021) and Ramadan (2020) show that the development of transport and tourism is mutually beneficial and generates synergistic effects. Low density and quality of roads are inhibitory factors that limit the influx of tourists and access to tourism resources. In this regard, this study makes the assumption that road density is a positive factor for the development of coastal tourism. The data source is the Geofabrik.de service, which retrieves and processes open geodata from the OpenStreetMap portal. Data is presented for 2023.



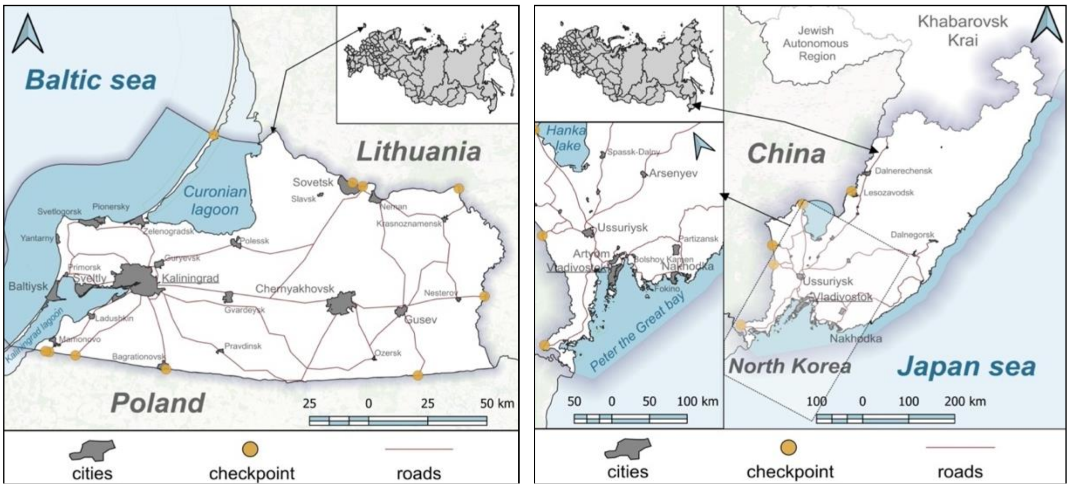
Kalningrad Oblast Primorsky Krai

Figure 2. Infrastructure development of the territory of the coastal regions (Source: developed by the authors based on data from Lightpollutionmap.info, Geofabrik.de, Moscow.megafon.ru, Moskva.beeline.ru, Kaliningrad.tele2.ru, Moskva.mts.ru)

Description of the study area

The Kaliningrad Oblast is a coastal region of Russia on the Baltic Sea (Figure 3). This is an exclave region bordering with Poland and Lithuania (incl. by water through the Kaliningrad and Curonian bays). Communication with mainland Russia is carried out by sea transport (ferries) along the Baltic Sea, there is air service, and also rail and road transport routes through the territory of third countries (Lithuania and Belarus – towards Moscow, and Lithuania and Latvia – towards St. Petersburg). The administrative center is Kaliningrad. The total population of the region is 1.03 million people (as of January 1, 2023). The share of gross added value of the tourism industry in the GRP was 3.7% (in current prices) with domestic tourism as main contributor. The total flow of tourists in 2022 was about 1.8 million people.

Kalningrad Oblast



Primorsky Krai

Figure 3. Geography of the studied coastal regions (Source: developed by the authors)

According to Borovik (2020), there are 115 cultural heritage sites per 1 thousand km^2. The coastal territories of the Kaliningrad Oblast, namely the southern and southeastern coasts of the Baltic Sea, make up about 3% of the total territory of the region and concentrate many recreational resources (Afanasyeva, 2014). There are seaside resort towns – Svetlogorsk, Zelenogradsk, Pionersky, Yantarny. In the southern part of the Curonian Spit, adjacent to the Lithuanian border, there is a unique National Natural Park “Curonian Spit”, which is protected by the UNESCO Convention for the Protection of the World Cultural and Natural Heritage. The sanatorium-resort complex of the Kaliningrad Oblast is part of the broader recreational system of the South-Eastern Baltic (along with the sea coasts of Lithuania, Latvia, Estonia, Poland) due to the common geomorphological structure (Abdullaeva and Bredikhin, 2018), and numerous cross-border cooperation initiatives that took place before COVID-19 and current geopolitical tension between Russia and the EU. A number of other coastal cities – Kaliningrad, Svetly, Baltiysk have commercial seaports. Located near the Polish border, the coastal Mamonovo and Ladushkin serve border needs (Kropinova et al., 2015).

In general, the Kaliningrad Oblast is characterized by strong differentiation of the coast according to the level of socio-economic development (Gumenyuk et al., 2019). The most developed coastal areas are near the Kaliningrad agglomeration, as well as those with direct access to the sea. The least developed municipalities are those facing only the waters of bays.

Primorsky Krai is located in the opposite southeastern part of the country and overlooks the Sea of Japan. Between Kaliningrad and Vladivostok (the administrative center of the region) there are over 10 thousand km by road or 11 hours when taking a direct flight. Primorsky Krai occupies 0.97% of the area of Russia and has a population of 1.82 million people (as of May 1, 2023). The share of GVA of the tourism industry in the GRP of the Primorsky Krai in the pre-pandemic period reached 2.8%, and taking into account such industries as transport, catering, trade, communications – about 5.9% (as of 2019). The total flow of tourists in 2022 amounted to 2.98 million people. In recent years, the main contributor, as in the Kaliningrad Oblast, was domestic tourism, mainly from the neighboring Khabarovsk Krai. Restrictive measures during the pandemic acted as a strong barrier to the development of inbound tourism, drastically (more than 10 times) reducing the flow of foreign tourists from neighboring China, North Korea, Uzbekistan, and Japan, which was stable until 2020.

The region contains about 4 thousand cultural heritage sites, of which about 40% are under state protection. A significant share is occupied by archaeological monuments (remains of ancient settlements), incl. the popular TAs – the Nikolaevskoye and Shaiginskoye settlements, located in the coastal zone (no further than 20 and 70 km from the port city of Nakhodka). The rugged coastline has created many bays, lagoons and islands that act as attractors for tourists. In a number of bays there are ports for year-round navigation, which distinguishes the region favorably from other regions of the Russian Federation on the Pacific coast. The recreational and tourist zoning can be done by measuring the distance from the largest city – Vladivostok. A study of tourist flows in high season (Martishenko, 2011) showed that most tourists from Vladivostok concentrate in a 75-km zone from the city with short (1-2 days) travel period. Tourists from other regions of Russia travel for longer (6-10 days) further – up to 150 km from Vladivostok, including remote coastal areas with high natural potential. All resorts of the Primorsky Krai can be divided according to their wellness profile and nature-mineral complexes. The southern part of the region, stretching along the Amur Bay, administratively belonging to the Khasansky district, is attractive for tourists. In the northern mountainous side of the region there are two largest nature reserves (Land of the Leopard and Kedrovaya Pad National Park), and in the southern side – watery area with numerous islands. The water area of the Amur Bay is considered one of the warmest in the region, having numerous beaches and embankments. There are many rivers and several lakes as well.

The resource potential of the Khasansky district makes it possible to organize beach, bathing, medical, hunting and fishing, educational, historical, memorial and water sports types of tourism on its territory. The district leads in the number of recreation centers among other municipalities (89.7% of them are located in the coastal zone) (Rudenko et al., 2022). The main therapeutic and preventive profile of the area is based on deposits of silt sulfide mud and mineral water sources. The largest mud baths are located in Expeditsii and Melkovodnaya bays, as well as in Uglovoye Bay. The region also contains three international seaports (Zarubino, Posyet, Slavyanka) and two land checkpoints (Kraskino with China, Khasan with the North Korea). The second and third places in terms of the number of coastal recreation centers are occupied by the urban districts of Nakhodka and Vladivostok (Rudenko et al., 2022), which creates a high anthropogenic impact on these highly urbanized areas of the Pacific coast of Russia. The largest influx of population to this coastal zone (incl. the Bolshoy Kamen settlement) was in 1959–1989, incl. with migration, and remains to date (Ushakova, 2019).

The relatively high population density and level of socio-economic development have created favorable conditions for the development of the tourism industry. Another small resort area is located 500 km from Vladivostok, in the southeast of Primorsky Krai and overlooks the sparsely populated shore of Olga Bay. There are beaches, sanatorium and recreational areas, and pump rooms. Among the treatment procedures, oxygen therapy, ozone therapy, and healing with minerals predominate. In the village of Gornovodnoye there is a large mineral spring.

RESULTS AND DISCUSSION

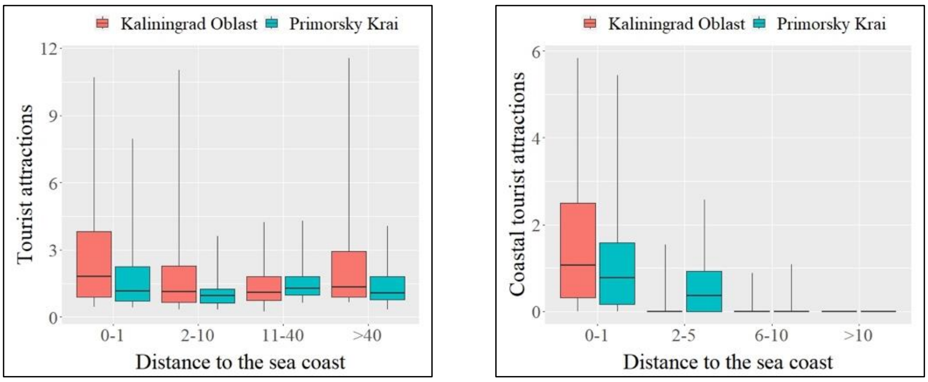
The influence of territorial factors on the concentration of tourist attractions; Factor of proximity to the sea coast

All cells were divided into four groups by the distance to the coast – Table 1.

Table 1. Average and median value of tourist attractions (TAs) in groups by proximity to the coastline (Source: developed by the authors)

Group	Range, km	Region					
		Kaliningrad Oblast			Primorsky Krai		
		Number of cells	mean	median	Number of cells	mean	median
	Tourism attractions (TAs)						
I	0-1	85	3.28	1.81	198	3.01	1.17
II	2-10	152	2.6	1.13	118	1.29	0.96
III	11-40	165	1.51	1.09	158	1.67	1.28
IV	>40	137	5.22	1.33	190	1.51	1.08
	Coastal tourist attractions (CTAs)						
I	0-1	85	1.9	1.06	198	2.07	0.78
II	2-5	70	0.27	0	80	0.74	0.36
III	6-10	82	0.37	0	38	0.16	0
IV	>10	302	0	0	348	0.02	0

For the Kaliningrad Oblast, the differences between groups II and III are not statistically significant, thus, only three groups are defined: (1) up to 1 km from the coast; (2) 2-40 km; (3) over 40 km. The highest density of TAs is found at a distance under 1 km from the coast. The distribution of objects within all groups is uneven. The most heterogeneous is the group of cells at a distance of over 40 km, incl. several cells with a very high concentration of TAs. In the Primorsky Krai, the entire region was divided into four groups I-IV, since the differences between all groups are statistically significant. The highest density of TAs is also found in the coastal area up to 1 km. The distribution of cells within groups for the Primorsky Krai is more uniform than for the Kaliningrad Oblast (Figure 4). With regard to CTAs, all four zones are statistically different (Table 1). Most CTAs in both regions are located within a 10 km zone from the coast. The vast majority of objects are located in the 1 km coastal zone; in the rest of the territory there are only a small number of cells in which CTAs are clustered. The difference of Primorsky Krai from the Kaliningrad Oblast is the 2-5 km zone from the coast, in which more than 50% of the cells contain CTAs (Figure 4). The boxplots show outlier limiters (min and max values are 0.05 and 0.95 quantiles).



(**a**) (**b**)

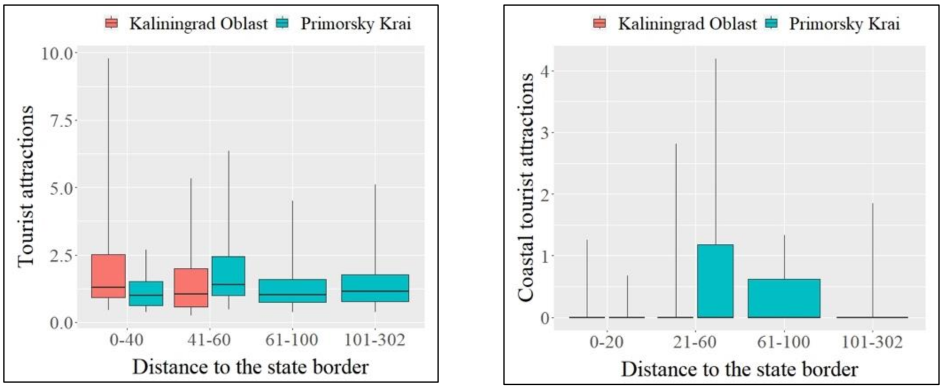
Figure 4. Comparison of the distribution of (a) tourist attractions (TAs) and (b) coastal tourist attractions (CTAs) by proximity to the coastline, km (Source: developed by the authors)

Factor of proximity to the state border

In the Kaliningrad Oblast TAs are located at a distance of up to 60 km from the state border (Table 2). The highest concentration is observed in the 40 km border zone with a high average density and the location of cells with a maximum density of TAs compared to 41-60 km. For the Primorsky Krai, most TAs are located in the 41-60 km zone from the state border. This group of cells is statistically different from the cells located in the “0-30” and “61-100” zones (Figure 5). At a distance of over 60 km from the border, the distribution of TAs is homogeneous.

Table 2. Average and median value of tourist attractions (TAs) in groups by proximity to the state border (Source: developed by the authors)

Group	Range, km	Region					
		Kaliningrad Oblast			Primorsky Krai		
		Number of cells	mean	median	Number of cells	mean	median
	Tourism attractions (TAs)						
I	0-40	376	3.43	1.3	88	1.17	1.00
II	41-60	163	1.04	1.17	121	2.83	1.39
III	61-100	0	-	-	116	1.82	1.01
IV	101-302	0	-	-	339	1.89	1.14
	Coastal tourist attractions (CTAs)						
I	0-20	166	0.18	0	38	0.11	0
II	21-60	373	0.49	0	171	1.38	0
III	61-100	0	-	-	116	0.51	0
IV	101-302	0	-	-	339	0.54	0



(**a**) (**b**)

Figure 5. Comparison of the distribution of (a) tourist attractions (TAs) and (b) coastal tourist attractions (CTAs) by proximity to the state border, km (Source: developed by the authors)

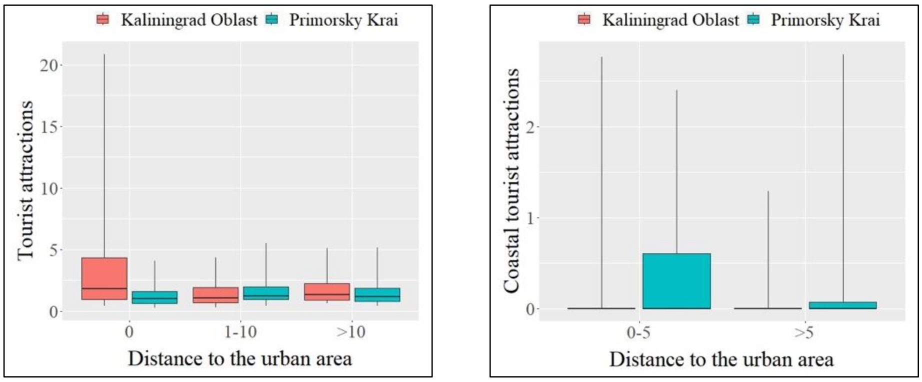
Two groups of CTAs, located in zones up to 20 km and 21-60 km from the border of the Kaliningrad Oblast, are statistically different. The greatest concentration of TAs is at a distance from 21 to 60 km. The average density in this group and the max concentration are much higher than in the call located in the area adjacent to the border. For the Primorsky Krai, the 21-60 km border zone is significantly different from the and contains cells with the max density of CTAs.

Factor of proximity to an urbanized area

The territory of the Kaliningrad Oblast is divided into three (I-III) zones by the distribution of TAs depending on proximity to the urbanized area (Table 3). Most of the objects are located within urban settlements (group I “0”). Moreover, the density of TAs in individual cells is very high, as evidenced by the average value and the difference between the average and median values. In an area up to 10 km from an urbanized area, the density of TAs is much lower, and their distribution is much more homogeneous. At a distance of beyond 10 km, an increase in the concentration of TAs reappears, with more than 95% of the cells containing TAs, which indicates the high tourism potential of the rural areas of the Kaliningrad Oblast.

Table 3. Average and median value of tourist attractions (TAs) in groups by proximity to the urban area (Source: developed by the authors)

Group	Range, km	Region					
		Kaliningrad Oblast			Primorsky Krai		
		Number of cells	mean	median	Number of cells	mean	median
	Tourist attractions (TAs)						
I	0	145	6.56	1.82	178	1.41	1
II	1-10	280	1.58	1.08	219	2.25	1.2
III	>10	114	2.14	1.31	267	2.07	1.16
	Coastal tourist attractions (CTAs)						
I	0-5	289	0.55	0	301	0.66	0
II	>5	250	0.21	0	363	0.78	0



(**a**) (**b**)

Figure 6. Comparison of the distribution of (a) tourist attractions (TAs) and (b) coastal tourist attractions (CTAs) by proximity to the urban area, km (Source: developed by the authors)

For Primorsky Krai, two statistically significant groups were identified: the urban area itself and the remaining territory located outside urban settlements (Table 3). This coastal region, unlike the Kaliningrad Oblast, is characterized by the distribution of TAs outside the urbanized area, but at a short distance from cities. Cells with the max concentration of TAs are at 1-10 km zone (group II), the average density of TAs in this group is also maximum. In general, the distribution of TAs throughout the region can be considered homogeneous (Figure 6). The main CTAs in the Kaliningrad Oblast are located in urban settlements and 5 km away from them. In some cells there is a very high concentration of CTAs, which indicates the unevenness of their distribution relative to the urbanized area. In the Primorsky Krai, territorial zones up to 5 km and over 5 km from cities have little difference. The average density of CTAs in the remote area is only slightly higher than the average density within the urbanized area. CTAs in this territory are evenly distributed, only a few cells have a very high concentration of CTAs.

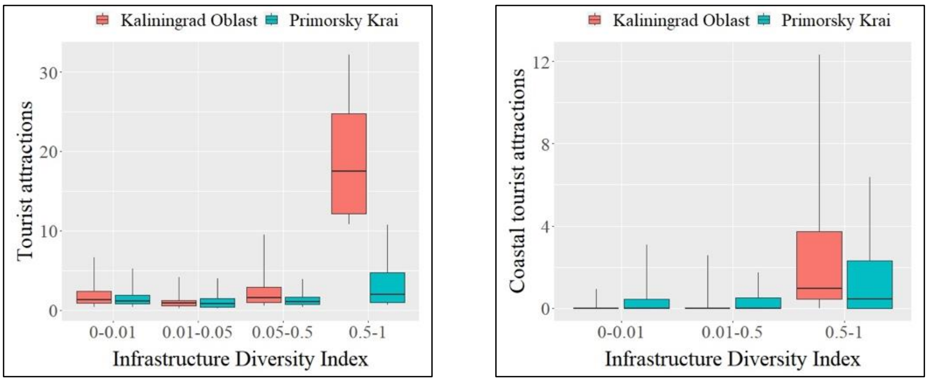
Table 4. Average and median value of tourist attractions (TAs) in groups by the Infrastructure Diversity Index value (Source: developed by the authors)

Range	Region					
	Kaliningrad Oblast			Primorsky Krai		
	Number of cells	mean	median	Number of cells	mean	median
Tourism attractions (TAs)						
0-0.01	139	4.4	1.3	369	2.15	1.14
0.01-0.05	133	1.72	0.9	29	1.3	0.85
0.05-0.5	259	2.76	1.55	243	1.61	1.09
0.5-1	8	19.44	17.48	23	3.28	2
Coastal tourist attractions (CTAs)						
0-0.01	139	0.16	0	369	0.82	0
0.01-0.5	392	0.41	0	272	0.5	0
0.5-1	8	3.48	0.96	23	1.79	0.44

The influence of infrastructural factors on the concentration of tourist attractions (CTAs)
Infrastructure Diversity Index

Based on the principal component analysis carried out for the factors (A) "Public catering establishments and retail stores", (B) "Tourist accommodation facilities" and (C) "Road density", the coordinates of the first principal component were obtained. For the Kaliningrad Oblast, the level of information content of the first component was 0.75, and for the Primorsky Krai – 0.81. These values exceed the threshold of 0.55, so the coordinates of the first principal component were chosen as factor weights when calculating the Infrastructure Diversity Index. Weighting coefficients for the Kaliningrad Oblast: w_1=0.42, w_2=0.38, w_3=0.82, for Primorsky Krai: w_1=0.31, w_2=0.14, w_3=0.94. For both regions, road density makes a larger contribution to the Index. The normalized index values were divided into ranges presented in Table 4.

For the Kaliningrad Oblast and Primorsky Krai, in the case of TAs, all groups of cells are statistically different. The highest density of TAs is observed in the territory with maximum Index values. However, for both coastal regions these are only small areas: 1.5% of cells in the Kaliningrad Oblast and 3.5% in the Primorsky Krai. Figure 7 demonstrates a fairly uniform distribution of TAs with Index values not exceeding 0.5. A large scatter of values is typical only for the last group (0.5-1). This suggests that only in a small area there is a high concentration of TAs with a high index value.



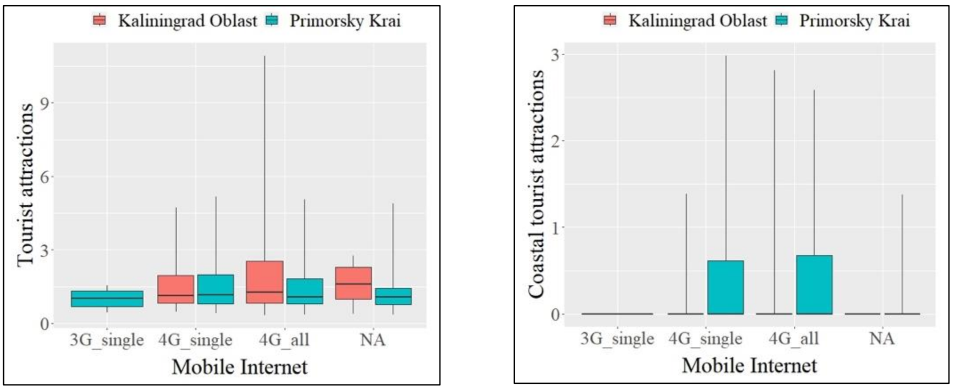
(**a**) (**b**)

Figure 7. Comparison of the distribution of (a) tourist attractions (TAs) and (b) coastal tourist attractions (CTAs) by the level of the Infrastructure Diversity Index (Source: developed by the authors)

A significant density of TAs is observed in cells for which the provision of infrastructure facilities can be considered average (i.e. Index values in the range of 0.05-0.5). This is especially typical for the Kaliningrad Oblast, which has more than 48.1% of such cells, and for the Primorsky Krai – somewhat less (36.6% of cells). A large number of cells fell into the group with the lowest Index value (up to 0.01); the average density of TAs in this territory exceeds the average density of objects located in the territory with higher values. The Primorsky Krai has 55.6% of such cells, the Kaliningrad Oblast has fewer (25.8%). This indicates that the territory of the Kaliningrad Oblast, where the TAs are located, is better provided with infrastructure than the Primorsky Krai (partially due to the factor of urbanization; see above). As with TAs, both coastal regions have large areas with a high concentration of CTAa, but with a low degree of infrastructure facilities. But for the Kaliningrad Oblast, most of the territory with CTAs is still characterized by average Index values, while in the Primorsky Krai the overwhelming number of CTAs are located in areas with very low Index values (Table 4).

Provision of tourism attractions (TAs) with mobile Internet

Most of the territory of the Kaliningrad Oblast, where all TAs (except for 6 cells) and CTAs are located, is connected to the 4G mobile Internet. Cells with a high concentration of objects are located in the "4G from all telecom operators" area – Table 5, Figure 8. For Primorsky Krai, the distributions of TAs in areas with 4G Internet coverage from one and from all operators are almost similar (Table 5, Figure 8). However, in a fairly large area of the region with a high density of TAs and CTAs, mobile Internet coverage is absent or unstable.



(**a**) (**b**)

Figure 8. Comparison of the distribution of (a) tourist attractions (TAs) and (b) coastal tourist attractions (CTAs) by mobile Internet coverage (Source: developed by the authors)

Table 5. Average and median value of tourist attractions (TAs) in groups by mobile Internet coverage (Source: developed by the authors)

Mobile internet type	**Region**					
	Kaliningrad Oblast			**Primorsky Krai**		
	Number of cells	**mean**	**median**	**Number of cells**	**mean**	**median**
Tourism attractions (TAs)						
Not available	6	1.6	1.61	148	1.94	1.08
Single operator 3G	0	-	-	3	1	1.03
Single operator 4G	155	1.76	1.12	255	1.89	1.16
All operators 4G	378	3.59	1.28	258	2.04	1.08
Coastal tourist attractions (CTAs)						
Not available	6	0	0	148	0.67	0
Single operator 3G	0	-	-	3	0	0
Single operator 4G	155	0.21	0	255	0.71	0
All operators 4G	378	0.47	0	258	0.78	0

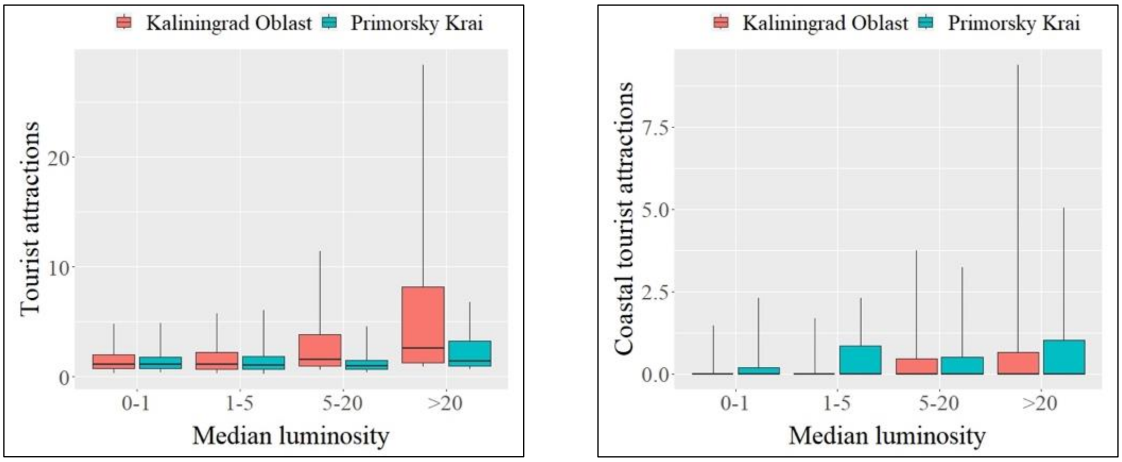
Median luminosity of night-time lights

Based on the level of luminosity, the territories of the regions were divided into four groups (Table 6). Most of the territory with TAs has a low level of light pollution. In the Kaliningrad Oblast, the distribution of TAs among cells where luminosity level does not exceed 5 is quite uniform. As the luminosity level increases, the average density of TAs also increases. In an area with a luminosity level of "above 20", 5% of cells have a density of TAs of over 10 objects per km^2. In the Primorsky Krai, TAs are distributed evenly over the territory for which the luminosity level does not exceed 20 (Figure 9). The distribution of TAs is less uniform in a small area, incl. 5% of cells with a high degree of light pollution.

Table 6. Average and median value of tourist attractions (TAs) in groups by the level of median luminosity (Source: developed by the authors)

Ranges, 10^{-9} W/cm^2*sr	Region					
	Kaliningrad Oblast			Primorsky Krai		
	Number of cells	mean	median	Number of cells	mean	median
Tourism attractions (TAs)						
0-1	342	1.82	1.12	450	1.90	1.15
1-5	73	1.80	1.13	101	1.94	1.06
5-20	77	2.97	1.57	79	2.08	1.00
>20	47	6.89	2.60	34	2.45	1.38
Coastal tourist attractions (CTAs)						
0-1	342	0.22	0	450	0.64	0
1-5	73	0.25	0	101	0.70	0
5-20	77	0.68	0	79	1.11	0
>20	47	1.35	0	34	0.90	0

The distribution of CTAs in the Kaliningrad Oblast is similar to the distribution of TAs. The maximum density and cells with very high concentrations are located in areas with a luminosity level exceeding 20 (Figure 9). In Primorsky Krai, differences between groups are less noticeable. The max average density of CTAs is in areas with illumination levels from 5 to 20 units. Cells with the highest concentration, as in the Kaliningrad Oblast, are luminosity level above 20.



(a) **(b)**

Figure 9. Comparison of the distribution of (a) tourist attractions (TAs) and (b) coastal tourist attractions (CTAs) by the level of light pollution (Source: developed by the authors)

Delimitation of the functional coastal zone of coastal regions

Table 7 presents the final results of the placement of TAs, which were obtained when assessing the influence of territorial and infrastructural factors.

CONCLUSION

This study contributes to the research on the coastal zone management and focuses on the functional delimitation of the coastal zone by measuring the spatial distribution of tourism activity. Tourism has been chosen as the leading sector of the blue economy and one of the key drivers for the development of coastal regions, the influence of which is projected to grow.

The study was conducted using data from two coastal regions: one located on the shores of the Baltic Sea, in Europe – the Kaliningrad Oblast, and the second is on the shores of the Sea of Japan, in Asia – the Primorsky Krai. The contrasting geographical location and different natural potential of these regions unable to account for specific features in the economic use of coastal territories while maintaining the general institutional framework. Our research has shown that the most promising area for tourism development is 1 km zone from the sea coast. This is where the main tourist attractions (TAs) are concentrated. In general, the 10 km coastal zone has the greatest tourism potential. These findings are common to both regions. However, regional specifics express various location patterns throughout the territory.

Table 7. Influence of factors on the placement of TAs in coastal regions (Source: developed by the authors)

Factors	Kaliningrad Oblast		Primorsky Krai	
	Tourist attractions (TA)	**Coastal tourist attractions (CTA)**	**Tourist attractions (TA)**	**Coastal tourist attractions (CTA)**
Spatial factors				
Proximity to the sea	Three zones: up to 1 km; 2-40 km; over 40 km. Max concentration at 1 km coastal zone.	Max concentration at 1 km coastal zone; most at 10 km. Distribution is uneven relative to the coastline.	Four zones: up to 1 km; 2-10 km; 11-40 km; over 40 km. Max concentration in 1 km coastal zone.	Max concentration at 1 km coastal zone; most at 10 km. Density decreases with distance.
Proximity to the state border	Max concentration within 40 km	Max concentration at 21-60 km zone	Max concentration at 41-60 km zone	Max concentration at 21-60 km zone
Proximity to urban settlement	Highest in cities and over 10 km	Highest in cities and within 5 km	Highest at 1-10 km from urban area	Uniform urban-rural distribution
Infrastructure factors				
Infrastructure Diversity Index	Most in areas with an average level of IDI		Vast areas with TAs/CTAs and low IDI	
Mobile internet	Most in areas with 4G mobile internet		Many in no or unstable mobile internet	
Light pollution	The level of luminosity corresponds to density of TAs/CTAs. The highest levels of luminosity in areas with the highest concentration of TAs/CTAs. Most areas with TAs/CTAs have low luminosity.		Over most of the territory, light pollution is evenly distributed and has low values. Only in certain areas with the highest concentration of TAs/CTAs the level of luminosity is high.	

Since the socio-economic development of coastal regions and, in particular, the coastal tourism industry is influenced by numerous factors, we processed the delimitation of the coastal territory by proximity to an urban settlement and the state border. The level of urbanization of the coastal area is, on the one hand, an indicator of the development of the territory, and on the other, indicates a higher anthropogenic load compared to non-urbanized areas. Also, urbanization is consistent with the global trend of development of coastal territories, expressed in the pull of human resources to coastal cities – "coastalization" (Mikhaylov et al., 2018). Despite the differences between the Kaliningrad Oblast and the Primorsky Krai in the degree of coastal urbanization, we conclude that TAs are predominantly located directly in urban settlements and no further than 5–10 km away. However, coastal rural areas may also have tourism potential (Marcinkevičiūtė et al., 2022; Ramos and Costa, 2017; Ullah et al., 2020). Proximity to the national border could be an additional driver to the development of tourism in coastal region. Given favorable foreign policy and good neighborhood relations with adjacent countries, one can expect a synergistic effect of the coastal-border position for tourism (Ioannides et al., 2006; Spiriajevas, 2008; Wendt et al., 2021). Our study shows that in each of the two regions there is no high concentration of TAs in the immediate border area. In this regard, with active tourist mobility, tourists should move deeper into the region towards the sea coasts. On average, the distance of CTAs from the state border ranges from 20 to 60 km in each of the studied regions.

The Infrastructure Diversity Index applied showed that infrastructure is indeed important for the development of coastal tourism. The highest concentration of TAs is noted in the most infrastructurally developed areas (mainly in cities). At the same time, there remains a reserve for unlocking the tourism potential of coastal areas, since a significant part of the TAs are located in areas with an average and low levels of infrastructure provision (roads, accommodation, cafes, shops). The same conclusions are true for ICT infrastructure and the night-time lights luminosity measured for the coastal regions.

The novelty of this study lies in the implementation of a multifactorial approach to the delimitation of the coastal zone using geospatial modeling methods. We assessed the territorial patterns in the development of the tourism potential of coastal zones. The results obtained are of high practical value for the management of coastal areas. The proposed approach considers tourism potential of the coastal zone in a broader framework – accounting for the overall tourism potential of the region, as well as the possibilities of increasing its effectiveness by incorporating other benefits of the economic-geographical location (for example, border proximity) and increasing the value of the territory.

Further research should be focused on an in-depth assessment of the possibilities of obtaining synergistic effects in the economic development of the coastal zone resulting from a combination of territorial and infrastructural factors. It is preferable to test the proposed approach on a larger number of coastal regions as to further validate the identified patterns.

Author Contributions: Conceptualization, A.A.M. and V.N.B.; methodology, A.A.M. and E.E.G.; software, E.E.G. and D.V.H.; validation, A.A.M., E.E.G. and A.S.M.; formal analysis, A.A.M. and E.E.G.; investigation, A.A.M.;

resources, D.V.H.; data curation, A.A.M.; writing - original draft preparation, A.A.M., E.E.G., V.N.B., D.V.H. and A.S.M.; writing - review and editing, A.S.M.; visualization, D.V.H. and E.E.G.; supervision, A.A.M. and V.N.B.; project administration, A.A.M.; funding acquisition, A.A.M. and V.N.B. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: Part of the study carried out by A.A. Mikhaylova (participation in formulating the problem and developing the research design, writing a draft article, preparing a recreational-geographical characteristic of the Kaliningrad region, conceptualizing empirical results) was funded by the RUSSIAN SCIENCE FOUNDATION grant No. 22-28-00022. Part of the study carried out by V.N. Bocharnikov (participation in problem statement, text editing, recreational-geographical description of the Primorsky Krai) was funded by the RUSSIAN SCIENCE FOUNDATION grant No. 22-17-00186.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Abdullaeva, I.V., & Bredikhin, A.V. (2018). Recreational-geomorphological zoning of the South-Eastern Baltic coast. *Regional Environmental Issues*, 2, 119–123, (In Russ.). https://doi.org/10.24411/1728-323X-2018-12119

Adeola, O., & Evans, O. (2019). Digital Tourism: Mobile Phones, Internet and Tourism in Africa. *Tourism Recreation Research*, 44, 190–202. https://doi.org/10.1080/02508281.2018.1562662

Afanasyeva, E. (2014). Peculiarities of tourism development in coastal areas of the Kaliningrad region. *Pskov Journal of Regional Studies*, 18, 68–77, (In Russ).

Boavida-Portugal, I., Rocha, J., & Ferreira, C.C. (2016). Exploring the Impacts of Future Tourism Development on Land Use/Cover Changes. *Applied Geography*, 77, 82–91. https://doi.org/10.1016/j.apgeog.2016.10.009

Borovik, N.A. (2020). Trends and directions of development of cultural and historical tourism in the Kaliningrad region. *Geopolitics and Ecogeodynamics of regions [Geopolitika i ekogeodinamika regionov]*, 6, 76–92, (In Russ).

Boto-García, D., & Leoni, V. (2023). The Economic Value of Coastal Amenities: Evidence from Beach Capitalization Effects in Peer-to-Peer Markets. *Environ Resource Econ*, 84, 529–557. https://doi.org/10.1007/s10640-022-00735-5

Burke, L., Kura, Y., Kassem, K., Revenga, C., Spalding, M., & McAllister, D. (2001). Coastal ecosystems. *World Resources Institute*, Washington, DC. 94 p.

Ciacci, A., Ivaldi, E., Mangano, S., & Ugolini, G.M. (2023). Environment, Logistics and Infrastructure: The Three Dimensions of Influence of Italian Coastal Tourism. *Journal of Sustainable Tourism*, 31, 1583–1607. https://doi.org/10.1080/09669582.2021.1876715

Cohen, J.A. (1960). Coefficient of agreement for nominal scales. *Educational and Psychological Measurement*, 20, 37–46.

Crowell, M., Edelman, S., Coulton, K., & McAfee, S. (2007). How Many People Live in Coastal Areas? *Journal of Coastal Research*, 23. https://doi.org/10.2112/07A-0017.1

Dwyer, L. (2018). Emerging Ocean Industries: Implications for Sustainable Tourism Development. *Tourism in Marine Environments*, 13, 25–40. https://doi.org/10.3727/154427317X15018194204029

Gumenyuk, I.S., Gumenyuk, L.G., & Belov, N.S. (2019). «Primorskiy faktor» v programmakh territorial'nogo razvitiya munitsipal'nykh obrazovaniy Kaliningradskoy oblasti [The coastal factor in spatial development programmes for the municipalities of the Kaliningrad region]. *Vestnik of Immanuel Kant Baltic Federal University. Natural and Medical Sciences*, 2, 5–22, (In Russ.).

Hoegh-Guldberg, O., Poloczanska, E., & Richardson, A. (2013). Australia's marine resources in a warm, acid ocean. *In Four Degrees of Global Warming: Australia in a Hot World*, 84–100, Taylor and Francis, London, United Kingdom. https://doi.org/10.4324/9780203370476-14

Ioannides, D., Nielsen, P.Å., & Billing, P. (2006). Transboundary Collaboration in Tourism: The Case of the Bothnian Arc. *Tourism Geographies*, 8, 122–142. https://doi.org/10.1080/14616680600585380

Kabil, M., Priatmoko, S., Magda, R., & Dávid, L.D. (2021). Blue Economy and Coastal Tourism: A Comprehensive Visualization Bibliometric Analysis. *Sustainability*, 13, 3650. https://doi.org/10.3390/su13073650

Kounavis, C.D., Kasimati, A.E., & Zamani, E.D. (2012). Enhancing the Tourism Experience through Mobile Augmented Reality: Challenges and Prospects. *International Journal of Engineering Business Management*, 4, 10. https://doi.org/10.5772/51644

Kropinova, E., Belova, A., & Afanasyeva, E. (2015). Ustoychivyy turizm – al'ternativa razvitiyu pribrezhnykh gorodov (na primere malykh gorodov Kaliningradskoy oblasti) [Sustainable tourism – an alternative to the development of coastal cities (on the example of small towns in the Kaliningrad region)]. *Vestnik of Immanuel Kant Baltic Federal University. Natural and Medical Sciences*, 7, 104–113, (In Russ).

Kubo, T., Uryu, S., Yamano, H., Tsuge, T., Yamakita, T., & Shirayama, Y. (2020). Mobile Phone Network Data Reveal Nationwide Economic Value of Coastal Tourism under Climate Change. *Tourism Management*, 77, 104010. https://doi.org/10.1016/j.tourman.2019.104010

Law, R., Chan, I.C.C., & Wang, L.A. (2018). Comprehensive Review of Mobile Technology Use in Hospitality and Tourism. *Journal of Hospitality Marketing & Management*, 27, 626–648. https://doi.org/10.1080/19368623.2018.1423251

Li, W., Bai, X., Yang, D., & Hou, Y. (2023). Maritime Connectivity, Transport Infrastructure Expansion and Economic Growth: A Global Perspective. *Transportation Research Part A: Policy and Practice*, 170, №103609. https://doi.org/10.1016/j.tra.2023.103609

Liu, J., An, K., & Jang, S.S. (2020). A Model of Tourists' Civilized Behaviors: Toward Sustainable Coastal Tourism in China. *Journal of Destination Marketing & Management*, 16, 100437. https://doi.org/10.1016/j.jdmm.2020.100437

Liu, Y., Chen, Y., & Han, F. (2023). Exploring Temporal and Spatial Structure of Tourism Market through a Big Data Approach: Whether Geographic Distance Still Matters? *Journal of Hospitality and Tourism Management*, 55, 292–299. https://doi.org/10.1016/j.jhtm.2023.03.017

Marcinkevičiūtė, L., Pranskūnienė, R., & Makutėnienė, D. (2022). Opportunities for Ecosystem Services in the Protected Areas in the Coastal–Rural Area of the Nemunas Delta and the Curonian Lagoon (Lithuania). *Sustainability*, 14, 9647. https://doi.org/10.3390/su14159647

Martishenko, N. (2011). Estimation of spatial tourist allocation in Primorye in high season. *Practical Marketing*, 8, 17–25, (In Russ).

Maul, G.A., & Duedall, I.W. (2019). Demography of Coastal Populations. In Encyclopedia of Coastal Science (692–700). *Springer International Publishing*. Cham. https://doi.org/10.1007/978-3-319-93806-6_115

Mikhaylov, A.S., Mikhaylova, A.A., & Kuznetsova, T.Y. (2018). Coastalization Effect and Spatial Divergence: Segregation of European Regions. *Ocean & Coastal Management*, 161, 57–65. https://doi.org/10.1016/j.ocecoaman.2018.04.024

Mikhaylova, A., Plotnikova, A., Goncharova, J., & Mikhaylov, A. (2021). Digital capacity of Russian tourist territories. *GeoJournal of Tourism and Geosites*, 35, 322–331. https://doi.org/10.30892/gtg.35209-655

Mou, N., Zheng, Y., Makkonen, T., Yang, T., Tang, J., & Song, Y. (2020). Tourists' Digital Footprint: The Spatial Patterns of Tourist Flows in Qingdao, China. *Tourism Management*, 81, 104151. https://doi.org/10.1016/j.tourman.2020.104151

Neumann, B., Vafeidis, A.T., Zimmermann, J., & Nicholls, R.J. (2015). Future Coastal Population Growth and Exposure to Sea-Level Rise and Coastal Flooding - A Global Assessment. *PLoS ONE*, 10, e0118571. https://doi.org/10.1371/journal.pone.0118571

North, D. (1958). Ocean Freight Rates and Economic Development 1730-1913. *J. Eco. History*, 18, 537–555. https://doi.org/10.1017/S0022050700107739

OECD (2016). The Ocean Economy in 2030. *OECD Publishing*. Paris. https://doi.org/10.1787/9789264251724-en

Ramadan, M. (2020). Impact of Road Infrastructure on Tourism Development in Kosovo. *International Journal of Management*, 11, 466–474.

Ramos, D.M.B., & Costa, C.M.M.D. (2017). Coastal Tourism in Rural Areas: Development Model. *IJEIM*, 21, 242. https://doi.org/10.1504/IJEIM.2017.083473

Rudenko, L.L., Kosolapov, A.B., Barashok, I.V., & Lozovskaya, S.A. (2022). Territorial differentiation and classification of recreation centers in the coastal zone of Primorsky Krai. *Servis v Rossii i za rubezhom [Services in Russia and Abroad]*, 16, 141–148. (In Russ). https://doi.org/10.5281/zenodo.7404165

Small, C., & Nicholls, R.J. (2003). A global analysis of human settlement in coastal zones. *Journal of Coastal Research*, 19, 584–599. http://www.jstor.org/stable/4299200

Spiriajevas, E. (2008). The Impact of Tourism Factor for Development of the South-East Baltic Coastal – Border Regions. *GeoJournal of Tourism and Geosites*, 2, 118–128.

Talebi, M., Majnounian, B., Makhdoum, M., Abdi, E., Omid, M., Marchi, E., & Laschi, A. (2019). A GIS-MCDM-Based Road Network Planning for Tourism Development and Management in Arasbaran Forest. Iran. *Environ Monit Assess*, 191, 647. https://doi.org/10.1007/s10661-019-7831-3

Ullah, Z., Johnson, D., Micallef, A., & Williams, A.T. (2020). Coastal Scenic Assessment: Unlocking the Potential for Coastal Tourism in Rural Pakistan via Mediterranean Developed Techniques. *J Coast Conserv*, 14, 285–293. https://doi.org/10.1007/s11852-009-0078-3

Ushakova, V.L. (2019). Population's Dynamics of the Pacific Coast of the Far East. *In Geosystems of the Eastern regions of Russia: The features of their structures and spatial development*, 101–109, Pacific Geographical Institute of FEB RAS, Vladivostok, Russia, (In Russ). https://doi.org/10.35735/tig.2019.24.73.012

Vojnović, N. (2005). Some characteristics of rural tourism in the region of Istria from 1999 to 2003. *Ekonomska Istrazivanja*, 18, 80–102.

Wendt, J.A., Grama, V., Ilieş, G., Mikhaylov, A.S., Borza, S.G., Herman, G.V., Bógdał-Brzezińska, A. (2021). Transport Infrastructure and Political Factors as Determinants of Tourism Development in the Cross-Border Region of Bihor and Maramureş. A Comparative Analysis. Sustainability. *Sustainability*, 13, 5385. https://doi.org/10.3390/su13105385

Zhang, S., & Ju, H. (2021). The Regional Differences and Influencing Factors of Tourism Development on Hainan Island, China. *PLoS ONE*, 16, e0258407. https://doi.org/10.1371/journal.pone.0258407

***The United Nations. Percentage of total population living in coastal areas. https://www.un.org/esa/sustdev/natlinfo/indicators/methodology_sheets/oceans_seas_coasts/pop_coastal_areas.pdf (accessed on 02 September 2023).

Article history: Received: 11.09.2023 Revised: 11.10.2023 Accepted: 09.11.2023 Available online: 15.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1506-1516
DOI 10.30892/gtg.50430-1148

DETERMINING THE IMPACT OF ROHINGYA FORCED MIGRATION ON THE NATURAL ENVIRONMENT OF TOURISM DESTINATION IN BANGLADESH

Md. MOHIUDDIN*
Department of Geography and Environment, Jagannath University, Dhaka, Bangladesh, e-mail: mahigeo.jnu@gmail.com

Mallik Akram HOSSAIN
Department of Geography and Environment, Jagannath University, Dhaka, Bangladesh, e-mail: mallik.a@geography.jnu.ac.bd

Citation: Mohiuddin, M., & Hossain, M.A. (2023). DETERMINING THE IMPACT OF ROHINGYA FORCED MIGRATION ON THE NATURAL ENVIRONMENT OF TOURISM DESTINATION IN BANGLADESH. *GeoJournal of Tourism and Geosites*, 50(4), 1506–1516. https://doi.org/10.30892/gtg.50430-1148

Abstract: Rohingya forced migration has damaged the tourism destination in Bangladesh. The research focuses on the impact of Rohingya influx on tourism destination in Cox's Bazar district in Bangladesh. The environmental aspects of the tourism destination have been highlighted in this study. This research has been conducted using mixed method approaches consisting of both qualitative and quantitative data. The primary data has been collected through qualitative and quantitative approaches. Qualitative data has been collected using Focus Group Discussion (FGD) and In-depth interviews. Three distinct groups have been focused on as samples for the study, including tourist experts, host communities, and Rohingya experts. Questionnaire survey has been conducted to gather quantitative data regarding the Rohingya forced migration's impact on tourism. Key Informant Interview (KII) has also been used to check the quantitative data accuracy of this study. The study found majority (64 %) of the respondent strongly agreed that forest cover has been decreasing due to the Rohingya influx, and it has been destroying the beauty of tourist destinations. The water channel is an integral part of the environment in the tourist destination. Almost 55% of the respondents strongly agreed that Rohingya is the primary source of water pollution. Almost 45 % of people strongly agreed, and 41.5% agreed that Rohingya is the main causes for solid waste pollution in tourism destination at Cox's Bazar. In addition, more than fifty percent of the local people agree that house building materials, domestic and market waste, and solid wastes generated from Rohingya people are responsible for the destruction of the tourist harbor. The study has also identified that Rohingya are responsible for the destruction of tourism based local economy in Cox's Bazar district, Bangladesh. Research findings of this study could be used to mitigate the impact of Rohingya migrants on the tourism environment in Bangladesh.

Key words: Rohingya forced migration, Tourism destination, Cox's Bazar, Bangladesh

* * * * * *

INTRODUCTION

Migration is a frequently cultivated issue, where forced migration creates a new dimension in migration research (Becker and Ferrara, 2019; Cerwonka and Malkki, 2008). Currently, globally forced migration received more focus as it is a challenging issue for the world and the host community (Altindag et al., 2018; Zetter, 1991). The reason behind that the displaced person becomes not only a burden to the place of immigration but also creates trouble there by polluting air and water, destroying the forest and natural resources, and involving different social disturbances. Most of the time, local communities feel discomfort and unsafe because of their presence. Studies suggest that the effect of forced migrants has been severe on the host community (Alshoubaki and Harris, 2018). Globally, in 2009, 43.3 million people were displaced, and 10 years later (2018), 70.8 million people migrated to avoid violence and disasters (UNHCR, 2018).The world communities have noticed that around 68.5 million people forcibly migrated and left their home of origin in 2018 (UNHCR, 2018). Forced Migration is not a new dimension of migration; the research on forced migration came to light in the early 1980s. Currently, the world experienced an extensive increase in forceful migration in different parts of the world, particularly in Africa, Europe and in the Middle East countries. As a result, forced migration has emerged as a new field of research in the migration discourse (Akgündüz et al., 2018; Malkki, 1996).

Since 2107, approximately 1.1 million Rohingya arrived in Cox's Bazar district, which affected the local tourism. Tourism is one of the main source of livelihood for the local people of the Cox's Bazar. Apart from tourism, the exodus has affected the environment, particularly the natural environment, society, and economy (Zahed, 2023; Habib et al., 2018). For instance, the Rohingya influx threatens the forest and wild animals. Most of the Rohingya live in Teknaf and Ukhiya Upazila of Cox's Bazar. Recently, an elephant rampage killed several refugees near Kutupalong refugee camp, a tourist destination (UNHCR, 2019). This is because of destruction of forest and habitat of wild animals in the region. The dramatically increased population in Cox's Bazar has created the demand for housing, agricultural land, and firewood from forests by cutting trees, withdrawing and polluting surface and ground waters, and generating huge wastages intimidating human health (Hoque et al., 2021; CPD, 2018; Martin, 2005). Surroundings of the camp area in Ukhiya and Teknaf are also most vulnerable due to pollution generated from settlement constructions and domestic waste (Mendoza, 2017). In its recent report, UNICEF reported high levels of bacterial contamination in the tube wells installed in the Rohingya camps area.

* Corresponding author

Another World Health Organization (WHO) report suggests that 62 percent of household water is contaminated (The Daily Star, 2017). Waste management is a big challenge for the local environment in Cox's Bazar district, particularly in the camp area of Teknaf and Ukhiya Upazila (CPD, 2018). Additional 1.5 million Rohingya people added to the total population of Cox's Bazar's Ukhiya and Teknaf Upazila. These vast populations live in a cramped refugee camps without waste disposal. As a result, almost 10,000 tons of waste are generated in the refugee camp each month. Generated waste include house building materials, non-disposal items like the plastic bottle for drinking water and food container, and domestic non-disposal materials (CPD, 2018). The mismanagement of solid waste has contributed to the deterioration of local environment for instance natural water bodies. The tourism of Cox's Bazar is heavily dependent on nature, which is under threat due to the influx of Rohingya people. The forest biodiversity and natural beauty have been lost because of the invasion of housing projects and the development of infrastructure by destroying local resources, for example, bamboo, collection of fuel wood, and cutting hills. The diversity of medicinal plants, mixed evergreens, and plant communities comprising various herbs, shrubs, and bamboo jungles has also been destroyed (The Daily Star, 2022) .The small mangrove forests also have a diverse ecosystem, which has been vanished by the construction of settlements. The diversified natural beauty of the destination, including the world longest sea beach, forest, and seasonal variation of weather, attracts national and international tourists. Saint Martin's Island, a coral Island, is another popular tourist destination. Cox's Bazar tourism earns money from different sectors, and many people depend on the sectors for their livelihood (Hoque et al., 2021).

The water quality has deteriorated in and around Rohingya camps because of the presence of open toilets, domestic wastage, waste from volunteers, burning wood for fuel, and transportation (Alam, 2018). In the Cox's Bazar area, sanitation is inadequate for tourists. After the Rohingya influx in 2017, the poor sanitation system spoils the tourist zone by spreading bad smells and polluted water bodies (World Vision International, 2017). Migrants along with volunteers, and visitors also pollute local environments for example water bodies like ponds, canals, and rivers by throwing solid and liquid waste (UNDP, 2018). The open latrine of the Rohingya settlement which is washed out during the rainy season also pollute water bodies (The Daily New Nation, 2017).The poor sanitation system has posed a potential health risk for the host community and tourists. The scarcity of drinking water is acute in the camp, so Rohingya people use rain and cannal water which are the potential sources of waterborne diseases (UNDP, 2018). Above 200,000 diarrhea patients were registered in camps due to poor hygiene and sanitation in 2018 (The Daily Star, 2019). With a capacity to treat waste generated by 150,000 people, a mega waste treatment plant was built up by Oxfam in Cox's Bazar Rohingya camps. This could ease the problems of excreta disposal in the refugee camp. Due to the absence of a waste management system, solid wastes are thrown here and there, polluting the environment. However, initiatives are underway to address the resulting adverse impacts on health and the environment (CPD, 2018). The local community's health is at risk due to pollution caused mainly by the influx of Rohingya people who live in overcrowded refugee camps. Refugee people are also vulnerable to health hazards as the camp is constrained by inadequate clean water, hygienic sanitation, and infrastructure facilities (Haque, 2018). The tourism of Bangladesh is destination-based tourism (Nowreen and Mohiuddin, 2021). The impact of Rohingya forced migration on natural environment of tourism destination is evident in Cox's Bazar, Bangladesh (Hoque et al., 2021; Roy and Chowdhury, 2021). This study focused on the impact of Rohingya forced migration on the natural environment of tourist destination, Cox's Bazar. In addition, this paper highlighted the destruction of main part of natural environment of tourism destination particularly forest cover loss due to Rohingya settlement; water body is polluted by Rohingya latrine and settlement; and the solid waste is another problem for the tourist and local community produced by Rohingya, volunteers and the officials appointed for supporting Rohingya community.

METHODOLOGY

The present study applied mixed method approaches: qualitative and quantitative. Both primary and secondary data has been gathered for this study. Primary data has been collected from study site using questionnaire survey, FGD, and In-depth interview. Secondary data has also been collected from different published and unpublished sources. The respondents were Rohingya experts, tourist experts, and host communities. Questionnaire survey has been conducted to gather quantitative data regarding the Rohingya forced migration's impact on the natural environment of tourism destination. Another important tools and techniques have been used during study such as Key Informant Interview (KII) to ensure the accuracy of the data for this study (Figure 1).

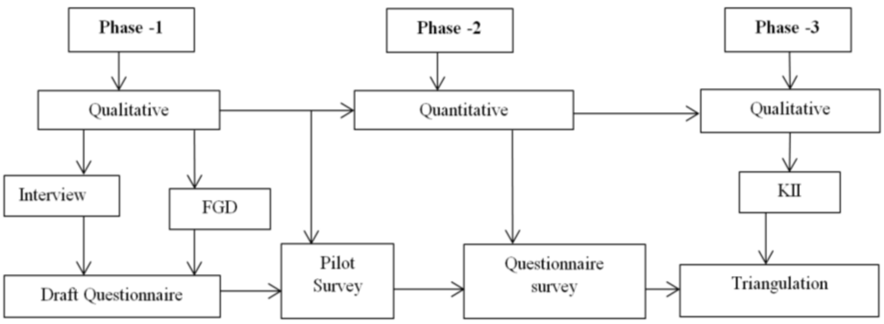


Figure 1. Mixed methods approach (Sources: Author, 2023)

The study respondents are those directly or indirectly involved in tourism sectors, particularly service providers for tourists, environment experts, hotel managers, tourism experts, refugee specialists, and policy-makers. Hence, the total population size is unknown in the tourism study sites. The actual population numbers involved in tourism sectors in the study area are unknown. So, sample size for a large number of unknown populations is determined by the following formula (Cochran, 1963):

$$n = \frac{Z^2 pq}{e^2} \qquad n = 385$$

[n = total sample, Z = standard error associated with the chosen level of confidence 95%(where, the value is read from the normal distribution table, Z = 1.96), P = Proportion of given population (the maximum sample size P is usually 50% = 0.5), q = 0.5(1- p), e = 0.05 (error of margin = 5%= 0.05%)]. A minimum of 385 samples are enough if the population size is unknown. Therefore, the sample size of 400 respondents is required to achieve a 95% confidence level with a 5% sampling error in this research. The questionnaire reflects mainly the effects of the Rohingya influx on tourism along with environment, economy and society.. The impact of Rohingya migration on the natural environment of tourism destination has been assessed under the dimension 'environment'. A total of 24 items considered in the question with 5-point Likert scale was used to measure the impact of the tourism sector (5 = Strongly Agree, 4= Agree, 3 = Neutral (neither Agree nor Disagree), 2 = Disagree and 1 = Strongly Disagree). Missing values of the semi-structured questionnaire should be avoided (Kuvan and Akan, 2005). Six (6) more FGDs have been completed for saturation from Cox's Bazar Sadar (2), Teknaf (2), and Ukhiya (2). Lists of questions have been used in the field study.

This method worked to ensure data accuracy from various questions from different opinions. Each FGD comprised 12- 16 persons that incorporated people from diverse backgrounds within a single platform and included a moderator with a list of questions regarding the impact of Rohingya forced migration on tourism. Seven (7) more Key Informant Interviews (KII) were conducted after a semi-structured questionnaire survey from different areas, particularly Ukhiya, Cox's Bazar Sadar, and Teknaf Upazila from Cox's Bazar District. A list of questions as a tool for KII is effective for qualitative data triangulation after the questionnaire survey. The median and Inter Quartile Range (IQR) has been used, as quantitative data were not normally distributed. The percentage was used for categorical variables. Tables and a graphical presentation are also provided.

STUDY AREA

Rohingya refugee people reside in 35 temporary camps in Cox's Bazar district (UNDP, 2018). Most camps are concentrated in Teknaf and Ukhiya Upazila in Cox's Bazar district, an ecologically critical area (Imtiaz, 2018; Mukul et al., 2010; Rodríguez et al., 2011). Cox's Bazar is one of the attractive tourism destinations in Bangladesh. The District spreads over 2491.86 sq. km. The forest cover of the district is 940.58 sq. km. The location of the study area, Cox's Bazar, lies between 20°43' and 21°56' north latitudes and between 91°50' and 92°23' east latitude. The Bay of Bengal bounds the district on the south and west, the Chittagong district on the north, the Bandarban district on the north and east, and Myanmar on the east (BBS, 2011 and Figure 2). The study areas include Cox's Bazar Municipality in Cox's Bazar Sadar Upazila, Teknaf Pourashova in Teknaf Upazila, and Palongkhali Union in Ukhiya Upazila (Figure 2).

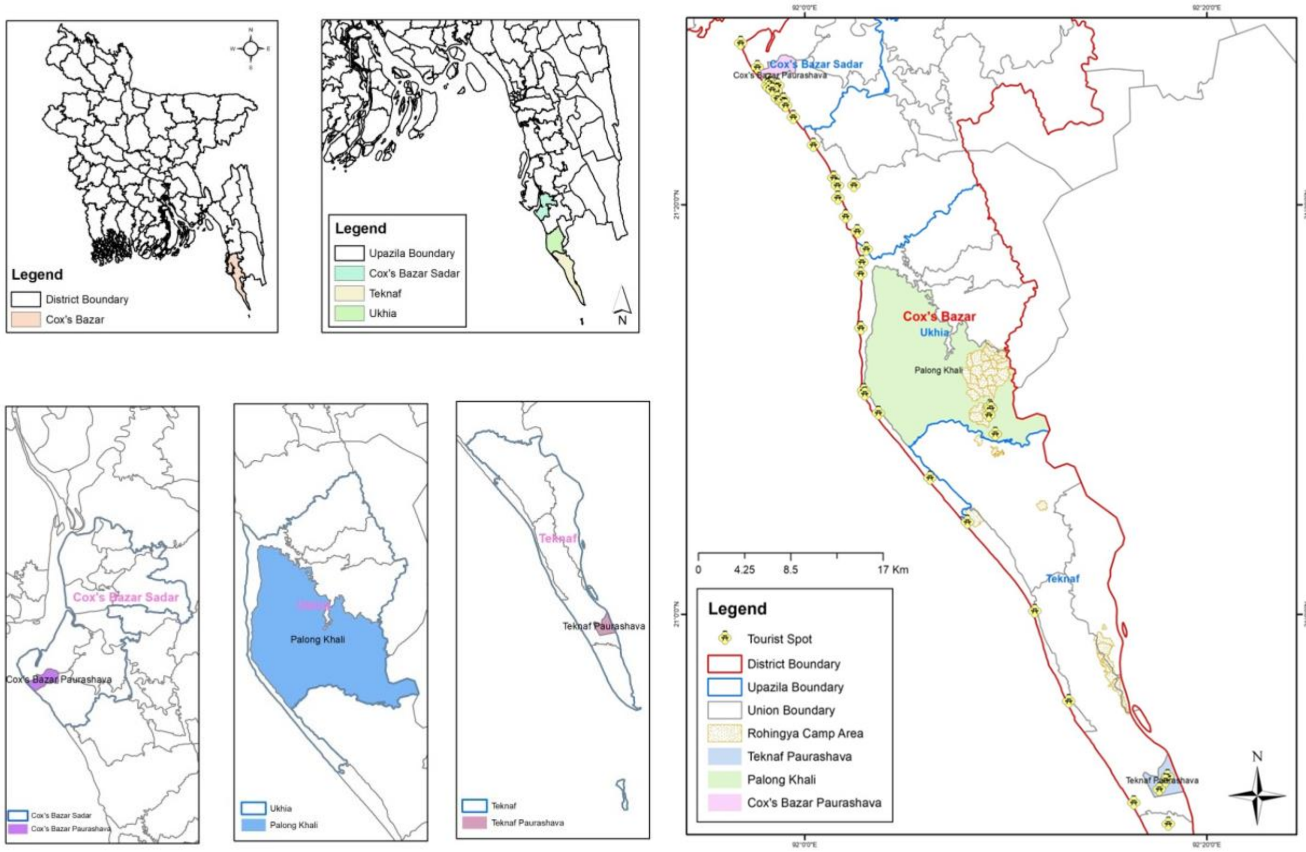


Figure 2. Study area (Sources: Prepared by author, 2023)

Theoretical framework

Andries (2000) highlighted the value of natural environment in his minimal model particularly air, water and biodiversity of the tourism destination. Butler (1980)focused on the importance of natural environment of tourism destination in Tourism Area Life Cycle (TALC) Model while Sharpley and Stone (2010) emphasized on the environmental usefulness in tourism destination in Sustainable Tourism Development Model. The models deal with the natural environment of the tourism destination. However, these models are related to the study that explored the impact of Rohingya migration on the natural environment of tourism destination, Cox's Bazar (Figure 3).

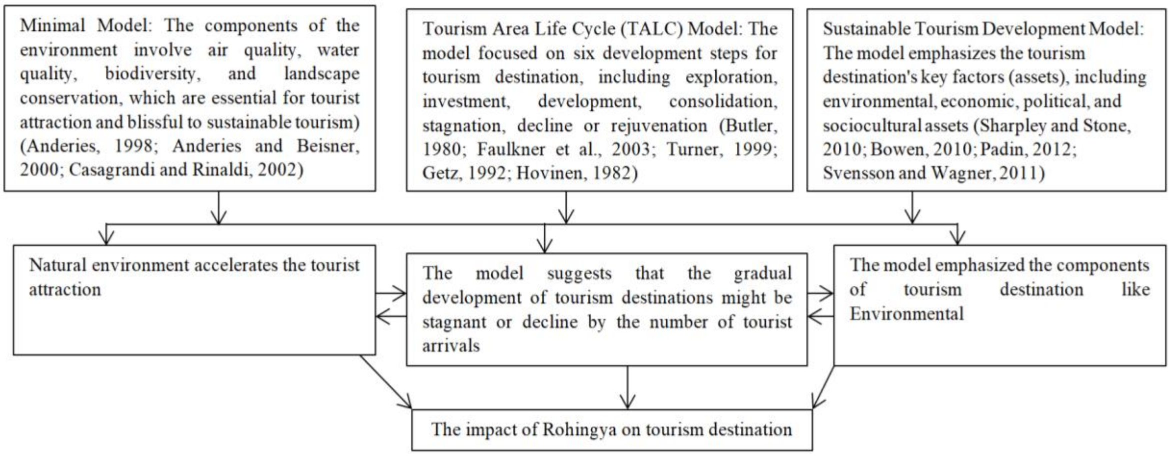


Figure 3. Theoretical framework (Source: Author, 2023)

RESULT AND DISCUSSION

A. Cox's Bazar - A tourism destination

Tourism emerges as a rising business both in private and public sector in Bangladesh (TSA, 2020). It is a growing economic sectors in the country. Cox's Bazar won seventh position for world wonder (2007). The tourism creates job and opportunities for the local community (Rahman, 2010). Bangladesh is gateway to far east countries for its geographical location that opens the potentials of tourism. Cox's Bazar is most attractive tourism destination in Bangladesh because of its enchanting natural environment. The tourism destination Cox's Bazar is unique from other areas of Bangladesh with world longest 120 kilometers unbroken longest sea beach, beautiful cannel and channel with fresh water inland, reserved forest with diversity of species, surfing wave, colorful pagodas, soft silver sand. Cox's Bazar is the prime destination for the tourist for its natural beauty such as hill, seas beach, forest (Dey et al., 2013). Income from tourism accelerates the progress of tourism industry. The total income of tourism in Bangladesh is 744,2 million USD in 2018-2019 that contributes directly to 3.02% of total GDP of Bangladesh. It also creates employment 8.07% of total employments of the country (TSA, 2020).

B. Impact of Rohingya influx on the natural environment of tourism destination

The nature based tourism destination, Cox's Bazar, Bangladesh is close to destruction by mismanagement and over exploitation of natural resources (Nowreen and Mohiuddin, 2021). Recently, the Rohingya forced migration destroyed the natural environment of the district particularly destroying forest, polluting water, and producing solid waste (The Daily Star, 2022).

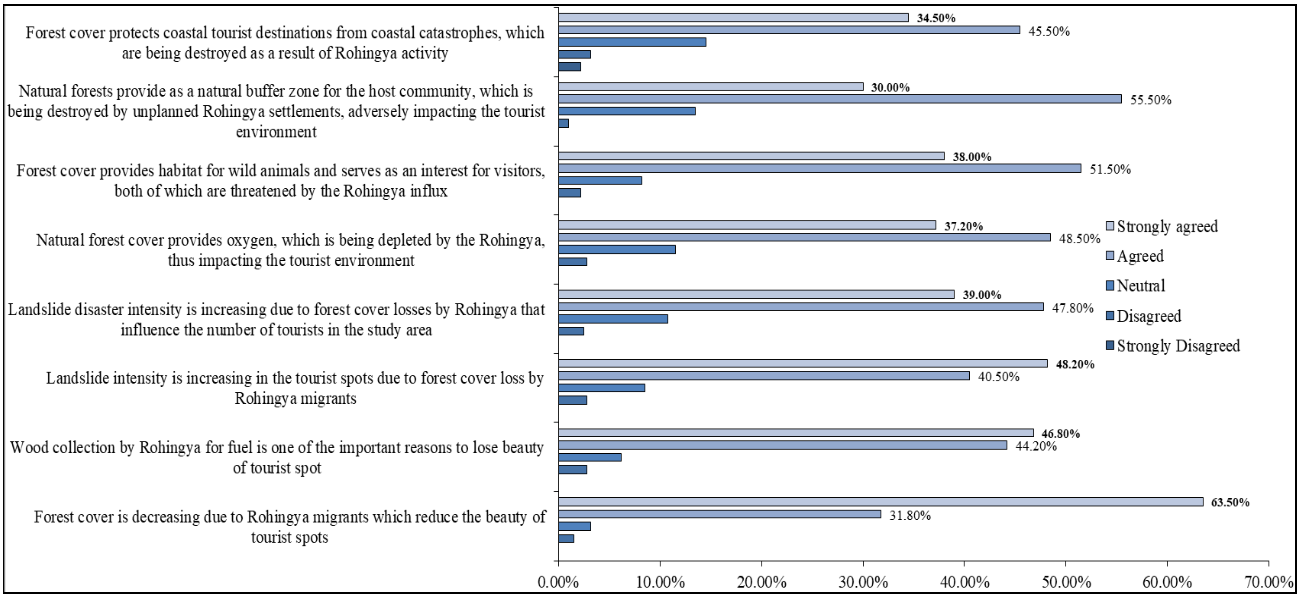


Figure 4. Forest cover change (Sources: Field survey, 2021)

(i) Forest Cover Loss

Unplanned settlements for the Rohingya have destroyed the natural forest, and the tourism environment. About 30% of respondents strongly agreed while 55% agreed that natural forest protects the mainland community from catastrophes, especially from cyclones and tidal storm surges. 38% strongly agreed, and 51.5% agreed that the natural forest provides habitats for many species living in the Teknaf and Ukhiya peninsula (Figure 4). Many tourists visit Teknaf and Ukhiya to enjoy the natural beauty, as claimed by 88 % of respondents. Landslide is another environmental issue during the rainy season in study area. This hazard happened among other factors owing to exposure of soil and deforestation.

Almost 90% of the local people agreed that the landslide occurrence is caused by deforestation. About 46.75 % of local people strongly agreed, and 44.25% agreed that wood collection is the main reason for deforestation in Teknaf, Ukhiya, and Cox's Bazar peninsula. The majority (63.5 %) of the respondents strongly agreed that tourist spots are losing their beauty due to the cutting of trees in tourist spots by Rohingya (Figure 4 and 5).

Figure 5. Deforestation by Rohingya, (a) deforestation for settlement and (b) deforestation for graveyard (Source: Field survey, 2021)

This research finds that the Rohingya unplanned settlement has caused deforestation in Cox's Bazar area. Rohingya rely on forest wood for fuel, house-building materials, and business purposes. Biodiversity loss due to deforestation in the critical ecological area, particularly in Teknaf and Ukhiya Upazila, is also evident (Hasan, 2020; IUCN and BFD, 2016). A total of 1951 hectares of forest land were lost by Rohingya influx as 750000 kg of timber is collected daily by Rohingya for fuel and business (The Financial Express, 2022). It is projected that 1.2- 2.8 million tons of wood will be collected at the end of 2023 for fuel and business (UNDP, 2018). The impact of Rohingya is felt not only in the forest but also in different natural resources (Black, 1994; Hagenlocher et al., 2012; Hugo, 1996; Rahman, 2018).

However, the forest is a natural resource that attracts tourists. Rohingya destroys natural and manmade forests in Ukhiya and Teknaf, where the high density of Rohingya are found in Kutupalong and Balukhali camps, which has led to the destruction of 607.28 hectares of forest land (Table, 1). Furthermore, the study found landslides occurring during rainfall because of exposed land. Forest loss exposes physiochemical properties that influence landslides during the rainy season (Mukul et al., 2010). Many people (38%) in Cox's Bazar area are poor and, directly and indirectly, depend on forest wood for their livelihood all year round. Forest cover losses and creating bare land occur daily in Cox's Bazar after the Rohingya influx since 2017 (Ahmed et al., 2019; Barua et al., 2018; Hasan, 2018; Moslehuddin et al., 2018; Rashid et al., 2021). A total of 1650.20 hectares of natural forest cover was lost after the Rohingya arrival in 2017(Table 1).

Table 1. Deforestation Scenarios after Rohingya Influx (Sources: Forest Department, Cox's Bazar and UNDP, 2018; Mohammad, 2020)

Location	No. of refugees at the site:	Occupied land (Hectares):	Destroyed project forest area (Hectares):	Destroyed natural forests (Hectares):	Total loss (US dollar Lac.):
Kutupalong, Ukhiya	218,000	715.6	231	484.81	1,52.8
Balukhali 1 and 2 Ukhyia	126,900	451	222.67	228.34	1,18.4
Balukhali Dhala, Ukhiya	63,000	126	61.82	67.73	14.97
TajnimarKhola, Ukhiya	56,250	183	77.93	104.66	41.91
Hakimpara Mokkarbeel, Jamtolee, Begghoa,Ukhiya	93,550	209	113.76	54.66	53.43
Shofillyakata (East and West), Ukhiya	13,000	81.4	37.44	43.32	18.87
Kerontoli, Chakmarkul, Teknaf	16,020	32.30	31.90	40.49	6.13
Putibunia, Teknaf	30,000	35.87	0.0	35.87	7.54
Nayapara, Teknaf	20,100	99.19	33.19	65.99	23.87
Leda, Teknaf	15,000	18.21	0.0	18.22	3.83
Total (1 hectare=2.47 acres)	651,820	1950.67	809.51	1181.21	447.27

Host countries have extreme pressure on the environment, mainly forests, water, air and soil, and other natural resources (Black, 1994; Chambers, 1986; Hagenlocher et al., 2012). The wildlife conservation Order 1973 focuses on wildlife.

Despite of having all laws (about 210 rules and 30 policies related to the environment), treaties, and protocols,, Bangladesh's position in the sustainable environmental index Rank-2018 is 179 out of 180 countries (Barua et al., 2018). It implies that the ecological condition of Bangladesh deteriorates after the Rohingya influx.

The government of Bangladesh declared eight areas as Ecologically Critical Areas (ECA) in 1999, including Cox's Bazar, Saint Martin Island, and Teknaf peninsula affected by the Rohingya influx (Barua et al., 2018). Rohingya has occupied many lands in Ukhiya and Teknaf Upazila, for example 51 hectares in Ukhiya and 2024.29 hectares in Ukhiya Upazila. They collect 60 tons and 650 tons' wood per day, from Teknaf and Ukhiya Upazila respectively (Table 2). The forest cover provides the tourist attraction of its beauty, wood for the livelihood of the locality, and habitats of the different species. However, the influx of people is severe on forest cover and other parts of the environment, including water resources in the study area, particularly surface water sources, which are being polluted by vast amounts of waste.

Table 2. Impact on Forests after the Rohingya Influx (Sources: Forest Department, Cox's Bazar and UNDP, 2018; Mohammad, 2020)

Upazila:	Land acquired:	Lost forest assets:	Created forest assets lost:	Daily firewood need (in camps):
Teknaf	51 hectares	BDT 50 Crore	BDT 3 Crore	50 tons
		USD 6 mil	USD 0.36 mil	
Ukhiya	2024.29 hectares	BDT 500 Crore	BDT 235 Crore	650 tons
		USD 60.2 mil	BDT 28.3 mil	

(ii) Water Quality Depletion

The overwhelming majority (90%) of the local people emphasize on severe water scarcity in the Rohingya camp. Nearly 42.75% of people of Cox's Bazar agreed water pollution is increasing due to throwing waste (Figure 6). Undrinkable water is the primary source of diseases like malaria, fevers, and skin disease (Figure 7).

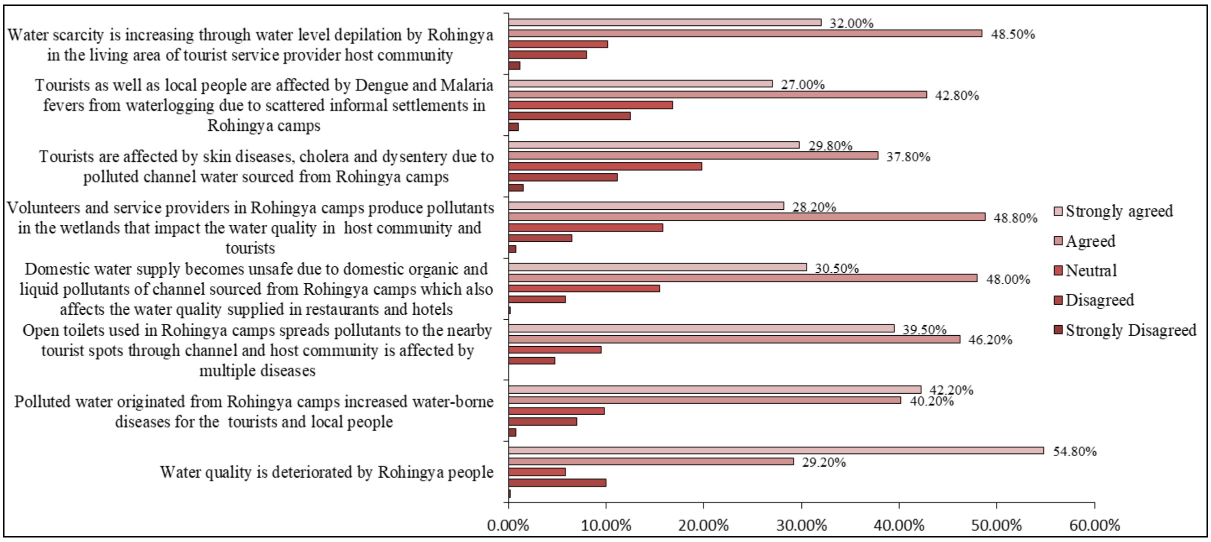


Figure 6. Water Quality Depletion (Source: Field survey, 2021)

Figure 7. Water quality depletion, (a) Uses of polluted water and (b) Open latrine (Sources: Field survey, 2021)

A significant percentage of the respondents (48.75 %) of the locality agreed that tourists, volunteers, and service providers from different organizations pollute water using their vehicles and throwing food containers. The affected communities are not only local people but also tourists and visitors. 48% of respondents agreed that Rohingya pollute the channels, wetlands, and channels through domestic pollutants, open latrines, house building materials, and market wastages. Many respondents (46.25 %) agreed domestic pollutants are other significant sources of pollution of the local wetland that contribute to diseases. Tourists and Rohingya are affected by waterborne diseases, as 42.25 % of people strongly agreed, while 40.25 % of people agreed. More than fifty percent (54.75%) of the respondents strongly agreed that water pollution and water quality are deteriorated by Rohingya (Figure 6). This research has illustrated that water shortage in Cox's Bazar area is increasing day by day because of massive water withdrawal from the underground and other surface water sources for Rohingya use.

Lack of drinking water is evident as the water table is declining in the Cox's Bazar area due to Rohingya huge drinking water demand (The Financial Express, 2022). Rohingya have to spend more than 30 minutes for collecting drinking water, and 20% family stated that the groundwater level is declining. About 5.6 billion liters of water is needed annually, and the water demand is projected to be 16 and 26 billion liters at the end of 2023 (ISCG, 2018; UNDP, 2018). In the refugee camp, 15 million liters of water are withdrawn daily, which may cause future freshwater scarcity (ISCG, 2019). This study found the Rohingya camp is the primary source of pollution besides the tourism destination. Water pollution is severe in and around Rohingya camps due to the mismanagement of pollution sources. There are 30% latrines in Balukhali-Kutupalong camps located not more than 10 meters from the water sources. The water sources are contaminated in many ways , for example unhygienic toilet, high density of population, poor management of solid waste etc. (UNDP, 2018). The leading cause of water quality depletion is the presence of Rohingya refugee (Jaafar et al., 2020; Jacobsen, 2002).

However, this study has found that water borne diseases are spread by the open toilet that washes out by rainwater to the wetland, surface water sources, and groundwater. Tourists avoid visiting these attractive destinations due to degrading water quality. This study explained the impact of Rohingya on the quality of water. Waterborne diseases are spreading in camps and outside of the camp area in Cox's Bazar area because of contaminated water from ponds, channels, rivers, and other sources (UNDP, 2018). Rohingya use pit latrines which are located proximity to the wetland and groundwater, particularly tube-well. The tube well's water is contaminated by human waste, specifically in the rainy season, due to a lack of treatment facilities (Graham and Polizzotto, 2013; Van Ryneveld and Fourie, 1997).

(iii) Solid Waste Problem

Solid waste management is an emerging environmental issue in the tourism destination of Cox's Bazar. More than 44.25% of people strongly agreed, while 41.5% agreed that a considerable amount of waste is produced by Rohingya. Sometimes tourists and local transport system is disrupted because of the dumping of solid waste in open space produced by Rohingya, 80% of the respondents reported. Almost fifty (49.50%) percent of the locals agreed that tourists are not eager to visit the tourist spots due to bad smells from a heap of waste. Most (75%) respondents agreed that Rohingya camp visitors pollute the channels and wetlands. About 31% strongly agreed, while 49% of locals agreed that the visitor and service providers produced the waste by throwing food packets, cane, water bottles, plastic pots, and non -decomposed material.

Fifty percent of the respondents agreed that domestic and camp building materials are the sources of waste pollution, especially polythene, wood, bamboo, and sheet. A large number (40.25%) of the respondent strongly agreed, while 50% agreed that the foul smell of waste is the main reason for causing many diseases among the tourists and host communities. Almost 54% of people agreed that the leading cause of waste pollution is Rohingya (Figure 8).

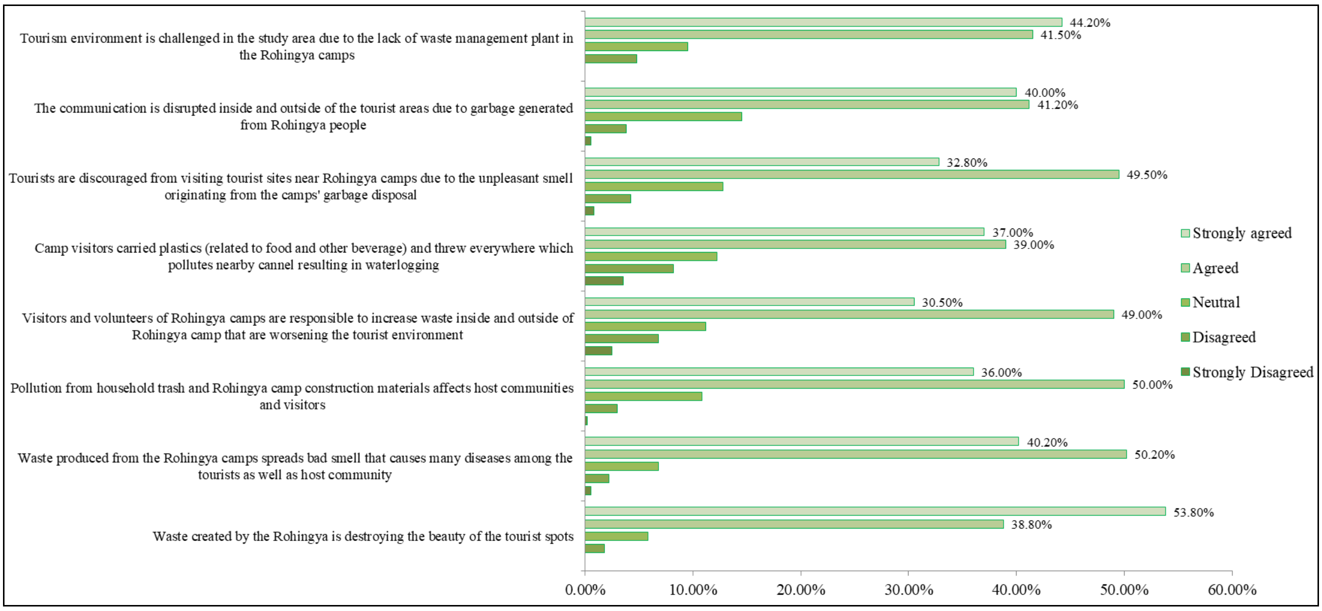


Figure 8. Solid Waste Problem (Source: Field survey, 2021)

The study's findings have demonstrated that solid waste is produced from the Rohingya settlement because no waste management plants are in place in the camp area. The settlements are scattered, and the Rohingyas are not aware of waste management (Figure 9). Approximately 10000 tons of waste is produced monthly from the Rohingya camps. It contaminates 86% of drinking water wells. Waste disposal pollutes many water sources, including wetlands and groundwater (UNDP, 2018). The shortage of space leaves their waste thrown at night in open places elsewhere. Unhygienic toilets and polluted environments are exposed to waterborne diseases like diarrhea, cholera, and typhoid (Hsan et al., 2019; Rahman, 2019). This research has noticed that tourists are not interested in visiting these destinations due to diseases and bad smells produced by Rohingya and Rohingya-related visitors and officials. Another responsible agent of pollution is visitors for Rohingya, who are accountable for the waste pollution in the tourist spots near the camp area (UNDP, 2020).

Figure 9. Solid Waste Problem (a) Polluted Canal by the Waste from Rohingya,
(b) Polluted Road Areas by the Waste from Visitors (Source: Field survey, 2021)

C. Descriptive Statistics (Median and Inter Quartile Range among the Environmental Constructs of the Study)

The impact of Rohingya forced migration on the environment is severe, which is exposed by statistical analysis. The investigation is shown in table 3 along with three dimensions, a total of 24 items with a five-point Likert scale (5-point Likert scales are used to measure the impact of the tourism sector (5 = Strongly Agree, 4= Agree, 3 = Neutral (neither Agree nor Disagree), 2 = Disagree and 1 = Strongly Disagree). The score of the median and interquartile range of the dimension is 103±13. The minimum and maximum score of the environmental dimension is 24 and 120, respectively.

Three constructs of the environmental dimension of the study include forest cover, water quality, and waste pollution. The minimum score is 8, and the maximum score is 24 for forest cover. The score of the median and interquartile range of the forest is 35. The minimum and maximum water quality scores are 8 and 24, correspondingly. The median and interquartile water quality depletion score range is 34 ± 6. The last construct of the environmental dimension of this study is the waste pollution score; the minimum and maximum scores of the construct are 8 and 24, respectively.

The score of the median and interquartile range of the waste problem is 35 ± 5. The findings proved the impact of Rohingya forced migration on the environment is severe. In this study, three constructs of the environment have been selected for analysis based on effect, including forest, water quality, and waste pollution (Table 3).

Table 3. Result and Findings: Descriptive Statistics Source: Field survey, 2021, *IQR = Inter Quartile Range (Source: Field survey, 2021)

Dimensions and Constructs	Total Items	Maximum value	Minimum value	$mean \pm SD$	$Median \pm IQR$
Environment	**24**	**120**	**24**	**99.86±10.54**	**103±13**
Forest Cover Change	8	40	8	34.17±3.56	35±5
Water Quality Depletion	8	40	8	32.32±5.15	34 ± 6
Solid Wastage Problem	8	40	8	33.38±4.28	35±5

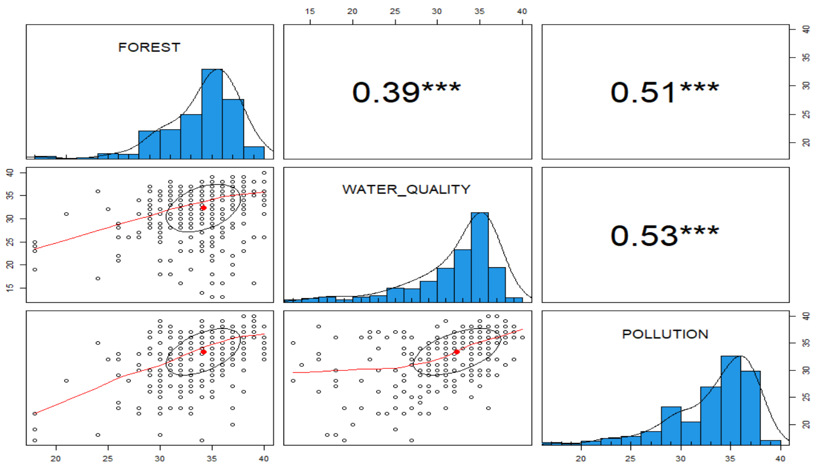


Figure 10. Relationship among the Environment Constructs of the Study (Source: Field survey, 2021)

D. Relationship among the Environment Constructs of the Study

The data is not normally distributed. So, spearman's correlation coefficient has been applied in this study. The relationship among the constructs is significant in this study (P<0.001)). The correlation coefficient between the forest and water pollution construct is 0.39 (P<0.001), a significant and positively low relation. The correlation coefficient between forest and waste quality 0.51(P<0.001) is significant and positively moderate. The correlation coefficient between water quality and waste pollution 0.53 (P<0.001) is significant and observed to be positively moderate. The relationship and consistency among the data are also significant (Figure 10).

CONCLUSION

The impact of Rohingya on the natural environment of the tourism destination is explored in this paper. According to the findings, this study found that 55.5 % of people indicate unplanned Rohingya settlements as one of the causes for the destruction of natural buffer zone and natural environment, which are considered for tourist destinations.This research also demonstrates that more than fifty percent (55.5%) respondents agreed that the forest covers are destroyed by Rohingya settlements. That forest is the sources of oxygen, natural beauty and entertainment for the tourist in the tourism destination (Figure 4). The response of forest experts echoes the same. Rohingya pollutes surface water by establishing open latrines. In the study area, 48.75% of people agreed that the Rohingya influx depletes the water quality. More than 46% of people complied that open toilets used by Rohingya are the main reason for water pollution. Experts of the environment also agreed that Rohingya are responsible for polluting water.

About 38 % of the respondents agree that different water borne diseases originated from the dirty water channels in the tourism destinations affect tourists. The water channels are polluted by Rohingya, volunteers and government and non - government officials appointed for providing services to Rohingya (Figure 6). Approximately half (49%) of respondents opined that solid waste is increasing day by day. Another fifty percent of the respondents (50%) agree that household trash is the major cause of increasing and spreading domestic waste. The research findings also reveal that about 50% respondents talked about tourist's discomfort in tourism destination due to scattered solid waste in and around Rohingya camp. The solid waste is spread by Rohingya and volunteers in the tourism destination (Figure 8). The study findings would help restore the natural environment of tourism destination in Cox's Bazar.

Author Contributions: Conceptualization, M.M. and MAH.; methodology, M.M. and MAH.; software, M.M.; validation, M.M. and MAH.; formal analysis, M.M.; investigation, M.M.; data curation, M.M. and MAH.; writing - original draft preparation, M.M.; writing M.M.; review and editing, M.M. and MAH.; supervision, MAH. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCE

Ahmed, N., Islam, M.N., Hasan, M.F., Motahar, T., & Sujauddin, M. (2019). Understanding the political ecology of forced migration and deforestation through a multi-algorithm classification approach: The case of Rohingya displacement in the southeastern border region of Bangladesh. *Geology, Ecology, and Landscapes*, *3*(4), 282–294. https://doi.org/10.1080/24749508.2018.1558025

Akgündüz, Y.E., van den Berg, M., & Hassink, W. (2018). The impact of the Syrian refugee crisis on firm entry and performance in Turkey. World Bank Econ. Rev. 32 (1), 19–40. https://doi.org/10.1093/wber/lhx021

Alam, J. (2018). Problems and prospects of tourism industry in Bangladesh: A case of Cox's bazar tourist spots. *International Journal of Science and Business*, *2*(4), 568-579. https://ijsab.com/wp-content/uploads/275.pdf

Altindag, O., Bakis, O., & Rozo, S. (2018). Blessing or Burden? The Impact of Refugees on Businesses and the Informal Economy. SSRN Electronic Journal. https://doi.org/10.1016/j.jdeveco.2020.102490

Alshoubaki, W., & Harris, M. (2018). The impact of Syrian refugees on Jordan: A framework for analysis. *Journal of International Studies*, *11*(2). https//doi.org/10.14254/2071-8330.2018/11-2/11

Anderies, J.M., & Beisner, B. (2000). Critical Points and Scale in Ecological Communities. *Crisis Points Book*, 3. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Anderies%2C+J.+M.%2C+%26+Beisner%2C+B.+%282000%29.+Critical+Points+and+Scale+in+Ecological+Communities.+Crisis+Points+Book%2C+3.&btnG=

Black, R. (1994). Forced migration and environmental change: The impact of refugees on host environments. *Journal of Environmental Management*, *42*(3), 261–277. https://doi.org/10.1006/jema.1994.1072

Barua, P., Molla, M.H., & Rahmar, S.H. (2018). Rohingya influx and environmental catastrophes in south-eastern Bangladesh. *Social Change*, *8*(1), 86–100. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://ypsa.org/ypsa/wp content/uploads/2019/02/SOCIAL-CHANGE-Vol-1-No-1-2018.pdf

BBS. (2011). *Bangladesh Bureau of Statistics (BBS), Statistics and Informatics Division (Sid) Ministry of Planning, Government of the People's Republic of Bangladesh, Parishankhan Bhaban*. E-27/A, Agargaon, Dhaka-1207. www. bbs. gov. bd.

Becker, S.O., & Ferrara, A. (2019). Consequences of forced migration: A survey of recent findings. *Labour Economics*, *59*, 1-16. https://doi.org/10.1016/j.labeco.2019.02.007

Bowen, S. (2010). Embedding local places in global spaces: Geographical indications as a territorial development strategy. *Rural Sociology*, *75*(2), 209–243. https://doi.org/10.1111/j.1549-0831.2009.00007.x

Butler, R.W. (1980). The concept of a tourist area cycles of evolution: Implications for management of resources. *Canadian Geographer/Le Géographe Canadien*, *24*(1), 5–12. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.numptynerd.net/uploads/1/2/0/6/12061984/butler_model_1980.pdf

Casagrandi, R., & Rinaldi, S. (2002). A theoretical approach to tourism sustainability. *Conservation Ecology*, *6*(1). Retrieved from https://www.jsor.org/stable/26271854

Cerwonka, A., & Malkki, L.H. (2008). *Improvising theory: Process and temporality in ethnographic fieldwork*. University of Chicago Press. https://books.google.com.bd/books?hl=en&lr=&id=3NKbZbFZ4DwC&oi=fnd&pg=PR7&dq=Cerwonka,+A.,+%26+Malkki,+L.+H.+(2008).+Improvising+theory:+Process+and+temporality+in+ethnographic+fieldwork.+University+of+Chicago+Press.&ots=WS5C_fMt8V&sig=ZzMdUFf7nZm7nqxesF9v0yV-4S0&redir_esc=y#v=onepage&q&f=false.

Cochran, W.G. (1963). Sampling Technique. 2nd Edition, John Wiley and Sons Inc., New York. https://doi.org/10.4236/crcm.2022.118046

CPD. (2018). *Fiscal Implications of Rohingya Crisis for Bangladesh*. CPD Working Paper 120, Centre for Policy Dialogue (CPD), Dhaka - 1207, Bangladesh. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://cpd.org.bd/resources/2018/11/CPD-Working-Paper-120-Fiscal-Implications-of-Rohingya-Crisis-for-Bangladesh.pdf

Dey, P., Uddin, S., & Hasan, M.K. (2013). Tourists' perception towards Cox's Bazar sea beach in Bangladesh as a tourist destination. *Asian Business Review*, *2*(1), 54-60.

Faulkner, B., Laws, E., & Moscardo, G. (2003). Reliving the Destination Life Cycle in Coolangatta. In *Embracing and Managing Change in Tourism* (127–146). Routledge. https://www.routledge.com/Embracing-and-Managing-Change-in-Tourism-International-Case-Studies/Faulkner-Laws-Moscardo/p/book/9781138881327

Forest Department, Cox's Bazar and UNDP (2018). *Impacts of the Rohingya Refugees Influx on Host Communities*. Forest Department, Cox's Bazar; UNDP, (2018) "Impacts of the Rohingya Refugees Influx on Host Communities", November 2018

Graham, J.P., & Polizzotto, M.L. (2013). Pit latrines and their impacts on groundwater quality: A systematic review. *Environmental Health Perspectives*, 121(5), 521–530. http//doi.org/ 10.1289/ehp.1206028

Habib, M., Jubb, C., Ahmad, S., Rahman, M., & Pallard, H. (2018). Forced migration of rohingya: an untold experience. *Available at SSRN 3242696*. http://dx.doi.org/10.2139/ssrn.3242696.

Hasan. (2020). *Rohingya Settlements: 8,000 acres of forests razed*. The Daily Star. https://www.thedailystar.net/frontpage/news/rohingya-settlements-8000-acres-forests-razed-1815400

Hasan. (2018). Rohingya refugee crisis and forest cover change in Teknaf, Bangladesh. *Remote Sensing*, 10(5), 689. https://doi.org/10.3390/rs10050689

Hagenlocher, Lang, & Tiede. (2012). *Integrated assessment of the environmental impact of an IDP camp in Sudan based on very high resolution multi-temporal satellite imagery*. Remote Sensing of Environment, 126, 27–38. doi: 10.1016/j.rse.2012.08.010

Hsan, K., Naher, S., Griffiths, M.D., Shamol, H.H., & Rahman, M.A. (2019). Factors associated with the practice of water, sanitation, and hygiene (WASH) among the Rohingya refugees in Bangladesh. *Journal of Water, Sanitation and Hygiene for Development, 9*(4), 794–800. https://doi.org/10.2166/washdev.2019.038

Hoque, M.M.M., Rehnuma, M., Uddin, S., Ahmed, S., Sarker, M.E., & Biswas, G.K. (2021). Impacts of Rohingya migration on surrounding environment of Ukhiya, Bangladesh. *Am. J. Pure Appl. Sci*, *3*(4), 106-112. https//doi.org/10.34104/ajpab.021.01060112

Haque, E. (2018). Socio-political impacts of Rohingya refugees on Bangladesh. *Ankara Yıldırım Beyazıt University, Migration Policy Center*. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://aybu.edu.tr/GetFile?id=ed4a8885-72f5-4cee-9717-847dfc5f12bb.pdf

Hugo, G. (1996). Environmental concerns and international migration. *International Migration Review*, 30(1), 105–131. https://doi.org/10.1177/0197918396030001

Imtiaz, S. (2018). Ecological impact of Rohingya refugees on forest resources: Remote sensing analysis of vegetation cover change in Teknaf Peninsula in Bangladesh. *Ecocycles*, *4*(1), 16–19. https.doi.org/10.19040/ecocycles. v4i1.89

ISCG. (2019). *Inter Sector Coordination Group (ISCG)*. ISCG. https://www.humanitarianresponse.info/sites/www .humanitarianresponse.info/files/documents/files/2019_jrp_for_rohingya_humanitarian_crisis_compressed.pdf

ISCG. (2018). *The Joint Response Plan for the Rohingya Humanitarian Crisis*. https://reliefweb.int/report/bangladesh/iscg-support-bangladesh-host-communities-and-institutions-joint-response-plan

IUCN and BFD. (2016). *Bangladesh National Conservation Strategy, Part II: Sectoral Profile.*

BFD. Ministry of Environment and Forests, Government of the People's Republic of Bangladesh, and IUCN, Bangladesh Country Office, Dhaka, Bangladesh. chrome extension://efaidnbmnnnibpcajpcglclefindmkaj/https://faolex.fao.org/docs/pdf/BGD219210.pdf

Jaafar, H., Ahmad, F., Holtmeier, L., & King-Okumu, C. (2020). Refugees, water balance, and water stress: Lessons learned from Lebanon. *Ambio*, 49, 1179–1193. https//doi.org/10.1007/s13280-019-01272-0

Jacobsen, K. (2002). Can refugees benefit the state? Refugee resources and African state building. *The Journal of Modern African Studies*, 40(4), 577–596. https://www.jstor.org/stable/3876026

Kuvan, Y., & Akan, P. (2005). Residents' attitudes toward general and forest-related impacts of tourism: The case of Belek, Antalya. *Tourism Management*, 26(5), 691–706. https//doi.org/10.1016/j.tourman.2004.02.019

Malkki. (1996). *Speechless Emissaries: Refugees, Humanitarianism, and Dehistoricization*. Cultural Anthropology11 (3), 377–404. https://www.jstor.org/stable/656300

Martin. (2005). Environmental conflict between refugee and host communities. *Journal of Peace Research, 42*(3), 329–346. https://doi.org/10.1177/0022343305052

Mohammad, N. (2020). *Rohingya Refugee Presence Makes the Environment Fragile in Cox's Bazar District*. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.toaep.org/pbs-pdf/121-mohammad/

Moslehuddin, A.Z.M., Rahman, M.A., Ullah, S.M.A., Moriyama, M., & Tani, M. (2018). Physiography, forests, and people in Teknaf. *Deforestation in the Teknaf Peninsula of Bangladesh: A Study of Political Ecology*, 11–40. https//doi/10.1007/978-981-10-5475-4_2

Mukul, S.A., Uddin, M.B., Manzoor Rashid, A.Z.M., & Fox, J. (2010). Integrating livelihoods and conservation in protected areas: Understanding the role and stakeholder views on prospects for non-timber forest products, a Bangladesh case study. *International Journal of Sustainable Development & World Ecology*, 17(2), 180–188. https://orcid.org/10.1080/13504500903549676

Nowreen, S., & Mohiuddin, M. (2021). The Principles and Practices of Sustainable Tourism Investments and Development in Bangladesh. In Hassan, A.(eds.), Tourism in Bangladesh: Investment and Development Perspectives, Springer Nature, 362-383. https://doi.org/10.1007/978-981-16-1858-1

Padin, C. (2012). A sustainable tourism planning model: Components and relationships. *European Business Review*, 24(6), 510–518. https//doi.org/10.1108/09555341211270528

Rahman. (2010). *Exploring the socio-economic impacts of tourism: A study of Cox's Bazar, Bangladesh* [PhD Thesis]. Cardiff Metropolitan University. https//doi.org/10.13140/RG.2.2.11391.23204

Rahman, M.H. (2019). Rohingya refugee crisis and human vs. Elephant (Elephas maximus) conflicts in Cox's Bazar district of Bangladesh. *Journal of Wildlife and Biodiversity*, *3*(3), 10–21. https://doi.org/10.22120/jwb.2019.104762.1057

Rahman, M.Z. (2018). Livelihoods of Rohingyas and their impacts on deforestation. *Deforestation in the Teknaf Peninsula of Bangladesh: A study of political ecology*, 113-125. https//doi.org/10.1007/978-981-10-5475-4_9

Rashid, Hoque, M.A., Esha, T.A., Rahman, M.A., & Paul, A. (2021). Spatiotemporal changes of vegetation and land surface temperature in the refugee camps and its surrounding areas of Bangladesh after the Rohingya influx from Myanmar. *Environment, Development and Sustainability*, 23, 3562–3577. https//doi.org/10.1007/s10668-020-00733-x

Rodríguez, J.P., RODRÍGUEZ-CLARK, K.M., Baillie, J.E., Ash, N., Benson, J., Boucher, T., Brown, C., Burgess, N.D., Collen, B.E.N., & Jennings, M. (2011). Establishing IUCN red list criteria for threatened ecosystems. *Conservation Biology*, *25*(1), 21–29. https//doi.org/ 10.1111/j.1523-1739.2010. 01598.x

Roy, M., & Chowdhury, M.M. (2021). Impact of Rohingya Refugee Migration Flow on Bangladeshi Tourism Destinations. In: Hassan, A. (eds) Tourism Products and Services in Bangladesh. Springer, Singapore. https://doi.org/10.1007/978-981-33-4279-8_14

Sharpley, R., & Stone, P.R. (2010). *Tourist experience: Contemporary perspectives, Routledge*, 19. https://books.google. com.bd/books?hl=en&lr=&id=h6CLAgAAQBAJ&oi=fnd&pg=PP1&dq=Sharpley,+R.,+%26+Stone,+P.+R.+(2010).+Tourist+experience:+Contemporary+perspectives+(Vol.+19).+Routledge.&ots=TnXvSgjC6r&sig=nZfB8MKm95BQA_I0P5UB2qoZizU&redir_esc=y#v=onepage&q&f=false

Svensson, G., & Wagner, B. (2011). A process directed towards sustainable business operations and a model for improving the GWP-footprint (CO2e) on Earth. *Management of Environmental Quality: An International Journal*. https//doi.org/10.1108/14777831111136063

The Daily Star (2022). *Bhasan Char: Better Conditions, But Home Still Beckons*. https://www.thedailystar.net/rohingya-influx/news/bhasan-char-better-conditions-home-still-beckons-3102681

The Daily New Nation (2017). *Special Correspondent, "Cox`s Bazar Tourism Sector Faces Serious Setback*. The Daily New Nation, November 14, 2017, online edition. http://thedailynewnation.com/news/154542/coxs-bazar-tourism-sector-faces-serious-setback.html. p-all

The Financial Express (2022). *Rohingya Crisis and The Host Communities*. https://thefinancialexpress.com.bd/views/rohingya-crisis-and-the-host-community-1564498784

TSA (2020). Tourism Satellite Account 2020, Bangladesh Bureau of Statistics (BBS) and Statics and Informatics Division (SID), Ministry of Planning, Bangladesh. https://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/b343a8b4_956b_45ca_872f_4cf9b2f1a6e0/2021-11-25-09-20-712d6a0fe8d9ed6239e23d39b70c55f7.pdf

Turner, M.D. (1999). Conflict, environmental change, and social institutions in dryland Africa: Limitations of the community resource management approach. *Society & Natural Resources*, *12*(7), 643–657. https://doi.org/10.1080/089419299279362

UNDP (2020). *Impacts of Rohingya Refugee Influx on Host Communities*. https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/2019/08/UNDP_Impacts-ofthe-Rohingya-Refugee-Influx-on-Host-Communities_Nov2018.pdf

UNDP (2018). *Impact of the Rohingya Refugee Influx on Host Community*. United Nation, Ny, USA. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.undp.org/sites/g/files/zskgke326/files/migration/bd/Impacts-of-the-Rohingya-Refigee-Influx-on-Host-Communities.pdf.

UNDP (2017). *Social impact assessment of the Rohingya refugee crisis into Bangladesh key findings and recommendations*. https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/assessments/ 171207_social_impact_assessment_and_rapid_host_community_impact_assessment_summary.pdf

UNHCR. (2018). *Bangladesh Refugee Emergency Population Factsheet*. https://data2.unhcr.org/en/documents/ download/65384

The Daily Star (2017). *Rohingya sent back to camps from Sunamganj*. https://www.thedailystar.net/city/12-rohingyas-found-sunamganj-1462780

The Daily Star. (2019). *Rohingya Settlements: 8,000 acres of forests razed*. https://www.thedailystar.net/frontpage/news/rohingya-settlements-8000-acres-forests-razed-1815400

The Daily Star (2022). *Bhasan Char: Better Conditions, But Home Still Beckons*. https://www.thedailystar.net/rohingya-influx/news/bhasan-char-better-conditions-home-still-beckons-3102681

The Daily New Nation (2017). *Special Correspondent, "Cox`s Bazar Tourism Sector Faces Serious Setback*. The Daily New Nation, November 14, 2017, online edition. http://thedailynewnation.com/news/154542/coxs-bazar-tourism-sector-faces-serious-setback.html. p-all

Van Ryneveld, M.B., & Fourie, A.B. (1997). A strategy for evaluating the environmental impact of on-site sanitation systems. *Water Sa*, *23*(4), 279–291. http://pascal-francis.inist.fr/vibad/index.php?action=getRecordDetail&idt=2099660

World Vision International. (2017). *Gender Sensitive Programme Accountability Assessment Report*. World Vision International. https://www.wvi.org/sites/default/files/2017%20Accountability%20Update.pdf.

Zahed, I.U.M. (2023). Impact of the geopolitical status quo vis-à-vis the Rohingya crisis on the social, economic, and political aspects of Bangladesh. *Asian Politics & Policy*. https://doi.org/10.1111/aspp.12716

Zetter, R. (1991). Labelling refugees: Forming and transforming a bureaucratic identity. *Journal of Refugee Studies*, *4*(1), 39–62. https://doi.org/10.1093/jrs/4.1.39

Article history: Received: 03.09.2023 Revised: 12.10.2023 Accepted: 10.11.2023 Available online: 19.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1517-1525
DOI 10.30892/gtg.50431-1149

DEPICTIONS OF TRAVEL IN A PORTUGUESE DIASPORA COMMUNITY NEWSPAPER IN SOUTH AFRICA

Maisa C. ADINOLFI*
School of Tourism and Hospitality, College of Business and Economics, University of Johannesburg, Johannesburg, South Africa, e-mail: mcorreia@uj.ac.za

Christian M. ROGERSON
School of Tourism and Hospitality, College of Business and Economics, University of Johannesburg, Johannesburg, South Africa, e-mail: chrismr@uj.ac.za

Jarkko SAARINEN
Geography Research Unit, University of Oulu, Oulu, Finland; School of Tourism and Hospitality, College of Business and Economics, University of Johannesburg, Johannesburg, South Africa, and Department of Civil and Industrial Engineering, Sustainable Destination Development, Uppsala University, Sweden, e-mail: jarkko.saarinen@oulu.fi

Citation: Adinolfi, M.C., Rogerson, C.M. & Saarinen, J. (2023). DEPICTIONS OF TRAVEL IN A PORTUGUESE DIASPORA COMMUNITY NEWSPAPER IN SOUTH AFRICA. *GeoJournal of Tourism and Geosites*, 50(4), 1517–1525. https://doi.org/10.30892/gtg.50431-1149

Abstract: The vast territorial expansion of Portugal during the colonial era resulted in a significant global diaspora network, with one such community situated in South Africa. Multiple waves of immigration from Portugal, its autonomous regions, and former African colonies have given rise to an established diasporic community in South Africa. Acting as a vital communication channel, the O Século de Joanesburgo newspaper played a crucial role in keeping the South African Portuguese diaspora informed about the broader Portuguese community both locally and abroad, thereby fostering connections between the community and their homeland. Throughout the years, the newspaper extensively featured travel-related content, employing various strategies to encourage travel to the homeland. This paper investigates how travel was depicted and promoted to the South African Portuguese diaspora through the newspaper. Using archival material from the newspaper, significant themes can be identified related to travel within the community. These encompass journeys to the homeland, encouragement for seaside property investments in Portugal, and indications of domestic tourism within South Africa. Overall, this research contributes to the broader discourse on the development of diasporic communities and emphasizes the integral role of travel in their existence.

Key words: diaspora tourism, media, community newspaper, Portuguese diaspora, South Africa

* * * * * *

INTRODUCTION

In the last two decades, there has been a growing interest from scholars in migration and diaspora and their relationships to tourism. Especially in the context of diasporas, various sub-themes have emerged, comprising efforts to define the concept (Cohen, 1997; Brubaker, 2005; King, 2012; Quayson and Daswani, 2013; Alexander, 2017), its social organisation and integration into the host community (Greenman and Xie, 2008; Piedra and Engstrom, 2009; Schneider and Crul, 2010, Adinolfi, 2019), issues of identity construction (Georgiou, 2006; Ben-Moshe and Segev, 2007; Cappucci and Zarrilli, 2008; Hall, 2014), and links to tourism in terms of homeland travel via VFR travel and heritage tourism (Stephenson, 2002; Sim and Leith, 2009; Hughes and Allen, 2010; Iorio and Corsale, 2012; Pelliccia, 2016; Io, 2017; Rogerson, 2017).

Portugal has a long history of colonial expansion and overseas settlement which dates back to 1415, making it one of the longest-lived empires in European history (Costa, 2021). The historical record of Portugal's overseas expansion and the making of Portuguese diaspora is described and analysed in detail by several authors (see for example: Duffy, 1968; Basson, 1988; Barnes and McDuling, 1995; Newitt, 2004; Glaser, 2010, 2012, 2013; Adinolfi, 2019). The vast territorial expansion of Portugal during the colonial era from the first conquest of Ceuta, Morocco, in 1415 to the official handover of Macau to the People's Republic of China in 1999 resulted in a significant global diaspora network, existing in different contexts (Costa, 2021). South Africa is home to one such Portuguese diasporic community that has developed over an extensive historical period, spanning the 15th century through to the 21st century. Arguably, the South African Portuguese diaspora community provides a lesser known and a particularly noteworthy case in the African context as it represents a significant diasporic community outside of the former Portuguese African colonies of Angola and Mozambique. The development and maintenance of this specific diasporic community was supported for a long period of time via the most crucial communication tool, a community newspaper called the *O Século de Joanesburgo*. Over several decades this newspaper provided key information to the community with regards to news from the homeland, Portugal, news about South Africa and importantly encouraged the maintenance of links to the homeland through aspects such as language preservation and travel home. This study uses

* Corresponding author

archival material from the *O Século de Joanesburgo* newspaper to identify significant themes related to travel within the diaspora community, such as encompassing journeys to the homeland, encouragement for seaside property investments in Portugal, and indications of domestic tourism within South Africa. Overall, this study contributes to the broader scholarship on the development of diasporic communities and emphasizes the integral role of travel in their existence.

STUDY CONTEXT

Diasporas and tourism

The links between diasporas and tourism are diverse and multi-faceted (Marschall, 2018). As noted by Coles and Timothy (2004), diasporas result from a historical scattering of people and their identities across space and time. At first glance, the noticeable link between diasporas and tourism would be through ancestral homeland travel (Stephenson, 2002; Etemaddar et al., 2009; Hughes and Allen, 2010; Iorio and Corsale, 2012; Duncan and Tucker, 2016) that cut across territorial boundaries and bridge cultures and families. Indeed, homeland tourism is often strongly supported through visiting friends and relatives (VFR) travel (Butler, 2003; King and Dwyer, 2015; Wagner, 2015; Rogerson, 2017), as well as heritage and roots tourism (Reed, 2013, 2015; Pelliccia, 2016). These connections are further reinforced through business relations and investment by diasporas in their home country (Elo and Riddle, 2016; Tichaawa, 2017; Williams, 2018; Rabbiosi et al., 2019), remittances to the homeland (Leblang, 2016; Busumtwi-Sam, 2019; Galstyan and Ambrosini, 2022), the development and maintenance of social capital and community networks (Peck, 2020; Li, 2020; Adinolfi, 2019), and place attachment (Otoo et al., 2021; Barcus and Shugatai, 2022; Diener and Hagen, 2022).

These rich and versatile connections and attachments to the homeland have captured the attention of scholars in understanding the travel motivations of diaspora tourists and their specific socio-spatial contexts influencing and guiding the travel patterns (Butler, 2003; Io, 2017; Tören, 2021). Notwithstanding this growing body of knowledge surrounding the links between diasporas, tourism and global transnational communities (Coles et al., 2004; Hall, 2005), a gap still exists with regards to specific diasporic communities, especially those which continue to exist in the African context, outside of the former colonial holdings of their homeland. South Africa presents such a specific case study with a long-standing, historically rooted Portuguese diasporic community.

South Africa's Portuguese diaspora

Portugal's vast global diaspora network is deep-rooted in its territorial expansion during its colonial era from as early as the 1400s. The country's links to South Africa are anchored in the 15th and 16th centuries through Portuguese expansion into Africa for trade and later slavery routes. Significant waves of migration of Portuguese settlers to South Africa include the Madeirans from the late 1800s through to the 1970s, the mainland Portuguese between 1940-1980, and the most significant wave in number being the Angolan and Mozambican refugees between 1974 and 1976 (Glaser, 2010, 2012 2013). Extant scholarship on Portuguese linked migration to South Africa has mostly been on the immigration and transit migration into South Africa of people from Portugal's former African countries of Angola but more specifically, Mozambique (De Vletter, 2006; Muanamoha, 2008; Nshimbi and Fioramonti, 2014). This study, however, concentrates on the two earlier waves of Portuguese settlement in South Africa (1940-1976), which were driven variously by unskilled and largely illiterate Madeirans, often entering the country illegally and seeking a better life; the Portuguese mainlanders who were escaping similar economic conditions as the Madeirans but were largely literate and skilled artisans and supported by the South African government; and lastly the Angolan and Mozambican refugees escaping the decolonisation and civil wars in their host countries, which tended to be far more skilled and literate than the other waves of immigrants. These refugees also represented the largest single wave of Portuguese immigration to South Africa.

Portuguese media in South Africa

News media, in general, is noted to play a major role in the relationship between diasporas and the homeland (Christiansen, 2004). Arguably, the role of the media in South Africa's Portuguese diaspora has been instrumental in maintaining homeland attachments by keeping the diaspora informed and reinforcing the connection to the homeland (Adinolfi, 2019). In general, media did have some contributions to the preservation of language (Barnes and McDuling, 1995) albeit mostly for the older generations, but in some cases, media was made little use of and did not support language preservation or influence cultural maintenance (Webb, 1999). Nevertheless, radio, television and print were the dominant forms of media for the diaspora. The literature also makes note of the role of media, particularly private radio broadcasting, in promoting Portuguese colonial policy (Ribeiro, 2017, 2022). Radio was a powerful vehicle for entertainment and a means to maintain connection. For South Africa's Portuguese community this included stations such as Radio Cidade (launched in 1976) which predominantly broadcast in English, Radio Paralelo 27, Radio RSA (a South African station featuring Portuguese programmes), Radio Clube de Moçambique, and LM Radio which broadcast from Mozambique and is still in existence today.

Television was also featured from the mid-1970s and included Portuguese and Brazilian channels offered by a dedicated channel (M-Net Portuguesa) on a private broadcaster (M-Net) and later by DSTV (Digital Satellite Television) (Glaser, 2010). The proliferation of the Portuguese culture and language in South Africa even prompted the launch of a dedicated Portuguese sports channel (Super Sport Maximo), which offered access to Portuguese sports as well as international sports with Portuguese commentary. It was the print media, however, that made the most impact, reaching a wide audience within the community. In the 1970s and 1980s, the *Jornal Popular* was one Portuguese language newspaper issued in Johannesburg, albeit since ceased in circulation. In terms of newspapers that had a longer lasting impact, the *O Século de Joanesburgo* and the *Vóz Portuguesa* (by the Portuguese Forum) were central, with the latter still in existence in an online format. Magazines were also in circulation albeit temporarily, such as the *Notícia* magazine which was often sold alongside the *O Século de Joanesburgo* newspaper. It is the *O Século de Joanesburgo* newspaper which was the most prolific in bringing the Portuguese community closer to the homeland and closer within their new home, and thus provides an important foundation for this study. These community-based records are critical in offering a record of the social history of such a noteworthy diasporic community (Rodrigues et al., 2014).

MATERIALS AND METHODS

A qualitative research approach was used to examine the content of the *O Século de Joanesburgo* newspaper which is archived at the Cape Town campus of the National Library of South Africa. While the newspaper began in 1963 and ended in early 2021 (Sousa, 2021), the archive spans from August 1971 to December 2010. Despite this not being a complete archive for the lifespan of the newspaper, it is valuable for providing a rich source of nearly four decades of content that cover the most crucial waves of immigration for the community (Glaser, 2010). The archive was accessed during October 2022 and the editions were scanned through for evidence related to travel. Pages with such evidence were marked and digital scanned copies were made. In total 946 pages of the archive across the available archived period were scanned and used for qualitative analysis. Atlas.ti version 29 was used to code each scanned page and to identify key themes related specifically to travel. Using software such as Atlas.ti for qualitative analysis allows for the systematic and transparent analysis of data (Friese, 2019). Such an approach to the data is founded in grounded theory (Belgrave and Seide, 2019).

RESULTS AND DISCUSSIONS

The *O Século de Joanesburgo* archive provides valuable historical evidence of a very strong diasporic community. The newspaper featured an array of information with regards to political, economic, social and cultural news about Portugal and South Africa, as well as other typical newspaper content. This included advertisements for Portuguese owned businesses and services, personal and job advertisements, real estate listings and property investment opportunities both locally and in Portugal, community news surrounding events linked to religion, culture, food and language, and more specifically for this study, strong evidence for the role of travel in the community. Key themes which were identified include the prominence of travel agencies, the nature of payment plans and the role of banks in travel, car rental services in Portugal, the encouragement of VFR and homeland travel, investment in coastal properties in Portugal, news about tourism in Portugal, travel to the former Portuguese colonies of Mozambique and Angola, domestic tourism in South Africa, and airlines which facilitated homeland travel. These themes are elaborated further.

Prominence of travel agencies

One of the most striking findings was the proliferation of travel agencies, particularly those serving the communities based in the major cities of Johannesburg and Pretoria. The importance of travel agencies for diaspora communities has been noted by Leung (2007: 219), who asserts that travel agencies "foster the physical connections between family, friends and other community members in the transnational landscape". During the study period of the archive (1971-1990) several agencies emerged, both in a formal travel agency format, as well as individuals offering travel services and products. In addition, there were advertisements by individuals offering administrative services with regards to documentation linked to travel such as passports. It was observed that a burst of new travel agency establishments occurred particularly in the first couple of decades, specifically 1970-1990. Their location also reflected the geography of the ethnic enclaves documented in the literature (Moyo and Cossa, 2015), with concentrations in the eastern and southern suburbs of Johannesburg, the city centre and certain key areas in the city of Pretoria. The role which these travel agencies played included not only the provision of travel booking services but also, they served as estate agents, sub-agencies of building societies and in some cases even assisted in job placements. Other travel agencies offered additional administrative services related to the Portuguese and South African identification and immigration documentation. Further, container shipping services for moving back to Portugal or Madeira also became a prominent activity of travel agencies especially during the early 1990s, the period of South Africa's transition to democracy. Examples of these trends noted on travel agencies are illustrated in Figure 1 below.

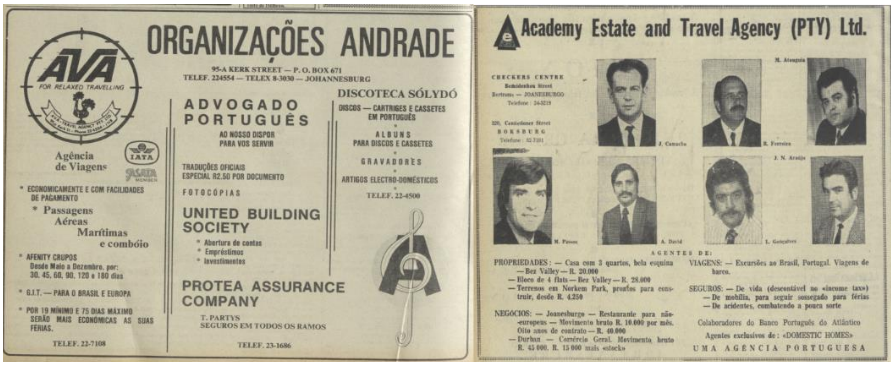


Figure 1. Examples of travel agency trends (Source: O Século de Joanesburgo, left: 31.5.1976, 14, right: 9.4.1974, 4)

Payment plans and the role of banks in travel

A significant aspect of travel to emerge was the emphasis on making travel possible for the entire diaspora community. The affordability of travel to the homeland was likely an issue for some, given the frequency of payment plans offered in the newspaper (Figure 2). The Portuguese airline, TAP, was the first to offer the options of paying for a flight in instalments. In the later years, travel agencies began to offer payment plans for their complete packages, beyond just flights to include accommodation and excursions. In the South African context, more recently, pay at your pace options have been acknowledged in the literature with regards to the domestic tourism issues the country has been faced with (Adinolfi et al., 2021) but not particularly specific to diaspora who may be naturalised or hold permanent residence and part of those domestic tourism statistics. The advertisements for payment plans also revealed elements of a sense of community with tag lines such as "*Os Portugueses ajudam os Portugueses*" (The Portuguese help the Portuguese), which referred to helping each other find a way to pay for travels 'home'. Other means of funding included funds raised by sports clubs and beauty pageant winners who went to visit or represent the South African Portuguese diaspora in the Miss Portugal competitions. Additionally, the presence of banks alongside the advertisements of travel, further emphasised the push for homeland travel and the financial support for encouraging the diaspora to travel. It was observed that the Bank of Lisbon and South Africa Ltd was commonly featured in travel advertisements (Figure 3) as well as Nedbank which is a South African bank. The presence of South African banks in the encouragement of outbound travel signals the economic importance of the diasporic community in the country.

Figure 2. Examples of travel payment plans (Source: O Século de Joanesburgo, 18.1.1972, 4)

Figure 3. Involvement of banks in travel (Source: O Século de Joanesburgo, left: 16.9.1975, 3, right: 15.10.1979, 4)

Car rental services in Portugal

It was evidenced that car rental services (Figure 4) offered in Portugal were a frequent occurrence in the newspaper throughout most of the period under investigation. Seemingly mobility may have been an issue to some extent dependent on where the diaspora travelled to in the home country. Perhaps the family members may not have had vehicles available for visiting family members or there may have been a preference for car rental to allow for more autonomy and flexibility when travelling in the homeland. Those who travelled to the homeland potentially for heritage or roots tourism purposes may have relied on car rental as a means to navigate unfamiliar or forgotten landscapes and allowing for the exploration of cultural sites, family roots and heritage at their own pace. Additionally, the ability to explore different geographical regions opens up opportunities for contributing to the tourism economy of the homeland beyond just VFR tourism.

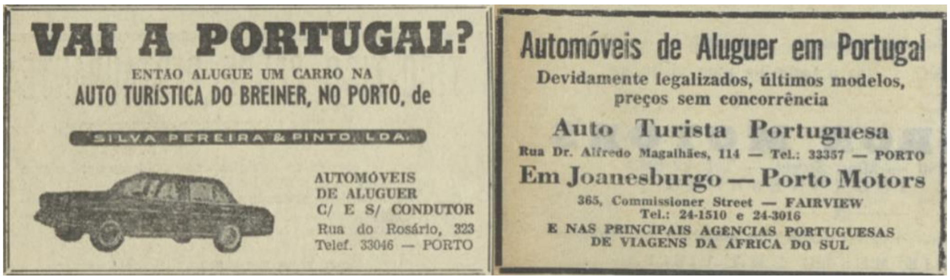


Figure 4. Car rental services in Portugal (Source: O Século de Joanesburgo, left: 3.11.1971, 20, right: 17.7.1973, 4)

The encouragement of VFR and homeland travel

The emphasis on VFR and homeland travel was observed in various ways. The support from the Portuguese consulate with regards to homeland travel included the sponsorship of trips for those who met certain criteria, such as the elderly who may not have had the means to afford such trips. Readers were constantly reminded of the importance of visiting the homeland through tag lines such as "Conheça a sua terra nas asas da T.A.P." (Get to know your country on the wings of TAP) and images displaying the importance of the family unit travelling home such as that of the TAP airplane's wings wrapped around a family in Figure 5. The strength of the South African Rand at the time was also emphasised with lines such as "nunca o seu Rand valeu tanto!" (never have your Rands been worth so much), hinting at the value for money that the diaspora would get for their homeland travels. Another concept that was pushed to encourage homeland travel was that of “saudades” or longing and the need or time to “matar saudades” (quench that thirst or longing for ‘home’). Travel was also stressed more during key holiday periods such as Christmas or New Year, when advertisements would highlight this period as a key opportunity to reconnect with family.

Figure 5. The encouragement of VFR and homeland travel (Source: O Século de Joanesburgo, left: 29.5.1978, 11, right: 23.4.1974, 7)

Figure 6. Calls for investment in coastal properties in Portugal (Source: O Século de Joanesburgo, 14.7.1980, 11)

Investment in coastal properties in Portugal

Calls for investment in property in the homeland were mainly associated with coastal property developments (Figure 6), both encouraging homeland travel and investment. Such investments also spurred homeland leisure travel beyond the typical VFR travel, and highlighted tourism seasonality with regards to peak travel in the summer months. Links to the diaspora for investment and remittance purposes have certainly been an important aspect of the diaspora literature (Elo and Riddle, 2016; Tichaawa, 2017; Williams, 2018; Rabbiosi et al., 2019). The economic value of the diaspora is thus two-fold, in the host country as well as in the homeland. Glaser (2010, 2012, 2013) points to the reasons surrounding the waves of migration from Portugal to South Africa with many looking for better economic opportunities given the harsh conditions which they chose to leave behind. Thus, given the opportunities in South Africa, it is assumed that at some point many would be in a far better position to travel to and invest in the homeland, as well as to send remittances (Leblang, 2016; Busumtwi-Sam, 2019; Galstyan and Ambrosini, 2022).

News about tourism in Portugal

Portugal’s tourism sector itself was also featured in the newspaper with information about tourist numbers and on how tourism was progressing overall. Whilst informing readers about the Portuguese tourism economy, articles would often hint at the importance of visiting Portugal and the array of beautiful landscapes and rich culture which the country offered. The role of the national carrier, TAP, was emphasised continuously and inextricably linked to the growth and development of Portugal’s tourism industry (Moreira, 2018). Articles on Portugal’s tourism industry also alluded to the importance of the value chain of the tourism industry with regards to the construction industry (Figure 7), thus contributing to the growth of other sectors. Discussions around seasonality were also shown, highlighting the importance of the summer season for tourism. Stories of personal experiences travelling to Portugal by the global Portuguese diaspora sometimes were featured, both promoting Portugal as a tourist destination and again encouraging homeland travel.


A INDÚSTRIA TURÍSTICA EM PORTUGAL
também é promoção para a mão de obra

Figure 7. News about tourism in Portugal (Source: O Século de Joanesburgo, 3.7.1973, 16)

Travel to the former Portuguese colonies of Mozambique and Angola

The shared borders between South Africa and Mozambique have made for important trade routes and the ability of South Africans to easily visit Mozambique for tourism related purposes. Lourenço Marques (now Maputo) was a focal point for urban tourism development for Mozambique, fuelled by the growth in accommodation establishments, the promotional efforts of both the South African Railways and the Mozambican railways (Caminhos de Ferro de Mozambique) (see Rogerson, 2023). Although Angola did feature as a tourist destination, its greater geographical distance made travel there more challenging than to Mozambique. Angola also served as a port of call for ships coming from Durban in South Africa, travelling through to Europe. Accommodation establishments were advertised in both countries and the "pensão" (guesthouse, see Figure 8) was a more common type available in Mozambique, while large hotel properties were more common in the advertisements for holidays in Angola. It was observed that the city of Xai-Xai in the southern region of Mozambique also featured as a key destination.

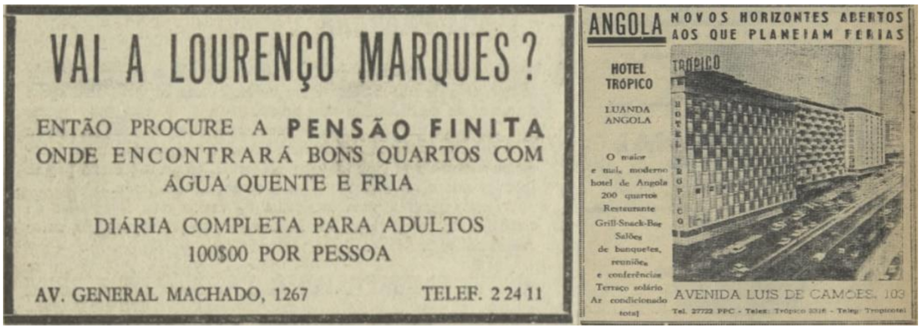


Figure 8. Travel to former Portuguese African colonies (Source: O Século de Joanesburgo, left: 3.11.1971, 20, right: 3.7.1973, 5)

Domestic tourism in South Africa

Domestic tourism in South Africa is an important area of research given the country's political background (Adinolfi and Ivanovic, 2015; Adinolfi et al., 2021). The Portuguese diaspora living in South Africa, many of which had been naturalised, with the exception perhaps of the illegally or undocumented (Glaser, 2013) that had arrived in the earlier stages of the timeframe covered in this study, would thus form part of the domestic tourism market at the time. It is certain that the newspaper content did emphasise travel with regards to outbound travel to Portugal. However, there is some evidence of domestic tourism promotion for the diaspora. Visits to the Lion Park (Figure 9) in the surrounds of Johannesburg, and Sun City Resort in the North West province in particular were featured frequently. Other foci included that of coastal hotels in the Cape Province being advertised to readers as well as occasional social features where readers discussed their December holiday plans to travel in South Africa or how much they knew about the country. Domestic travel by the Portuguese diaspora thus further emphasised their importance in the South African economy.

Figure 9. Domestic tourism in South Africa by the Portuguese diaspora (Source: O Século de Joanesburgo, 5.5.1980, 13)

Airlines facilitating homeland travel

It is undeniable that the proliferation of transportation technologies including air travel has increased the mobility of people, thus contributing to patterns of migration and the existence of diasporic communities (Sahoo and Pattanaik, 2014). Indeed, air travel allows for the efficient and easier physical connection between a host country and the homeland. By reducing the barriers of geographical distance to a matter of hours, air travel has thus facilitated the growth of tourism globally, such as in the case of VFR travel, making it easier for people in the diaspora to maintain and strengthen connections with the homeland as well as with the family and friends they left behind. For the South African Portuguese diaspora, air travel to Portugal or Madeira was supported mostly by five different airlines (Figure 10).

These were TAP (Transportes Aéreos Portugueses, Portugal's national carrier), SAA (South African Airways), Varig (Brazil's first airline), TAAG (Transportes Aéreos de Angola, Angola's national carrier), and DETA (Linhas Aereas de Moçambique). The latter being the national carrier of Mozambique and often advertised alongside the national railways (Caminhos de Ferro de Moçambique) that connected Mozambique and South Africa, which was provided an essential connect between the Portuguese diasporas in both countries as well as for the South African tourist market for Mozambique (Rogerson, 2023). The first three airlines also offered travel to other destinations, particularly Brazil, North America and other European countries. Advertisements by airlines often emphasised the need to connect with family in the homeland and encouraged people to 'get to know' the homeland.

Figure 10. Airlines facilitating homeland travel (Source: O Século de Joanesburgo, left: 30.1.1973, 3, centre: 23.2.1976, 5, right: 17.8.1971, Sports Supplement, 5)

CONCLUSION

This study contributes to the undeveloped literature about diasporas and travel in Africa. In particular, the paper addresses the role of the media in fostering connections and travel between a diaspora community and their homeland. Despite some evidence in the literature of a limited use and influence of media in the Portuguese diaspora in South Africa, the *O Século de Joanesburgo* newspaper played a crucial role in maintaining linkages between the Portuguese diaspora in South Africa with the homeland and continuing the connections within the diaspora itself. Travel was revealed as a prominent feature in the newspaper and there is a clear indication of the desire for the diaspora to remain connected to the homeland through travel. The emphasis on homeland travel derived from various actors such as travel agencies, individuals offering travel and administrative services, banks, and airlines.

The findings of this study suggest that the role of travel agents in diaspora studies merits further exploration. Additionally, the historical travel behaviours and preferences of the Portuguese diaspora in South Africa as well as the changes therein can serve to inform the current and future needs of diaspora tourist both in South Africa and Portugal. Thus, the newspaper has provided a very rich archival resource, capturing key elements of the Portuguese diaspora society, which should continue to be investigated to unpack other social, economic and cultural elements of the community. In final analysis, the study of community newspapers can provide valuable insights into the developments and intricacies of diaspora communities and requires further scholarly examination.

Author Contributions: Conceptualization, M.A., C.R. and J.S.; methodology, M.A., C.R. and J.S.; software, M.A., C.R. and J.S..; validation, M.A., C.R. and J.S.; formal analysis, M.A., C.R. and J.S.; investigation, M.A., C.R. and J.S.; data curation, M.A., C.R. and J.S.; writing - original draft preparation, M.A., C.R. and J.S.; writing - review and editing, M.A., C.R. and J.S.; visualization, M.A., C.R. and J.S.; supervision, M.A., C.R. and J.S.; project administration, M.A., C.R. and J.S. All authors have read and agreed to the published version of the manuscript.

Funding: Thanks is given to the University of Johannesburg School of Tourism & Hospitality for supporting the funding of the data collection at the NLSA.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgements: This contribution presents some results from a larger ongoing PhD study at the University of Johannesburg.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Adinolfi, M.C. (2019). Social capital and the making of diaspora: Evidence from the Portuguese community in Johannesburg, South Africa. *Geojournal of Tourism and Geosites*, 25(2), 555-568. https://doi.org/10.30892/gtg.25222-380

Adinolfi, M.C., Harilal, V., & Giddy, J.K. (2021). Travel Stokvels, Leisure on Lay-by, and Pay at Your Pace Options: The Post COVID-19 Domestic Tourism Landscape in South Africa. *African Journal of Hospitality, Tourism and Leisure*, 10(1), 302-317. https://doi.org/10.46222/ajhtl.19770720-102

Adinolfi, M.C., & Ivanovic, M. (2015). Recounting social tourism development in South Africa. *African Journal for Physical Health Education, Recreation and Dance*, 21(Supplement 1), -12. https://hdl.handle.net/10520/EJC182972

Alexander, C. (2017). Beyond "The diaspora' diaspora": A response to Rogers Brubaker. *Ethnic and Racial Studies*, 40(9), 1544-1555. https://doi.org/10.1080/01419870.2017.1300302

Barcus, H.R., & Shugatai, A. (2022). The role of nostalgia in re(creating) place attachments for a diasporic community. *Geographical Review*, 112(1), 103-124. https://doi.org/10.1080/00167428.2020.1852406

Barnes, L., & McDuling, A. (1995). The future of Portuguese in South Africa: maintenance and shift factors. *Language Matters: Studies in the languages of Africa*, 26(1), 147-162. https://doi.org/10.1080/10228199508566096

Basson, l. (1988). Portuguese immigration into South Africa. *Familia*, 25(1), 2-9.

Belgrave, L.L., & Seide, K. (2019). Grounded Theory Methodology: Principles and Practices. In Liamputtong, P. (Ed.), *Handbook of Research Methods in Health Social Sciences* (299-316). Springer, Singapore.

Ben-Moshe, D., & Segev, Z. (2007). *Israel, the Diaspora and Jewish Identity*. Academic Press, Sussex.

Brubaker, R. (2005). The 'Diaspora' Diaspora. *Ethnic and Racial Studies*, 28(1), 1-19. https://doi.org/10.1080/0141987042000289997

Busumtwi-Sam, J. (2019). International Migrations, Diasporas, and Remittances. In Shaw, T.M., Mahrenbach, L.C., Modi, R., Yi-chong, X. (Eds.), *The Palgrave Handbook of Contemporary International Political Economy* (183-199). Palgrave Macmillan, Cham.

Butler, T. (2023). Relationships between Tourism and Diasporas Influences and Patterns. *Espace Populations Sociétés Année*, 2, 317-326. https://doi.org/10.3406/espos.2003.2084

Cappucci, M., & Zarrilli, L. (2008). Cultural landscape and national iconography: Nation and identity in Armenian tourism. *GeoJournal of Tourism and Geosites*, 1(1), 39-47. https://gtg.webhost.uoradea.ro/I20081_vol1.htm

Cohen, R. (1997). *Global Diasporas*. London: Routledge.

Christiansen, C.C. (2004). News Media Consumption among Immigrants in Europe: The Relevance of Diaspora. *Ethnicities*, 4(2), 185-207. https://doi.org/10.1177/1468796804042603

Coles, T., Duval, D., & Hall, C.M. (2004). Tourism, mobility and global communities: new approaches to theorising tourism and tourist spaces. In W. Theobold (Ed.), *Global tourism (3rd ed.)* (463-481), Heinemann, Oxford.

Coles, T., & Timothy, D.J. (Eds.) (2004). Tourism, Diasporas and Space. Routledge, New York.

Costa, G. (2021). *The Portuguese colonial empire*. https://www.portugal.com/history-and-culture/the-portuguese-colonial-empire/#:~:text=The%20Portuguese%20Colonial%20Empire%20was,transfer%20of%20Macau%20to%20China

De Vletter, F. (2006). *Migration and Development in Mozambique: Poverty, inequality and survival*. Southern African Migration Project (SAMP), Southern African Research Centre, Queen's University, Canada.

Diener, A.C., & Hagen, J. (2022). The power of place in place attachment. *Geographical Review*, 112(1), 1-5. https://doi.org/10.1080/00167428.2021.1884983

Duffy, J. (1968). *Portuguese Africa*. Harvard University Press, Cambridge, MA and London.

Elo, M. & Riddle, L. (2016). *Diaspora Business*. Inter-Disciplinary Press.

Etemaddar, M., Duncan, T., & Tucker, H. (2016). Experiencing 'moments of home' through diaspora tourism and travel. *Tourism Geographies*, 18(5), 503-519. https://doi.org/10.1080/14616688.2016.1220973

Friese, S. (2019). *Qualitative Data Analysis with ATLAS.ti*. (Third Edition). SAGE Publications, London.

Galstyan, N., & Ambrosini, M. (2022). Diasporas and collective remittances: From state-driven to unofficial forms of diaspora engagement. *International Migration Review*, 57(2), 652-680. https://doi.org/10.1177/01979183221103572

Georgiou, M. (2006). *Diaspora, Identity and the Media: Diasporic Transnationalism and Mediated Spatialities*. Hampton Press, New York.

Glaser, C. (2010). Portuguese Immigrant History in Twentieth Century South Africa: A Preliminary Review. *African Historical Review*. 42(2), 61-83. https://doi.org/10.1080/17532523.2010.517398

Glaser, C. (2012). Home, Farm and Shop: The Migration of Madeiran Women to South Africa, 1900-1980. *Journal of Southern African Studies*, 38(4), 885-897. https://doi.org/10.1080/03057070.2012.732292

Glaser, C. (2013). White but Illegal: Undocumented Madeiran Immigration to South Africa, 1920s-1970s. *Immigrants & Minorities*, 31(1), 74-98. https://doi.org/10.1080/02619288.2012.686216

Greenman, E., & Xie, Y. (2008). Is Assimilation Theory Dead? The Effect of Assimilation on Adolescent Well- Being. *Social Science Research*, 37(1), 109-137. https://doi.org/10.1016/j.ssresearch.2007.07.003

Hall, C.M. (2005). Reconsidering the Geography of Tourism and Contemporary Mobility. *Geographical Research*, 43 (2), 125-139. https://doi.org/10.1111/j.1745-5871.2005.00308.x

Hall, S. (2014). Cultural Identity and Diaspora. In Mirzoeff, N. (Ed.), *Diaspora and Visual Culture: Representing Africans and Jews*, 21-33, Routledge, New York.

Hughes, H., & Allen, D. (2010). Holidays of the Irish Diaspora: The Pull of the 'Homeland'? *Current Issues in Tourism*, 13(1), 1-19. https://doi.org/10.1080/13683500802495669

Io, M. (2017). Exploring the motivation of Chinese Immigrants for Homeland Tourism. *Current Issues in Tourism*, 20(5), 521-535. https://doi.org/10.1080/13683500.2014.920772

Iorio, M., & Corsale, A. (2012). Diaspora and Tourism: Transylvanian Saxons Visiting the Homeland. *Tourism Geographies*, 15(2), 198-232. https://doi.org/10.1080/14616688.2012.647327

King, R. (2012). Geography and Migration Studies: Retrospect and Prospect. *Population, Space and Place*, 18, 134-153. https://doi.org/10.1002/psp.685

King, B., & Dwyer, L. (2015). The VFR and migration nexus – the impacts of migration on inbound and outbound Australian VFR travel. In Backer, E. & King, B. (Eds.), *VFR travel research: International Perspectives*. 46-48, Channel View Publications, Bristol.

Leblang, D. (2016). Harnessing the diaspora: Dual citizenship, migrant return remittances. *Comparative Political Studies*, 50(1), 75-101. https://doi.org/10.1177/0010414015606736

Leung, M. (2007). Rethinking 'Home' in diaspora. In Thunø, M. (Ed.), *Beyond Chinatown: New Chinese Migration and the Global Expansion of China* (210-233). Nordic Institute of Asian Studies (NIAS) Press, Copenhagen.

Li, T.E. (2020). Guanxi or weak ties? Exploring Chinese diaspora tourists' engagement in social capital building. *Current Issues in Tourism*, 23(8), 1021-1036. https://doi.org/10.1080/13683500.2019.1578340

Li, T.E., McKercher, B., & Chan, E.T.H. (2020). Towards a conceptual framework for diaspora tourism. *Current Issues in Tourism*, 23(17), 2109-2126. https://doi.org/10.1080/13683500.2019.1634013

Marschall, S. (Ed.) (2018). *Memory, migration and travel*. Routledge, New York.

Moreira, C.O. (2018). Portugal as a tourism destination: Paths and trends. *Méditerranée: Journal of Mediterranean Geography*, 130, 1-35. https://doi.org/10.4000/mediterranee.10402

Moyo, K., & Cossa, E. (2015). 'Ethnic Enclave of a Special Sort?' Mozambicans in La Rochelle, Johannesburg. *Journal of Southern African Studies*, 41(1), 141-158. https://doi.org/10.1080/03057070.2015.992716

Muanamoha, R.C. (2008). *The dynamics of undocumented Mozambican labour migration to South Africa* [Doctoral Dissertation]. Durban: Faculty of Humanities, Development and Social Science, University of Kwazulu-Natal.

Newitt, M. (2004). *A history of Portuguese overseas expansion 1400–1668*. Routledge, New York.

Nshimbi, C.C., & Fioramonti, L. (2014). The will to integrate: South Africa's responses to regional migration from the SADC region. *African Development Review*, 26(S1), 52-63. https://doi.org/10.1111/1467-8268.12092

Otoo, F.E., Kim, S.S., & Stylidis, D. (2021). Diaspora tourists' emotional experience. *International Journal of Tourism Research*, 23(6), 1042-1058. https://doi.org/10.1002/jtr.2461

Peck, S. (2020). Transnational social capital: the socio-spatialities of civil society. *Global Networks*, 20(1), 126-149. https://doi.org/10.1111/glob.12234

Pelliccia, A. (2016). In the Family Home: Roots Tourism among Greek Second Generation in Italy. *Current Issues in Tourism*, 21(18), 2108-2123. https://doi.org/10.1080/13683500.2016.1237480

Piedra, L.M., & Engstrom, D.W. (2009). Segmented Assimilation Theory and the Life Model: An Integrated Approach to Understanding Immigrants and their Children. Social Work, 54(3), 270-277. https://doi.org/10.1093/sw/54.3.270

Quayson, A., & Daswani, G. (Eds.) (2013). *A Companion to Diaspora and Transnationalism*. Wiley Blackwell, London.

Rabbiosi, L., Gregorič, A., & Stucchi, T. (2019). Diaspora ownership and homeland firms' internationalization. *Journal of International Management*, 25(3), 100661. https://doi.org/10.1016/j.intman.2018.12.002

Reed, A. (2013). Diaspora Tourism. In Quayson, A. & Daswani, G. (Eds.), *A companion to diaspora and transnationalism* (524-538). Blackwell Publishing Ltd., London.

Reed, A. (2015). Of routes and roots: Paths for understanding diasporic heritage. In Waterton, E.W. & Watson, S. (Eds.), *The Palgrave handbook of contemporary heritage* (382-396). Palgrave Macmillan, Cham.

Ribeiro, N. (2017). Colonisation Through Broadcasting: Rádio Clube de Moçambique and the Promotion of Portuguese Colonial Policy, 1932–1964. In Garcia, J., Kaul, C., Subtil, F., Santos, A. (Eds.), *Media and the Portuguese Empire. Palgrave Studies in the History of the Media* (179-195). Palgrave Macmillan, Cham.

Ribeiro, N. (2022). A Polycentric Broadcasting Model: Radio and the Promotion of Portuguese Colonialism. *Journal of Radio & Audio Media*, 29(1), 10-25. https://doi.org/10.1080/19376529.2021.2005601

Rodrigues, A., Van der Walt, T., & Ngulube, P. (2014). Towards an archival collecting plan for the records generated by the Portuguese community-based organisations in the Gauteng Province of South Africa. *Archives and Records: The Journal of the Archives and Records Association*, 35(2), 93-109. https://doi.org/10.1080/23257962.2014.938269

Rogerson, C.M. (2017). Visiting Friends and Relatives Travel Matters for Sub-Saharan Africa. *African Journal for Hospitality, Tourism and Leisure*, 6(3), 1-10. Open Access- Online: http//: www.ajhtl.com

Rogerson, C.M. (2023). Historical Urban Tourism: The Evolution of Tourism in Colonial Lourenço Marques, Mozambique c.1920-1975. *Revista Turismo & Desenvolvimento*, 42, 9-25. https://doi.org/10.34624/rtd.v42i0.32655

Sahoo, S., & Pattanaik, B.K. (2014). Introduction: Diasporas in the New Global Age. In Sahoo, S., Pattanaik, B. (Eds.), *Global Diasporas and Development* (1-15). Springer, New Delhi.

Schneider, J., & Crul, M. (2010). New Insights into Assimilation and Integration Theory: Introduction to the Special Issue. *Ethnic and Racial Studies*, 33(7), 1143-1148. https://doi.org/10.1080/01419871003777809

Sim, D., & Leith, M. (2009). Diaspora Tourists and the Scottish Homecoming. *Journal of Heritage Tourism*, 8(4), 259-274. https://doi.org/10.1080/1743873X.2012.758124

Stephenson, M.L. (2002). Travelling to the Ancestral Homelands: The Aspirations and Experiences of a UK Caribbean Community. *Current Issues in Tourism*, 5(5), 378-425. https://doi.org/10.1080/13683500208667932

Sousa, M. (2021). *"Século de Joanesburgo" totalmente paralisado*. [Accessed: 10 March 2022]. https://www.jmmadeira.pt/comunidades/ver/124401/Seculo_de_Joanesburgo_totalmente_paralisado_

Tichaawa, T.M. (2017). The nature of diasporic tourism in Cameroon: An opportunity for tourism development. *African Journal of Hospitality, Tourism and Leisure*, 6(4), 1-13. Open Access- Online: http//: www.ajhtl.com

Tören, E. (2021). Travel motivations of diaspora tourists. In Toylan, N.V. (Ed.), *Contemporary issues in tourism and hospitality a systematic approach* (59-66). Livre de Lyon, France.

Wagner, L. (2015). Shopping for diasporic belonging: Being 'local' or being 'mobile' as a VFR visitor in the ancestral homeland. *Population, Space and Place*, 21(7), 654-668. https://doi.org/10.1002/psp.1919

Webb, N. (1999). Home across the Atlantic? Views on the maintenance of the Portuguese culture in Port Elizabeth, South Africa. *Society in Transition*, 30(1), 43-53. https://doi.org/10.1080/10289852.1999.10520167

Williams, N. (2018). Mobilising diaspora to promote homeland investment: The progress of policy in post-conflict economies. *Environment and Planning C: Politics and Space*, 36(7), 1256-1279. https://doi.org/10.1177/2399654417752684

Article history: Received: 25.09.2023 Revised: 16.10.2023 Accepted: 11.11.2023 Available online: 19.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1526-1545
DOI 10.30892/gtg.50432-1150

THE GEOSTATISTICAL DIMENSION OF TOURIST FLOWS GENERATED BY FOREIGN TOURISTS IN ROMANIA

Marius I. STUPARIU*
Department of Geography, Tourism and Territorial Planning, Faculty of Geography, Tourism and Sport, University of Oradea, Oradea, Romania, e-mail: marius_stupariu@didactic.uoradea.ro

Ioana JOSAN
Department of Geography, Tourism and Territorial Planning, Faculty of Geography, Tourism and Sport, University of Oradea, Oradea, Romania, e-mail: ioana.josan@didactic.uoradea.ro

Maria GOZNER
Department of Geography, Tourism and Territorial Planning, Faculty of Geography, Tourism and Sport, University of Oradea, Oradea, Romania, e-mail: maria.gozner@didactic.uoradea.ro

Marcu Simion STAȘAC
Department of Geography, Tourism and Territorial Planning, Faculty of Geography, Tourism and Sport, University of Oradea, Oradea, Romania, e-mail: marcu.stasac@didactic.uoradea.ro

Thowayeb H. HASSAN*
Social Studies Department, College of Arts, King Faisal University, Al Ahsa, Saudi Arabia, e-mail: thassan@kfu.edu.sa

Muhanna Yousef ALMAKHAYITAH
Social Studies Department, College of Arts, King Faisal University, Al Ahsa, Saudi Arabia, e-mail: malmakhayitah@kfu.edu.sa

Citation: Stupariu, I.M., Josan, I., Gozner, M., Stașac, M.S., Hassan, T.H., & Almakhayitah, M.Y. (2023). THE GEOSTATISTICAL DIMENSION OF TOURIST FLOWS GENERATED BY FOREIGN TOURISTS IN ROMANIA. *GeoJournal of Tourism and Geosites*, 50(4), 1526–1545. https://doi.org/10.30892/gtg.50432-1150

Abstract: The article represents a comprehensive and insightful study aiming to unravel the intricate dynamics of foreign tourism within Romania. This research delves into various key aspects, employing a geostatistical approach to offer a nuanced understanding of the spatial and temporal dimensions of foreign tourist flows. One of the primary inquiries addressed by the study revolves around the quantitative assessment of foreign tourists visiting Romania. By meticulously analyzing arrival data, the research seeks to provide a comprehensive overview of the sheer number of foreign visitors the country attracts. This quantitative dimension is crucial for assessing the overall impact of tourism on the national economy and informing strategic decisions in the tourism sector. Moving beyond mere numbers, the study ventures into the temporal aspect of foreign tourism in Romania. By scrutinizing patterns over time, researchers aim to answer the question of when foreign tourists predominantly choose to visit the country. Understanding the temporal preferences of tourists is invaluable for both businesses and policymakers, enabling them to optimize resource allocation, marketing efforts, and infrastructure management during peak tourism seasons. Furthermore, the research explores the destinations chosen by foreign tourists within Romania. The geostatistical analysis differentiates arrivals based on specific tourist destinations and counties, shedding light on the preferences of international visitors. This information is pivotal for local authorities, businesses, and stakeholders, offering insights into which regions benefit the most from foreign tourism, thus facilitating targeted development strategies and resource allocation. In addition to destination preferences, the study investigates the accommodation choices made by foreign tourists. Through geostatistical analysis, the research categorizes accommodation preferences based on various criteria, including types of accommodation units and comfort categories. This information proves invaluable for the hospitality industry, guiding investments, and helping businesses tailor their offerings to meet the diverse needs of international visitors. The temporal aspect of foreign tourists' stays in Romania is another focal point of the study. By examining the duration of visits, researchers aim to provide a comprehensive understanding of how long foreign tourists typically stay in the country. This data is instrumental in shaping tourism policies, influencing marketing strategies, and optimizing services to enhance the overall tourist experience. Beyond the borders of Romania, the study investigates the means of transportation foreign tourists employ to reach the country. By understanding the modes of transportation preferred by international visitors, Romania can improve its infrastructure and connectivity, ensuring a seamless and positive experience for tourists from various origins. Lastly, the research explores the geographical origins of foreign tourists who visit Romania. This analysis not only provides insights into the diverse cultural backgrounds of visitors but also aids in crafting targeted marketing campaigns to attract specific international markets. The article goes beyond a mere exploration of tourist numbers. It offers a comprehensive and detailed analysis of the spatial and temporal dimensions of foreign tourism, providing valuable insights for policymakers, businesses, and stakeholders. This geostatistical approach not only enriches our understanding of the complex dynamics of foreign tourist flows but also lays the foundation for strategic and sustainable tourism development in Romania.

Key words: foreign tourists, Romania, arrivals, tourist season, off-season, destination, structures of accommodation, comfort categories, overnight stay, tourist stay, transport, country of origin

* * * * * *

* Corresponding author

INTRODUCTION

Tourism has become an integral part of the global economy, transcending geographical boundaries and fostering cultural exchanges. In this context, Romania, a country renowned for its natural beauty, rich history, and vibrant culture, has increasingly become a sought-after destination for travelers from around the world. The influx of foreign tourists into Romania has not only bolstered the country's tourism sector but has also brought about a unique geostatistical dimension to the analysis of tourist flows. This article delves into the intricate web of factors that influence the movement of foreign tourists throughout Romania. By leveraging geostatistical techniques and data, we aim to provide a comprehensive understanding of how various destinations within Romania are chosen, the preferred periods for visitation, and the diverse origins of these foreign tourists. Through a geostatistical lens, we explore the spatial and temporal patterns of these tourist flows, shedding light on the impact of these dynamics on both the tourism industry and the regions they touch.

The geostatistical analysis of foreign tourist flows in Romania offers a valuable perspective that extends beyond conventional tourism studies. It provides insights into the spatial distribution of tourist activities, allowing for more effective resource allocation and destination management. Furthermore, it aids in identifying emerging trends and growth opportunities for the tourism sector. In essence, this article aims to unravel the hidden geographical intricacies of foreign tourist flows in Romania, ultimately contributing to a more holistic understanding of the multifaceted nature of global tourism. Regarding the relevance of this study, analyzing tourist flows generated by foreign tourists from a geostatistical perspective is crucial because it provides a solid foundation for tourism development planning and assessing the economic impact on different regions. Through geostatistics, one can accurately pinpoint the most popular tourist destinations and regions experiencing a significant influx of foreign tourists. This allows authorities to allocate resources efficiently, develop necessary infrastructure, and create tailored marketing strategies to attract tourists. Moreover, geostatistical analysis reveals the economic impact on local communities, facilitating the equitable distribution of tourism benefits and sustainable regional development. It provides an essential framework for economic growth and the protection of natural and cultural resources, while ensuring an authentic travel experience and the promotion of local products, supporting cultural diversity, and fostering sustainable tourism development.

METHODOLOGY

To conduct the article is crucial to follow a robust methodology for data collection and analysis. The data required for this analysis can be obtained from various sources, such as government institutions, tourism organizations, and border monitoring agencies. These data may include information regarding arrivals of foreign tourists, their residence, destinations in Romania, the purpose of the visit, as well as demographic characteristics. For the collection and analysis of this data, geographic tools and software such as MsOffice Excel and Geographic Information Systems (GIS) will be utilized, allowing the storage, management, and spatial data analysis. For geostatistical analysis, specific GIS tools, such as the variogram for assessing spatial autocorrelation and kriging to model the spatial distribution of tourist flows, will be employed. The research procedure will involve the collection of geographic data from foreign tourists entering Romania and the analysis of this data to identify spatial patterns. Data will be collected at the points of entry to the country, where tourists complete entry forms. This data will include information about tourists' nationality, purpose of the visit, location of stay in Romania, as well as the duration of their stay. Statistical and geostatistical analysis will involve the use of methods such as descriptive statistics, cluster analysis to identify areas with high concentrations of foreign tourists, and kriging to estimate spatial densities in various regions of the country. These methods will help identify areas with high tourism potential and support tourism development based on objective spatial patterns. Furthermore, they will facilitate equitable distribution of tourism benefits and promote sustainable regional development.

LITERATURE REVIEW

A literature review would benefit from examining a variety of sources to provide a comprehensive overview of the subject. While the mentioned sources may not directly address the geostatistical aspect of tourist flows in Romania, they offer valuable insights into the broader topics of tourism, its economic impact, trends, and related issues.

The article has a comprehensive literature review that delves into the multifaceted aspects of *global tourism and its impact on rural transformations*. Drawing on a range of scholarly works, the article critically analyzes the challenges and opportunities posed by globalization in the context of Romania's tourism sector. Beirman (2021) explores the repercussions of tourism crises and strategies for destination recovery, providing valuable insights into the resilience of tourist destinations. Culiuc (2014) contributes to the discussion by identifying the determinants of international tourism, shedding light on factors that influence the flow of foreign tourists. Postelnicu and Dabija (2017) specifically address the challenges and development prospects for tourism in Romania, offering a nuanced perspective on the country's unique position in the global tourism landscape. Sönmez and Graefe's seminal work (1998) on the influence of terrorism risk on foreign tourism decisions adds a critical dimension to the discourse, emphasizing the need to consider geopolitical factors in understanding tourist flows. Airey and Tribe's edited volume (2007) provides a broader context for these discussions, highlighting developments in tourism research that shape the contemporary understanding of global tourism dynamics.

Hampton (2018) contributes insights into the problems and prospects of tourism management, offering a practical lens through which to examine the industry's challenges. Dwyer and Forsyth's study (1997) on measuring the benefits and yield from foreign tourism further enriches the literature review by providing a methodological foundation for assessing the economic impact of tourism. Finally, Algieri and Álvarez (2022) bring a regional perspective to the discussion, assessing the ability of regions, with a focus on Italy, to attract foreign tourists. The integration of these diverse perspectives forms a robust foundation for understanding the geostatistical dimensions of tourist flows and their implications for rural transformations in Romania (Dwyer and Forsyth, 1997; Sönmez and Graefe, 1998; Airey and Tribe, 2007; Culiuc, 2014; Postelnicu and Dabija, 2017; Hampton, 2018; Beirman, 2021).

The literature review for article critically explores the theme of *globalization and rural transformations*, synthesizing insights from a diverse set of scholarly articles. Barcus et al. (2022) contribute a foundational understanding of rural transformations, emphasizing the global impact on rural landscapes, economies, and communities. Gozner's works cover various aspects of Romanian tourism: solutions for leisure tourism development through cyclotourism in the Albac – Arieşeni Territorial System (Gozner, 2015), legislative aspects concerning tourism planning in Romania (Gozner and Josan, 2013), the authentic expression of religious attractions in the territorial system of Albac - Arieşeni and Alba County (Gozner et al., 2016), and the intersection of nature, photography, and tourism in the Bihor-Vlădeasa Mountains (Gozner et al., 2017). The study by Maeda et al. (2018) explores the extraction of tourist destinations and preferences using geotagged social media data, offering a technological perspective on tourist behavior. Popescu et al. (2020) contribute insights into trends and changes in tourist flow in Romania from 2009 to 2018. Stupariu et al.'s (2022) comprehensive tourist flow study compares the rural metropolitan area of Oradea with Bihor County, highlighting regional disparities. Tătar et al. (2018) study examines the contribution of tourist guides to sustainability in Romania.

Ilieș et al. (2014) explore the role of tourist resources in determining a typology of support-local administrative territorial units (LATUs) with resorts in Romania. Ilieş and Gallo (2008) provide qualitative research on tourism in Maramureş Land, adding a cultural perspective. Altogether, these twelve articles form a rich tapestry of perspectives, creating a robust foundation for understanding the geostatistical dimensions of tourist flows and their impact on rural transformations in Romania. Ilieş and Ilieş (2015) contribute by exploring identity-based geo- and tourism branding strategies derived from rural Maramureș Land in Romania, providing a cultural perspective on rural transformations.

Inkson and Minnaert (2012) offer an introduction to tourism management, laying the groundwork for understanding the complexities of the industry. The comprehensive companion to tourism by Lew et al. (2014) adds depth to the discussion by providing a broad overview of tourism-related concepts and issues. The international encyclopedia of travel and tourism edited by Lowry (2016) contributes further insights into the global dimensions of tourism. Additionally, the book on sport tourism and its territorial development by Mazza and Sobry (2022) enriches the discussion with a focus on the intersection of sports and tourism. Ilieș et al. (2020) study on geohazards affecting cultural heritage monuments in Romania brings attention to the environmental challenges faced by rural areas.

The investigations of museum indoor microclimate and air quality (Ilieș et al., 2021) and the integrated approach for museal indoor air quality and public health (Ilieș et al., 2022) provide a nuanced understanding of the cultural and health aspects of rural tourism. Stupariu's studies (2017; 2018) contribute to the exploration of structural dimensions of touristic reception and tourism seasonality in Romanian spas. Stașac and Herman (2010) delve into the ethnographic values of the traditional village of "Zarand Land," offering a cultural and historical perspective on rural transformations.

Collectively, these articles contribute to a comprehensive understanding of the globalized forces shaping rural areas and their implications for tourism in Romania (Ilieș and Gallo, 2008; Stașac and Herman, 2010; Inkson and Minnaert, 2012; Gozner and Josan, 2013; Ilieș et al., 2014; Lew et al., 2014; Gozner, 2015; Ilieș and Ilieș, 2015; Gozner et al., 2016; Lowry, 2016; Gozner et al., 2017; Stupariu, 2017; Ilieș et al., 2018; Maeda et al., 2018; Stupariu and Morar, 2018; Tătar et al., 2018; Ilieș et al., 2020; Popescu et al., 2020; Ilieș et al., 2021; Barcus et al., 2022; Ilieș et al., 2022; Mazza and Sobry, 2022; Stupariu et al., 2022).

The literature review for article delves into the category of *e-tourism and the social media impact*, incorporating insights from a collection of scholarly articles. Fu and Timothy (2021) contribute by exploring the constraints of social media on destination images, specifically addressing the potential of barrier-free internet access for foreign tourists in internet-restricted destinations. The "Handbook of E-Tourism" edited by Fuchs et al. (2022) offers an extensive overview of the evolving landscape of e-tourism, providing a comprehensive foundation for understanding the technological advancements shaping tourist behavior. Mohamed and Moradi (2011) present a model of e-tourism satisfaction factors for foreign tourists, shedding light on the crucial aspects influencing tourists' satisfaction in the digital age. Indrie et al. (2019) contribute to the discourse by examining the indoor air quality of museums and its implications for the conservation of textile artworks, using a case study from Salacea Museum House, Romania, adding a unique perspective to the intersection of e-tourism and cultural preservation. Menor-Campos et al. (2020) focus on foreign tourists in World Heritage Sites, presenting a motivation-based segmentation that enriches the understanding of tourist behavior influenced by e-tourism elements. In summary, these articles collectively provide a nuanced exploration of the intricate relationship between E-Tourism, Social Media Impact, and the dynamics of tourist flows, contributing to a comprehensive understanding of the contemporary tourist experience in Romania (Mohamed and Moradi, 2011; Indrie et al., 2019; Menor-Campos et al., 2020; Fu and Timothy, 2021; Fuchs et al., 2022).

The literature review for aerticle critically explores the theme of the *impact of the environment on tourism*, incorporating insights from various scholarly articles. Gaceu (2009) investigates the climate characteristics of the fog phenomenon in the Apuseni Mountains and its influence on tourists and tourist activities, highlighting the environmental factors affecting tourism experiences. Ilieș et al. (2011) provide examples of natural hazards impacting geosites and tourist activities, emphasizing the importance of understanding and mitigating environmental risks.

Stupariu and Josan's study (2014) focuses on the quality of hotel services in the North-West Development Region, shedding light on the interplay between environmental conditions and tourism infrastructure. Additionally, Ilieș et al. contribute to the discourse by addressing geohazards affecting cultural heritage monuments (2020), investigating museum indoor microclimate and air quality (2021), and presenting an integrated approach for museal indoor air quality and public health (2022), collectively offering a comprehensive perspective on the environmental challenges faced by both natural and cultural attractions in Romania. Furthermore, Stupariu's works (2017; 2018) explore the structural dimensions of touristic reception and tourism seasonality in Romanian spas, contributing to the understanding of how environmental factors shape tourism patterns. Collectively, these articles contribute to a nuanced understanding of the dynamic relationship between environmental conditions and tourist flows in Romania, providing valuable insights for future research in the field (Gaceu, 2009; Ilieş et al., 2011; Stupariu and Josan, 2014; Stupariu, 2017; Stupariu and Morar, 2018; Ilieş et al., 2020; Ilieş et al., 2021; Ilieş et al., 2022).

The literature review for article explores the intersection of *tourism in Europe and global economic challenges*. Hall and Coles (2008) provide insights into international business and tourism, addressing global issues and contemporary interactions, setting the stage for understanding the broader economic context of tourism. The challenges and opportunities of EU enlargement in the new European landscape are discussed by Hall et al. (2006), offering valuable perspectives on the evolving dynamics of tourism in Europe. OECD's studies (2014; 2020) on tourism, the creative economy, and global trends and policies contribute essential data and analyses, providing a comprehensive understanding of the economic factors influencing tourism. Telfer and Sharpley (2002) delve into the concepts and issues surrounding tourism and development, shedding light on the complex interplay between tourism and economic growth. Tung and Thang's research (2022) on the impact of exchange rates on foreign tourist demand offers a specific economic lens, emphasizing the relevance of economic factors in shaping tourist flows.

Vellas and Bécherel (1995; 2016) bring an economic perspective to international tourism, while Algieri and Álvarez (2022) assess the ability of regions to attract foreign tourists, providing a practical case study from Italy. Additionally, Menor-Campos et al. (2020) contribute a motivation-based segmentation of foreign tourists in World Heritage Sites, offering insights into the economic drivers behind tourist behavior. Together, these articles form a robust foundation for understanding the intricate relationship between tourism in Europe and global economic challenges, enriching the literature on the geostatistical dimension of tourist flows (Vellas and Bécherel, 1995; Telfer and Sharpley, 2002; Hall et al., 2006; Hall and Coles, 2008; OECD, 2014; Vellas and Bécherel, 2016; Menor-Campos et al., 2020; OECD, 2020; Algieri and Álvarez, 2022; Tung and Thang, 2022).

The literature review for article explores the theme of *rural tourism and cultural identity*. Dincă's study (2016) delves into the iconic and symbolic derivates from the composition of rural landscapes dominated by fortified churches in Transylvania, providing insights into the cultural significance of these landmarks. Ilieş and Hotea (2010) contribute examples of good practices in rural tourism activities in Maramureş Land, specifically in Vadu Izei and Săpânţa, shedding light on successful approaches in promoting rural tourism. Tătar and Herman (2013) explore identity encounters and host-guest interactions in the Land of Moţi, Romania, offering a nuanced understanding of the cultural dynamics in rural settings. Ungureanu and Lăzuran (Giurău) (2014) focus on the creation of the Ciocăneşti tourist destination brand, emphasizing the role of cultural identity in shaping the tourism experience. Uslu et al. (2020) evaluates the communication skills of historical bazaar tradesmen in Edirne, targeting foreign tourists and highlighting the intersection of cultural identity and tourism experiences. The edited volume by Ramshaw and Gammon (2013) on Heritage, Sport, and Tourism explores the relationship between sporting pasts and tourist futures, providing a broader context for understanding the cultural dimensions of tourism. Additionally, Staşac and Herman (2010) contribute to the discussion with an exploration of ethnographic values in the traditional village of "Zarand Land," adding depth to the understanding of cultural identity in rural settings. Together, these articles form a comprehensive foundation for exploring the geostatistical dimension of tourist flows generated by foreign tourists in Romania within the context of rural tourism and cultural identity (Ilieş and Hotea, 2010; Staşac and Herman, 2010; Ramshaw and Gammon, 2013; Tătar and Herman, 2013; Ungureanu and Lăzuran, 2014; Dincă, 2016; Uslu et al., 2020).

Incorporating these sources into the literature review will enhance the overall understanding of the geostatistical dimension of tourist flows generated by foreign tourists in Romania and the broader context of global tourism. By synthesizing these diverse sources, the literature review offers a sophisticated, multidimensional framework for understanding the geostatistical dimension of tourist flows in Romania. It weaves together economic, social, environmental, and policy perspectives, creating a robust foundation for the subsequent analysis in the article, and facilitating a holistic understanding of the complex relationship between foreign tourists and their impact on different regions in Romania.

HOW MANY FOREIGN TOURISTS VISIT ROMANIA?

Romania, a land of striking landscapes, rich cultural heritage, and captivating history, has been steadily gaining recognition as an enticing destination for travelers from across the globe. As the world becomes increasingly interconnected, the question of how many foreign tourists choose Romania as their destination has gained paramount importance in the realm of tourism research. This part of the article delves into the pivotal aspect of quantifying the influx of foreign tourists into Romania. It seeks to explore and decipher the numerical trends, patterns, and fluctuations in foreign tourist arrivals, ultimately shedding light on the country's appeal as a tourist destination. Understanding the volume and dynamics of foreign tourist visits is not only essential for policy-makers and the tourism industry but also for those interested in the broader implications of tourism on the nation's economy, culture, and environment.

By delving into comprehensive data and employing statistical analysis, we aim to unveil the figures and variations in the number of foreign tourists who choose Romania as their preferred travel destination. This inquiry not only serves to quantify the current state of tourism but also provides a foundation for future projections and strategies.

As we embark on this exploration, we will not only answer the question, *how many foreign tourists visit Romania?* but also contemplate the significance of these numbers. Beyond the statistics, we aim to unravel the impact of these visitors on the nation, its regions, and its people, and how Romania's allure continues to grow in the eyes of global travelers. This part of the article is an essential resource for anyone with an interest in the dynamics of international tourism and the role it plays in Romania's ever-evolving landscape. In order to methodologically understand *how many foreign tourists visit Romania*, we need to define *foreign tourist* (or international visitor) is and the *tourist arrivals* (or simply arrivals).

Foreign tourist (or *international visitor*), from a statistical perspective, refers to any individual who ordinarily resides or has their residence abroad and travels to Romania for a period not exceeding 12 months, without being remunerated for this journey. A foreign tourist is a person who travels to a country or destination different from their country of residence or citizenship. This individual visit another country for tourism, leisure, business, or other non-residential purposes. A foreign tourist may be a temporary visitor in a country, traveling for the purpose of exploration, relaxation, experiencing the local culture and tourist attractions, or participating in events, conferences, or business meetings (in the case of pseudo-tourists). This may involve staying in hotels, utilizing local tourism services, interacting with the local culture and community, and incurring expenses related to travel and tourism. The identification of a foreign tourist is usually based on information such as citizenship, residence, and the person's country of origin. In many cases, a foreign tourist may be required to present a valid passport or other travel documents to enter a country or tourist destination. International tourism and the arrival of foreign tourists in a tourist destination have a significant impact on the local economy, the tourism industry, and social development. Foreign tourists contribute to tourism revenue, job creation, the promotion of culture and local heritage, and can influence the development of infrastructure and tourism services. To attract and retain foreign tourists, tourist destinations engage in marketing and promotion activities, improve tourism infrastructure, develop quality services, and maintain their appeal by preserving the environment and cultural values. Statistical research on international travel is recorded at the state borders of Romania.

Tourist arrivals (or simply *arrivals*) refer to the total number of tourists who arrive at a tourist destination within a specific period. This metric serves as a measure of travel volume and tourism activity in a particular region, country, or specific destination. Tourist arrival can be expressed in various ways, such as the total number of tourists visiting a destination, the number of foreign visitors, or the number of tourists accommodated in authorized lodging facilities. It can be calculated based on official data reported by travel agencies, accommodation providers, tour operators, or local tourism authorities. Tourist arrivals can be influenced by a range of factors, including the destination's attractiveness and popularity, transportation accessibility, weather conditions, local events and festivals, tourism infrastructure, and tourism marketing. Additionally, political, economic, and social factors can play a role in attracting or discouraging tourists from visiting a particular destination. Tourist arrival is a vital indicator for evaluating the economic performance and impact of tourism in a specific region or country. It can provide insights into tourism trends, traveler preferences and behavior, the contribution of tourism to the economy, employment, and the potential for future tourism development. Data on tourist arrivals are utilized by the tourism industry, tourism authorities, researchers, and planners to monitor and analyze the evolution of tourism, identify growth opportunities, enhance tourism services, and develop effective tourism strategies and policies. Statistical research on tourist arrivals is recorded at tourist accommodation facilities with lodging functions in Romania. In the period spanning 1992-2022, Romania witnessed an impressive total of 257,041,587 tourists who explored the country. Among these tourists, 211,029,119, or 82.10%, were romanian tourists, while 46,012,468, or 17.90%, were foreign tourists (Figure 1). These figures depict an intriguing mix of romanian and international tourists who ventured to discover Romania over this significant three-decade period.

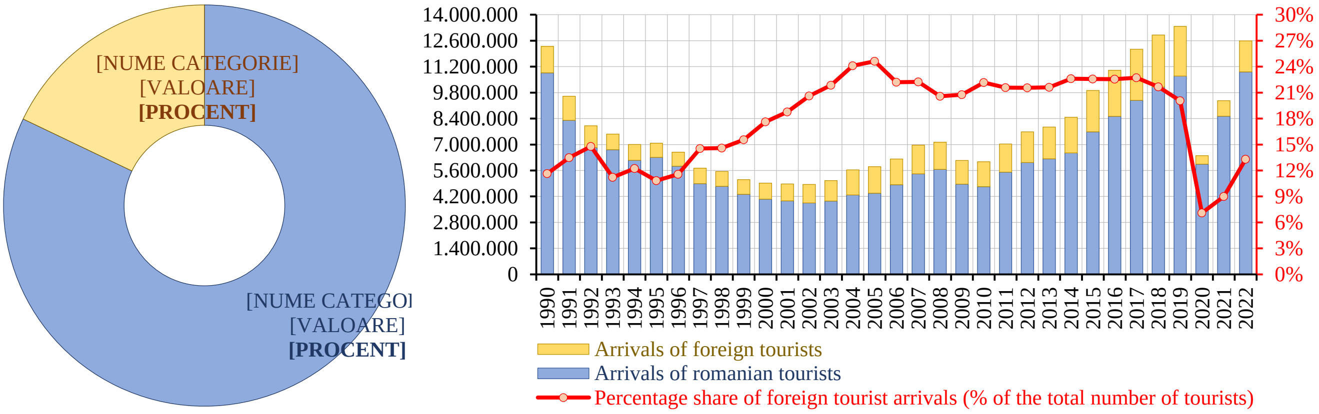


Figure 1. Arrivals of romanian and foreign tourists in the period 1990-2022
(Data source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table)

It's noteworthy that romanian tourists constituted an overwhelming majority of the visitors, suggesting a strong involvement of the local population in tourism activities. This phenomenon can be influenced by various factors, including the ease of domestic travel and a growing interest in exploring their own country, given Romania's diverse geography and cultural heritage. Simultaneously, the substantial presence of foreign tourists, accounting for nearly one-fifth of the total tourists, reflects Romania's increased appeal as an international tourist destination. This can be attributed to the country's natural beauty, rich historical heritage, and effective tourism promotion efforts. The economic impact of these foreign tourists can be significant, contributing to job creation and the development of tourism infrastructure. These data underscore the complexity of Romania's tourism landscape, with a normal balance between romanian and international tourists, each bringing unique contributions to the country's tourism industry. It's vital to continue tourism development and promotion efforts to attract even more foreign tourists while encouraging further exploration by the local population. This balance can foster a thriving and sustainable tourism sector, enriching both the economy and cultural exchanges within Romania.

The dataset spanning from 1990 to 2022 offers valuable insights into the evolution of tourism in Romania. Notable trends include a consistent decrease in the number of arrivals of romanian tourists over the years, with a significant drop in 2020, likely attributed to the COVID-19 pandemic and associated travel restrictions. On the other hand, the percentage share of foreign tourist arrivals has seen a steady increase over the years, reaching its peak in 2019. However, the sudden drop in foreign tourist arrivals in 2020, followed by a recovery in 2021 and 2022, indicates the impact of the pandemic on international travel. Despite the recovery, the foreign tourist arrival percentage remains below the 2019 levels, highlighting the ongoing challenges in the tourism sector. These fluctuations reflect the sector's resilience and adaptability, as it navigates through economic fluctuations and global events. Moving forward, it's crucial for Romania to focus on measures that promote sustainable tourism growth while addressing uncertainties that may arise in the future. The dataset provides a detailed historical perspective of tourism in Romania from 1990 to 2022. Several key trends and shifts can be observed (Figure 1):

- *Decrease in romanian tourists*: The number of romanian tourists visiting Romania shows a consistent decline over the years. In 1990, 10,864,891 romanian tourists arrived, but this figure dropped to 4,726,414 in 2010 and further declined to 4,342,412 in 2019. This downward trend can be attributed to various factors, including changes in economic conditions, preferences for international travel, and domestic tourism promotion efforts.
- *Increase in foreign tourists*: In contrast, the number of foreign tourists visiting Romania has shown a gradual increase. In 1990, 1,431,661 foreign tourists arrived, but by 2019, this number had risen to 2,683,748. The increase in foreign tourist arrivals suggests that Romania has become more attractive as an international destination over the years.
- *Foreign tourist percentage share*: The percentage share of foreign tourist arrivals, relative to the total number of tourists, has steadily risen. In 1990, it was 11.6%, but it reached a peak of 24.6% in 2005. This peak was followed by a temporary decline, primarily due to the global financial crisis in 2008. Subsequently, the percentage recovered, reaching 22.7% in 2017, only to decrease again in 2019, likely due to the impact of the economic and political landscape.
- *Pandemic-related disruption*: The year 2020 stands out as an outlier, with a sharp decline in both romanian and foreign tourists, and a substantial drop in the foreign tourist percentage share (7.1%). This dramatic reduction was undoubtedly influenced by the COVID-19 pandemic and the severe travel restrictions imposed during that year.
- *Recovery and rebound*: In 2021 and 2022, there was a noticeable recovery in foreign tourist arrivals, with the percentage share increasing to 9.0% and 13.3%, respectively. While this indicates resilience and adaptability in the sector, the foreign tourist percentage share remains below the peak levels seen in the mid-2000s.

Overall, the data shows a complex interplay of economic, political, and global factors influencing tourism in Romania. It underscores the need for the country to continue adapting to changing circumstances, promoting the sustained growth of tourism, and addressing uncertainties that may arise in the future, especially in light of external factors like global pandemics and economic conditions. Romania's tourism industry has demonstrated resilience, and ongoing efforts should focus on sustaining and expanding its appeal as a tourist destination for both domestic and international travelers.

WHEN FOREIGN TOURISTS VISIT ROMANIA?

Romania, a country endowed with diverse natural beauty, rich historical treasures, and a vibrant cultural tapestry, has been beckoning travelers from around the world. The question of *when* foreign tourists choose to visit this captivating European destination is a crucial aspect of understanding the dynamics of international tourism in the region.

This part of the article embarks on a journey to explore the temporal patterns and preferences that shape the decision-making process of foreign tourists when it comes to visiting Romania. Understanding the timing of these visits is not only an academic inquiry but also holds practical significance for the tourism industry, local businesses, and policymakers. It offers valuable insights into peak tourist seasons, off-peak opportunities, and the factors that influence the ebb and flow of visitor numbers. By delving into historical data, seasonal trends, and cultural events, we aim to uncover the temporal dimensions of foreign tourist arrivals. The *when* becomes a critical element in addressing questions related to resource allocation, marketing strategies, and infrastructure development. Moreover, it provides a lens through which we can evaluate the impact of seasonality on local economies and the sustainability of tourist activities. As we navigate the intricate fabric of *when* foreign tourists choose to experience Romania, we not only seek to provide a comprehensive overview of timing patterns but also to highlight the cultural and natural wonders that make Romania a year-round destination. This part of the article offers a nuanced understanding of the dynamics of international tourism in Romania, exploring how the timing of visits shapes the experiences of travelers and the impact on the host nation. In order to methodologically understand *when foreign tourists visit Romania*, we need to define *tourist season* and *tourist off-season*.

The tourist season represents the period of the year during which a tourist destination experiences a high volume of visitors and intense tourism activity. It is often influenced by factors such as favorable weather conditions, local events or festivals, school holidays, or other determinants of travel and vacation planning. The tourist season can vary depending on the destination and the type of tourism practiced in that particular area. For example, beach destinations may have a more pronounced tourist season during the summer when temperatures are high, and people travel to enjoy the sun, sand, and water. On the other hand, mountain destinations may attract more tourists during the winter when there are favorable conditions for winter sports. The tourist season can have a significant impact on the local economy and the tourism industry, as an increased influx of tourists brings additional revenue through tourism services, accommodations, restaurants, entertainment activities, and other related businesses. During the tourist season, tourist destinations can prepare to meet the increased demand, such as expanding accommodation capacities, increasing staff, organizing special events, or actively promoting local attractions.

The tourist off-season represents the period during which a tourist destination experiences a lower volume of visitors and reduced tourism activity. During this time, destinations may witness decreased demand for tourism services, accommodations, and specific activities. The tourist off-season can be influenced by several factors, such as unfavorable weather conditions for certain types of tourism, like beach tourism during the colder months, or in some cases, mountain tourism during the warmer season. Additionally, school schedules and work periods can lead to decreased demand during specific periods outside of the main tourist season. Throughout the tourist off-season, tourist destinations have the opportunity to attract visitors through special offers, promotions, and discounts aimed at stimulating demand and maintaining a minimum level of economic activity. As a result, hotels, restaurants, travel agencies, and other related businesses may attempt to draw tourists with lower prices or attractive vacation packages. The tourist off-season can provide advantages to travelers who wish to avoid crowds and enjoy a quieter and more authentic experience in tourist destinations. It can be a favorable time to explore tourist attractions at a more relaxed pace, interact with locals, and discover lesser-known aspects of a destination. It's worth noting that the tourist off-season can vary depending on the destination and the type of tourism practiced. Some destinations may have a shorter and less pronounced off-season, while others may be more affected by fluctuations in supply and demand. Regarding the arrivals per month of foreign tourists, the dataset presents a comprehensive overview of foreign tourist arrivals in Romania spanning from January 2010 to December 2022. Several patterns and trends can be observed in the data (Figure 2):

- *Seasonal variations*: The data exhibits clear seasonal variations in foreign tourist arrivals, with the summer months (June to August) consistently recording the highest numbers, peaking at 337,836 in August 2017. This trend is typical of many tourist destinations, as summer is often the preferred time for travel.
- *Off-peak months*: In contrast, the winter months (December to February) typically show the lowest numbers of foreign tourist arrivals. December 2022 marked the lowest point in the dataset with 134,921 arrivals, likely due to the holiday season in Romania being a quieter period for foreign tourism.
- *Yearly growth*: Over the years, there is a general trend of growth in foreign tourist arrivals, with occasional fluctuations. For example, there is a noticeable upward trajectory from 2010 to 2017, followed by a decrease in 2018, and another growth period in 2019. This fluctuation might be attributed to various economic, political, and global factors impacting travel decisions.
- *Pandemic impact*: The dataset shows a significant disruption in 2020, particularly in March and April, with a sharp decrease in arrivals. This is undoubtedly linked to the COVID-19 pandemic and the extensive travel restrictions and lockdowns implemented during that time.
- *Recovery*: In 2021 and 2022, there was a notable recovery in foreign tourist arrivals, although they have not yet reached the pre-pandemic levels. The gradual increase in numbers in these years indicates a resurgence of interest in visiting Romania as travel restrictions eased.
- *Monthly fluctuations*: Beyond seasonal trends, there are also monthly fluctuations that may be influenced by factors like festivals, holidays, and events. For instance, July and August often see surges in arrivals, possibly linked to summer vacations.

This dataset reflects the dynamic nature of tourism, impacted by a range of external factors such as economic conditions, global events, and travel restrictions. Romania's appeal as a tourist destination is evident, and it remains an attractive choice for travelers, with a steady recovery post-pandemic. Analyzing these trends and understanding the seasonal and yearly variations is crucial for stakeholders in the tourism industry, allowing them to adapt their strategies and offerings accordingly.

Analyzing arrivals by month of foreign tourists, the data presents a comprehensive analysis of the monthly percentage share of foreign tourist arrivals in Romania, along with the average share. Notably, the months from May to October, which exhibit values higher than the average of 8.33%, can be identified as the peak tourist season for foreign visitors. During these months, the percentage share increases gradually, peaking at 12.0% in August, indicating a substantial influx of tourists during the summer. On the other hand, the months from November to April, with values below the 8.33% average, represent the off-peak tourist season for foreign visitors. December has the lowest share at 5.7%. This seasonal pattern reflects the typical behavior of foreign tourists, who are more inclined to visit Romania during the warm and favorable weather of the summer months, with a notable drop in the winter season due to colder temperatures and holiday-related travel. Understanding this seasonal variation is essential for the Romanian tourism industry, allowing for targeted marketing and resource allocation, such as promoting off-peak travel and extending the tourist season beyond the summer months to maximize the industry's economic impact (Figure 2).

The data on foreign tourist arrivals in Romanian counties for each month of the year reveals significant variations in monthly percentages and overall totals. In January and February, the minimum percentages are generally observed, ranging from 1.9% to 2.3%, with the exception of a few counties where it drops even lower. In contrast, July and August show the highest percentages, reaching a peak of 20.0% in counties such as Constanța. This variation illustrates the pronounced seasonality of tourism in Romania, with the summer months being the most popular for foreign visitors, driven by coastal and urban destinations. The monthly averages for all counties range from 5.7% to 13.8%, reflecting the diverse attractiveness of regions throughout the year. Furthermore, the total number of foreign tourists in 2022 surpassed 24 million, with Bucharest receiving over 10 million, emphasizing the capital's significance as a tourist hub. Understanding these trends is crucial for the tourism industry and policymakers to make informed decisions and allocate resources effectively, balancing the seasonal variations in tourist traffic among different regions.

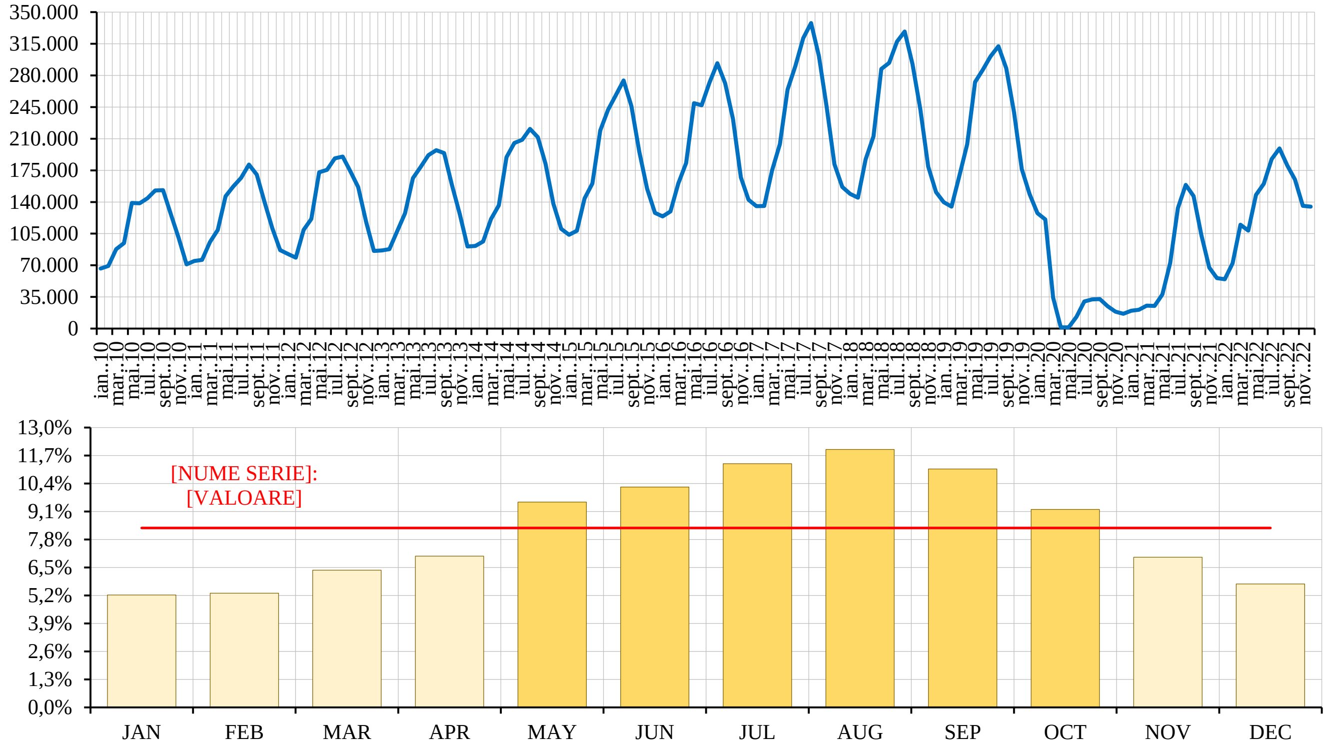


Figure 2. Arrivals of foreign tourists per month in the period 2010-2022
(Data source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table)

WHICH TOURIST DESTINATIONS FOREIGN TOURISTS CHOOSE WHEN VISITING ROMANIA?

Romania, a hidden gem in the heart of Eastern Europe, has been increasingly capturing the attention of travelers from around the world. This country, known for its captivating landscapes, historic sites, and rich cultural heritage, offers an array of tourist destinations that cater to a diverse range of interests. The question of which specific destinations foreign tourists choose to explore while visiting Romania is a critical facet of understanding the evolving landscape of international tourism in this region. This part of the article embarks on a captivating journey to unravel the choices made by foreign tourists when it comes to selecting their destinations within Romania. We will delve into the diverse options that this country provides, including its iconic castles, picturesque mountain regions, vibrant cities, and the unique ecosystem of the Danube Delta. Understanding these choices is essential not only for the tourism industry but also for local businesses, conservation efforts, and cultural preservation. By examining data, preferences, and the cultural attractions that draw travelers in, we aim to provide a comprehensive overview of the tourist destinations that captivate the imagination of foreign visitors. This exploration not only showcases the country's inherent charm but also provides insights into the economic and cultural impact of these choices. As we navigate the enchanting landscape of *which tourist destinations foreign tourists choose when visiting Romania*, we aim to shed light on the rich tapestry of experiences available in this multifaceted country. This part of the article offers an essential perspective on the dynamics of international tourism, the allure of Romania's destinations, and their influence on the traveler's journey.

In order to methodologically understand *when foreign tourists visit Romania*, we need to define *touristic destination*.

A *tourist destination* is a geographic location, such as a city, region, country, or natural site, that is visited by tourists for the purpose of recreation, relaxation, or exploration. Tourist destinations can vary based on the attractions and amenities they offer, such as historical monuments, natural landscapes, beaches, spa resorts, theme parks, cultural centers, and other tourist attractions. A tourist destination can be popular at the local, regional, national, or international level, depending on its level of recognition and appeal. It can be influenced by factors such as cultural heritage, natural resources, cultural or sporting events, tourism infrastructure, and its reputation in the tourism industry. To be considered a successful tourist destination, it is essential to provide a pleasant and satisfying experience for tourists, including accommodation facilities, transportation services, entertainment options, culinary experiences, and other related services. Effective promotion and marketing of the destination are also key factors in attracting and retaining tourists. For a comprehensive analysis of foreign tourist arrivals in Romania, we have employed two categories of tourist destinations: actual tourist destinations (spa resorts, resorts in the coastal area (excluding the Municipality of Constanța), resorts in the mountain area, Danube Delta (including Tulcea Municipality), Bucharest and the county seat municipalities (excluding Tulcea Municipality), other localities and tourist routes) on the one hand, and Romania's counties on the other hand.

Arrivals of foreign tourists by tourist destinations

Analyzing the comprehensive dataset of foreign tourist arrivals in Romania from 1994 to 2022 by tourist destinations provides valuable insights into the dynamics and evolution of the country's tourism industry, offering a more detailed perspective on each year's performance (Figure 3):

- *Spa Resorts*: The data reveals that foreign tourist arrivals in spa resorts witnessed a steady increase during the 1990s, peaking in the mid-2000s. In 1994, there were 54,029 arrivals, and this number grew to a peak of 48,742 in 2004, emphasizing the growing popularity of wellness tourism. However, in the past few years, this sector has seen a significant drop, with 5,564 arrivals in 2020. Several factors could contribute to this decline, including changing tourist preferences, competition from other destinations, or economic factors.
- *Resorts in the Coastal Area (excluding the Municipality of Constanța)*: Coastal resorts, particularly along the Black Sea coast, witnessed substantial growth in foreign tourist arrivals during the 1990s and early 2000s, with a peak of 88,182 arrivals in 2005. These destinations are popular for their beautiful beaches, warm climate, and cultural attractions. However, the numbers started declining after 2015, with 25,582 arrivals in 2022, possibly due to increasing competition in the region, changing travel trends, and economic factors.
- *Resorts in the Mountain Area*: Resorts in the mountain areas demonstrated consistent growth throughout the analyzed period. Foreign tourists were attracted by activities like skiing, hiking, and nature exploration. The peak occurred in 2017, with 103,173 arrivals. This segment remained relatively stable compared to coastal and spa resorts, highlighting the evergreen appeal of the mountains. Factors influencing fluctuations include climatic conditions, international tourism trends, and infrastructure development.
- *Danube Delta (including Tulcea Municipality)*: The Danube Delta, with its unique ecosystem and natural beauty, witnessed irregular growth patterns. The number of foreign tourist arrivals reached 16,566 in 2003, but declined to 5,958 in 2022. This fluctuation may be attributed to the specific interests of eco-tourists, birdwatchers, and those seeking an authentic natural experience. The Delta's appeal is niche, and arrivals may be influenced by factors like environmental conditions, marketing efforts, and regional developments.
- *Bucharest and County Seat Municipalities (excluding Tulcea Municipality)*: Bucharest, as the capital, has consistently attracted foreign tourists, with a steady increase over the years. The peak was reached in 2019 with 1,305,700 arrivals. This is due to Bucharest's rich cultural heritage, historical significance, vibrant nightlife, and its role as a business and economic hub. The steady growth in county seat municipalities beyond Bucharest signifies the broader geographic appeal of Romania's tourist destinations.
- *Other Localities and Tourist Routes*: The segment of other localities and tourist routes experienced substantial growth from 1994 to 2018, with 259,944 foreign tourist arrivals in 2017. This diverse category likely includes destinations offering unique experiences not covered by the previous segments. Fluctuations may be influenced by regional developments, marketing initiatives, and evolving travel trends. These insights emphasize the need for Romania to diversify and enhance its tourism offerings, capitalize on the strengths of different destinations, and adapt to evolving traveler preferences. By understanding the dynamics of each segment year by year, tourism authorities and businesses can make data-informed decisions to boost Romania's appeal as a diverse and attractive tourist destination.

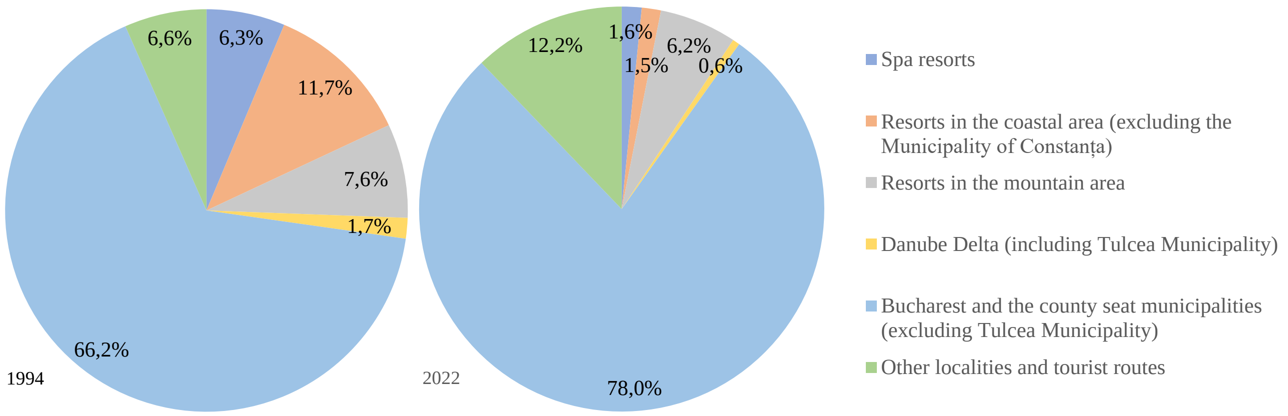


Figure 3. Arrivals of foreign tourists by tourist destinations in the years 1994 (left) and 2022 (right)
(Data source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table)

Arrivals of foreign tourists by counties

Analyzing the 1990 data on the number of foreign tourists arriving in the counties of Romania, it is apparent that there are significant disparities in tourist influx among different regions. Bucharest, the capital city, received the highest number of foreign tourists with 312,764 arrivals, emphasizing its role as a major tourist destination. Other counties with substantial tourist numbers include Constanța (133,312), Bacău (92,561), Suceava (98,374), and Bihor (50,769), indicating their appeal to international visitors, possibly due to coastal areas, historical sites, or other attractions. Conversely, several counties reported much lower tourist figures, such as Gorj (652), Sălaj (1,222), Ialomița (4,474), Giurgiu (2,851), and Teleorman (1,022), suggesting that these areas were less frequented by foreign tourists in 1990. These numbers reflect the disparities in tourism development across Romanian regions and highlight potential areas for growth and promotion in the country's tourism industry (Figure 4). Analyzing the 2022 data on the number of foreign tourists arriving in the counties of Romania, it's evident that certain counties serve as significant tourist magnets, while others exhibit a relatively lower tourist influx. Bucharest, the capital city, stands out with a remarkable 769,583 foreign tourist arrivals, emphasizing its role as the primary tourist hub in the country. Other counties with substantial tourist numbers include Brașov (107,595), Cluj (103,920), Sibiu

(91,870), and Timiș (61,692), indicating their appeal to international visitors, likely due to their cultural, historical, and natural attractions. Conversely, several counties reported much lower tourist figures, such as Giurgiu (923), Teleorman (285), Călărași (1,258), Botoșani (1,564), and Vrancea (1,660), signifying that these regions are less frequented by foreign tourists. These figures underscore the regional disparities in Romania's tourism sector and highlight the need for targeted efforts to promote less-visited areas and diversify the tourism landscape (Figure 5).

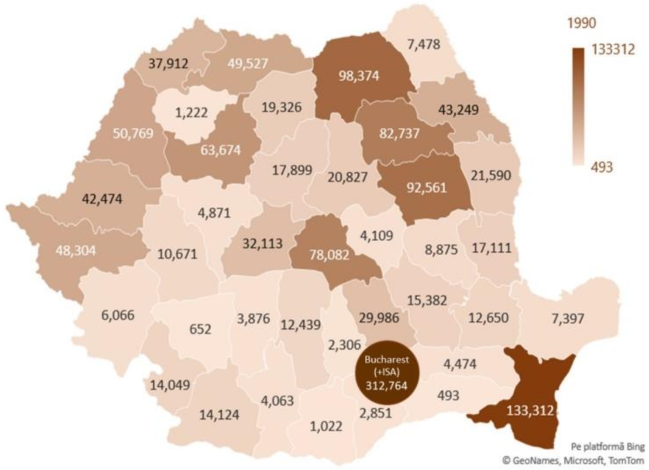


Figure 4. Arrivals of foreign tourists by county in 1990
(Data source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table)

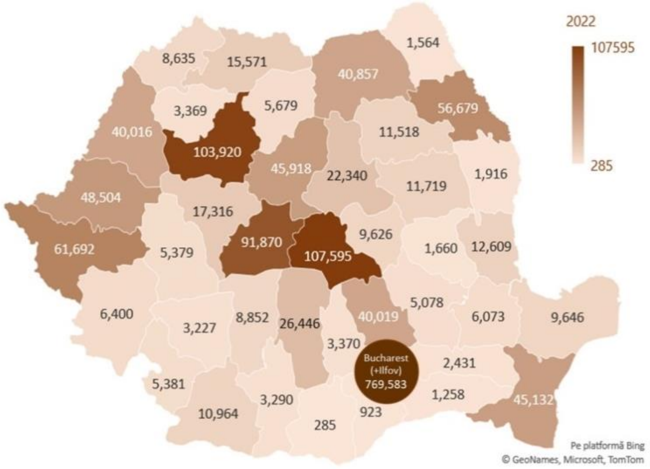


Figure 5. Arrivals of foreign tourists by county in 2022
(Data source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table)

A comprehensive analysis of the data pertaining to the influx of foreign tourists into Romania's counties in 1990 and 2022 provides a nuanced perspective on the evolving dynamics of the country's tourism industry over this 32-year period. In terms of significant differences, it's important to note that Bucharest, as the capital city, experienced a staggering surge in foreign tourist arrivals, growing by 456,819 visitors, representing an impressive 146.1% increase. This remarkable growth underscores Bucharest's transformation into a prominent global tourism destination. Similarly, Sibiu and Mureș displayed substantial growth percentages of 186.1% and 156.5%, respectively, signifying a growing appeal of these counties to foreign travelers. In contrast, several regions faced a decline in foreign tourist numbers. Constanța, once a prominent tourist hotspot, recorded a significant decrease of 66.1%, equivalent to 88,180 fewer tourists. Suceava and Maramureș witnessed notable drops of 58.5% and 68.6%, emphasizing changing preferences or perhaps infrastructure-related challenges in these areas. On the other hand, counties like Vaslui, Vrancea, and Botoșani exhibited the most profound declines, with each experiencing over 79% fewer foreign tourists in 2022 compared to 1990. These pronounced variations can be attributed to a confluence of factors, including changes in travel trends, infrastructure development, shifts in marketing strategies, global events such as economic crises or pandemics, and modifications in political, social, and economic landscapes. This extensive analysis thus underlines the multifaceted nature of the tourism industry and highlights the need for a holistic approach in understanding and addressing the diverse challenges and opportunities faced by Romania's counties in the realm of tourism (Figure 4, 5).

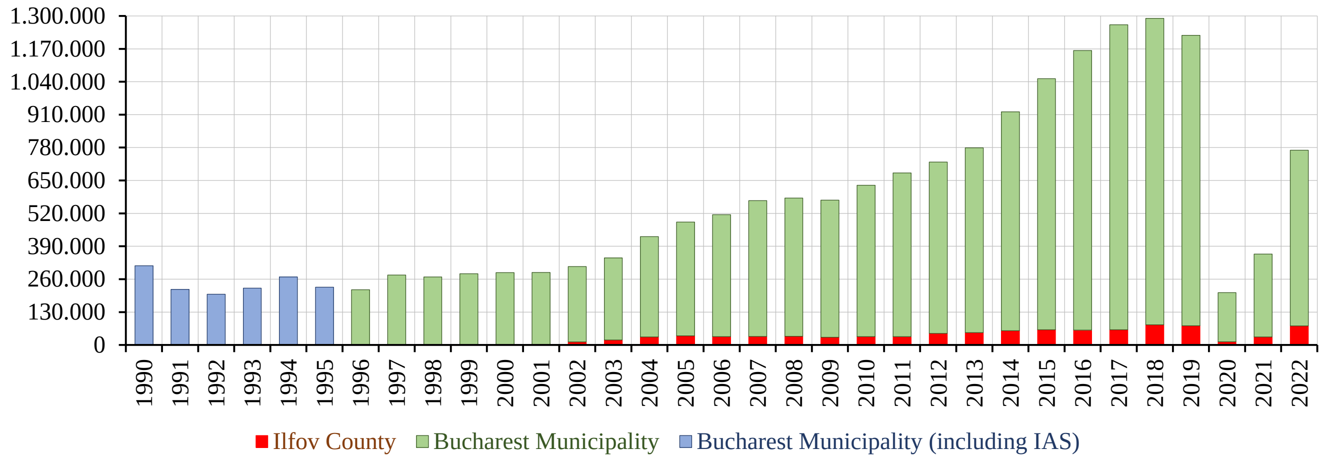


Figure 6. Arrivals in Bucharest and IAS/Ilfov of foreign tourists in the period 1990-2022
(Data source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table)

Analyzing the data for foreign tourist arrivals in Bucharest from 1990 to 2022 reveals a dynamic shift in the city's attractiveness to international visitors. In 1990, Bucharest Municipality alone welcomed 312,764 tourists, and over the years, there were fluctuations in numbers, reaching a low point in 1996 with 217,120 tourists. However, the most significant transformations occurred from the late 1990s onwards. Starting in 2004, the number of foreign tourists saw substantial growth, with 2021 marking a peak of 327,843 tourists. Still, the most dramatic surge was recorded in 2022, with a staggering 694,358 foreign tourists. This impressive 2022 figure is more than double the 2021 numbers and represents an extraordinary 1124% increase compared to 1990. These substantial changes can be attributed to numerous factors, including improved infrastructure, enhanced tourism promotion, political and economic shifts, and Bucharest's growing appeal as a vibrant European capital. The data underscores Bucharest's evolution into a prominent tourist destination over these three decades (Figure 6).

Analyzing the dataset of foreign tourist arrivals in Romanian counties from 1990 to 2022 reveals a multifaceted landscape of tourism development with noteworthy variations, growth patterns, and economic implications. In general, there has been a consistent upward trajectory in tourist arrivals, reflecting Romania's growing appeal as a travel destination over the years. However, a more in-depth analysis provides several nuanced insights (Figure 7):

- *Regional disparities*: One of the most prominent findings is the substantial regional disparities. Bucharest Municipality stands out as the leader, with a staggering 2216% growth in tourist arrivals. This remarkable increase indicates the capital's growing importance as a European travel destination, driven by factors like business conferences, cultural events, and improved infrastructure. Other counties, like Cluj and Suceava, also displayed significant growth, revealing the appeal of historical sites, vibrant cultural scenes, and nature attractions.
- *Coastal tourism*: Counties along the Black Sea coast, such as Constanta, experienced fluctuations and, in some cases, a decline in tourist numbers. The 7% decrease in Constanta County can be attributed to various factors, including competition from other coastal destinations, changing preferences of tourists, and economic challenges. These counties often depend heavily on seasonal tourism, making them susceptible to fluctuations.
- *Economic impact*: The growth in tourism has had a considerable economic impact. Counties with significant tourist increases, like Cluj and Bucharest, have likely benefited from the influx of tourist spending. This includes revenue from accommodation, restaurants, and local businesses. The development of tourism can be seen as an economic booster for these regions.
- *Crisis effects*: The dataset also highlights the impact of crises on tourism. The year 2020, marked by the COVID-19 pandemic, had a severe and unprecedented impact on tourist arrivals, with a substantial drop in numbers across all counties. This is evident in Bucharest, where the decrease was particularly significant (88%). It emphasizes the vulnerability of the tourism sector to external shocks and the importance of diversifying tourism offerings.
- *Sustainability challenges*: As tourist numbers rise, there is a growing need to address sustainability and infrastructure challenges. Counties experiencing substantial growth, like Cluj and Suceava, must focus on maintaining the quality of tourist experiences, preserving cultural heritage, and managing environmental impacts. Sustainable tourism development is crucial for long-term success.
- *Role of marketing and infrastructure*: Counties that invested in marketing and improved infrastructure saw more significant increases in tourist arrivals. This underscores the importance of effective marketing strategies, accessibility, and connectivity to attract and retain tourists.

The analysis of foreign tourist arrivals in Romanian counties from 1990 to 2022 highlights both the successes and challenges in the tourism sector. Regional disparities, the economic impact, and the response to crises are key aspects that policymakers and stakeholders should consider to ensure sustainable and resilient tourism growth across the country.

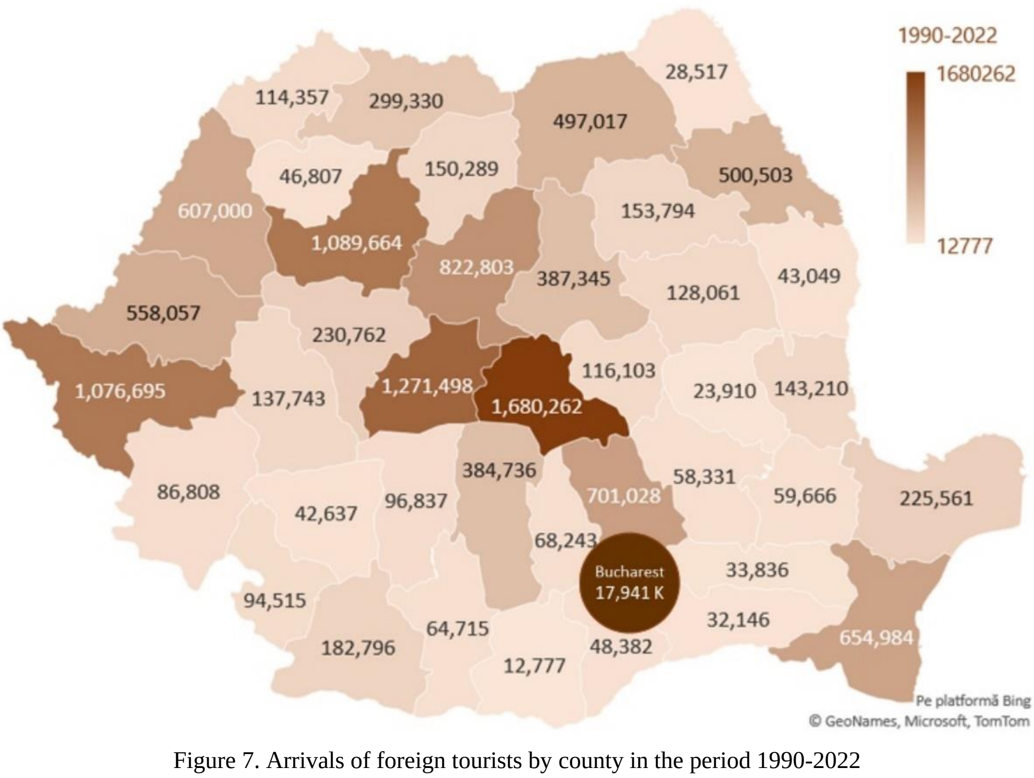


Figure 7. Arrivals of foreign tourists by county in the period 1990-2022
(Data source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table)

WHERE FOREIGN TOURISTS STAY WHEN VISITING ROMANIA?

Romania, a land of enchanting landscapes and captivating history, has been steadily gaining recognition as a destination of choice for international travelers. As these visitors journey across the country, one of the fundamental aspects that shapes their experiences and influences the local economy is the choice of accommodation. The question of *where* foreign tourists choose to stay when visiting Romania is a critical dimension in understanding the dynamics of tourism in this diverse and culturally rich nation. This part of the article embarks on an exploration of the varied accommodation choices made by foreign tourists as they traverse Romania's picturesque landscapes and vibrant cities. Whether it's a charming guesthouse in the Carpathian Mountains, a boutique hotel in Bucharest, or a rustic cabin near the Black Sea, the *where* of accommodation provides essential insights into the traveler's journey. By delving into the preferences, trends, and factors that influence these choices, we aim to offer a comprehensive overview of the accommodation landscape in Romania.

Beyond convenience and comfort, the *where* has a profound impact on the economic development of different regions, the preservation of cultural heritage, and the sustainability of the tourism industry. As we embark on this exploration, we will not only answer the question of *where foreign tourists stay when visiting Romania* but also consider the role these choices play in shaping the traveler's experience. This part of the article seeks to provide a nuanced understanding of the accommodation dynamics in Romania, highlighting the rich tapestry of choices available to foreign tourists and their profound influence on the country's tourism sector. In order to better understand where foreign tourists stay when they visit Romania, we will analyze this aspect both from the point of view of *accommodation units*, on the one hand, and *comfort categories*, on the other. In order to methodologically understand *where foreign tourists stay when visiting Romania*, we need to define *an accommodation unit: tourist reception structures with tourist accommodation functions (hotel, tourist guesthouse, agrotourism guesthouse, tourist villa, and hostel)*, and *comfort categories*.

Accommodation in accommodation units

In order to methodologically understand *where foreign tourists stay when visiting Romania*, we need to define *a tourist reception structures with tourist accommodation functions (hotel, tourist guesthouse, agrotourism guesthouse, tourist villa, and hostel)*. A tourist reception structure with tourist accommodation functions represents any construction or arrangement that permanently or seasonally provides accommodation services and other specific services for tourists. A hotel represents the tourist reception structure arranged in buildings or building units, offering tourists properly equipped rooms, studios, or apartments, providing specific services, and having a reception area and on-site dining spaces. A tourist guesthouse represents a tourist reception structure with a capacity of up to 20 rooms, totaling a maximum of 60 accommodation places, operating in citizens' homes or independent buildings, ensuring tourists' accommodation in specially designed spaces and meal preparation and service conditions. An agrotourism guesthouse represents a tourist reception structure with a capacity of up to 8 rooms, operating in citizens' homes or independent buildings, providing tourists with accommodation in specially designed spaces and meal preparation and service conditions, as well as the opportunity to participate in household or artisan activities. A tourist villa represents a relatively small-capacity tourist reception structure, operating in independent buildings with specific architecture, located in tourist resorts or in other areas and localities of tourist interest, providing accommodation for tourists and the provision of specific services. A hostel represents a tourist reception structure with a minimum capacity of 3 rooms, studios, or apartments arranged on different levels in specially designed spaces, typically in buildings originally intended for purposes other than tourist accommodation.

The data on foreign tourist arrivals in Romania within various types of tourist accommodation structures from 1990 to 2022 reveal several significant trends. In 1990, the total number of foreign tourist arrivals was 1,289,338, with hotels accommodating the majority of visitors. However, from 1990 to 2000, the total number of arrivals experienced a noticeable decrease by 58%, which can be attributed to various factors. Subsequently, there was a consistent upward trajectory, culminating in 1,395,526 arrivals in 2022, marking a remarkable 8,2% increase compared to the previous year, showing signs of recovery after the COVID-19 pandemic's adverse effects. Hotels remained the most preferred form of accommodation, hosting 1,395,526 arrivals in 2022, although agritourism pensions, tourist villas, and hostels experienced substantial growth over the years. Additionally, tourist guesthouses witnessed a slight decrease in arrivals, which can be explained by the diversification of the tourism market and changing preferences. The significant rise in hostels' arrivals, particularly in recent years, reflects the evolving nature of tourism, attracting more budget-conscious travelers. In 2022, hostels hosted 59,972 foreign tourists, marking a 293% increase from 2010. The data underscores the tourism industry's resilience and adaptability, catering to a diverse array of tourists seeking various types of accommodation. Furthermore, when examining the percentages, it becomes evident that hotels maintained a consistent share of around 50% of foreign tourist arrivals throughout the entire period. However, other forms of accommodation structures have seen their percentages fluctuate. For instance, agritourism pensions, which accounted for a mere 0.18% of arrivals in 1990, have grown to represent 0.34% of arrivals in 2022, reflecting an increasing interest in rural and agricultural experiences. Meanwhile, the share of hostels experienced a substantial boost, growing from 0.02% in 1990 to 0.48% in 2022, showcasing the rising popularity of budget-friendly lodging options. On the other hand, tourist guesthouses saw a gradual decline in their share, going from 1.81% in 1990 to 1.27% in 2022, possibly due to the diversification of available accommodations and shifting traveler preferences. Tourist villas remained relatively stable over the years, while motels witnessed a slight drop in their share, emphasizing the need for adaptation and diversification to stay competitive in the evolving tourism market. The data illustrates the dynamic nature of foreign tourist arrivals in Romania, with various types of tourist accommodation structures experiencing shifts in their popularity over the years. Hotels have remained the dominant choice for tourists, but other forms of accommodation have seen growth, especially agritourism pensions and hostels. These trends reflect the changing preferences and priorities of foreign travelers, influenced by factors such as economic conditions, emerging travel trends, and global events, including the COVID-19 pandemic. The data provides valuable insights for policymakers, investors, and industry stakeholders in understanding the evolving landscape of tourism in Romania (Figure 8).

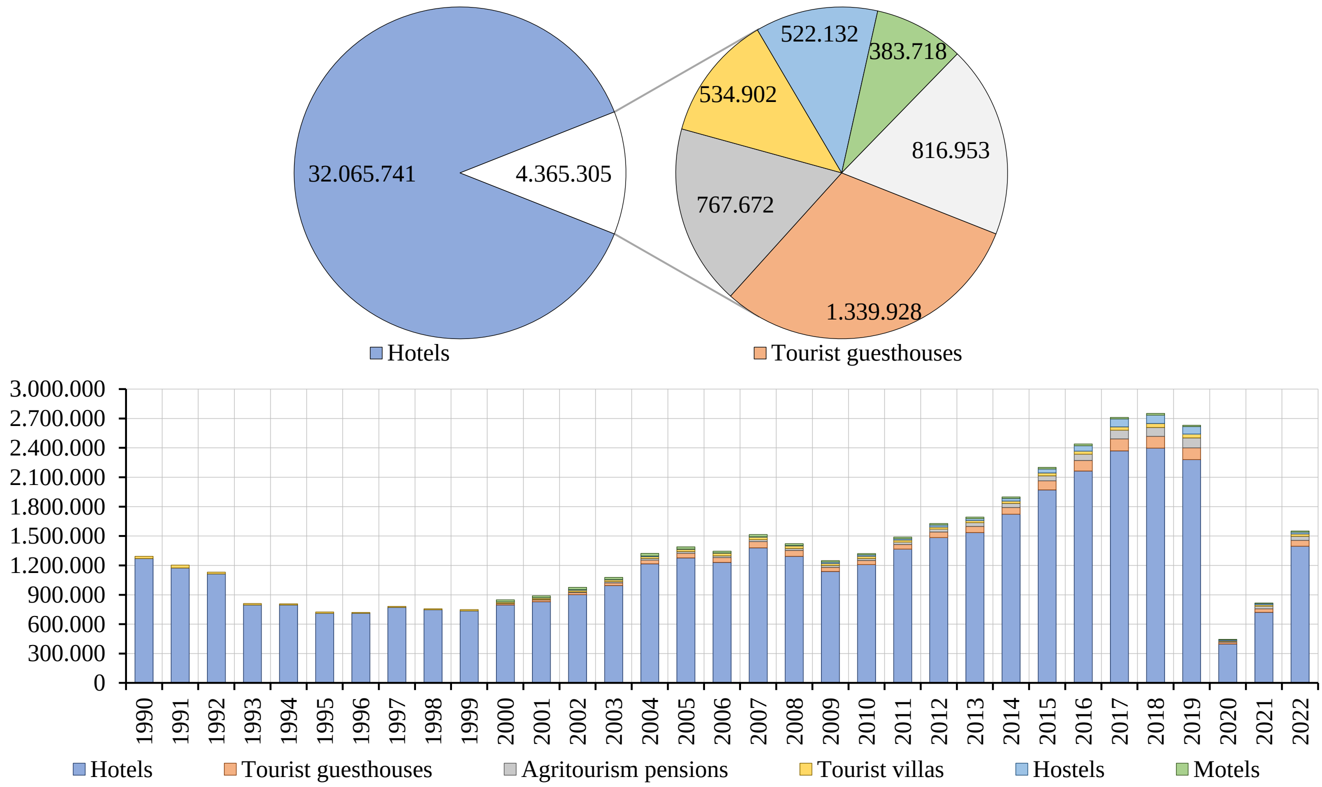


Figure 8. Arrivals of foreign tourists in Romania by accommodation units in the period 1990-2022
(Data source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table)

Accommodation by comfort categories

In order to methodologically understand *where foreign tourists stay when visiting Romania*, we need to define *comfort categories of tourist accommodation structures*. The comfort categories of tourist accommodation structures represent the classification and evaluation of the level of comfort and services offered by accommodation units to tourists. These categories are used to indicate the level of quality and facilities available in a particular accommodation unit and help tourists choose the option that suits their preferences and needs. In Romania, the comfort categories of tourist accommodation structures are regulated by Tourism Law 275/23.11.2018, Government Ordinances 58/1998 and 15/2017, and the Classification Rules for Tourist Accommodation Structures (Order National Authority for Tourism no. 65/2013). These categories may vary by country and can be expressed through different classification systems, such as stars, keys, or other specific symbols. It is important to mention that these comfort categories are established based on criteria such as equipment, services, room comfort, provided facilities, hygiene, accessibility, and other aspects relevant to the tourist experience. Tourists can consult official classifications and evaluations of tourist accommodation structures to choose the option that suits their needs and preferences during their stay in Romania.

The data regarding the arrivals of foreign tourists in Romania by categories of comfort presents a nuanced picture of the changing preferences and evolving hospitality landscape in the country. Notably, the five-star or five-flower accommodations, despite starting with only 13 in 1994, have seen steady growth, reaching 220,802 in 2022, reflecting an increasing demand for luxury experiences. In contrast, one-star or one-flower accommodations have witnessed a gradual decline, decreasing from 122,682 in 1994 to 15,772 in 2022, possibly due to changing traveler expectations and the emergence of higher-quality lodging options. Four-star and three-star accommodations have remained the dominant choices for tourists, showing consistent demand over the years. The substantial growth in the unclassified category from 10,942 in 1994 to 222,917 in 2022 suggests an expanding variety of unique and unconventional accommodation offerings, aligning with the global trend of experiential travel. It is important to note that these shifts in accommodation categories are influenced by factors such as economic conditions, tourism marketing strategies, and the evolving expectations of travelers. This data provides valuable insights for the Romanian tourism industry and policymakers, helping them adapt to the changing landscape and cater to the diverse needs of tourists. Analyzing the data further, it's evident that the years leading up to the early 2000s witnessed a significant growth in the number of hotels with higher star/flower ratings, indicating a rising demand for upscale accommodations in Romania.

This trend continued, with four-star and five-star establishments consistently expanding. The year 2000 marked a pivotal moment when one-star or one-flower accommodations decreased, and five-star or five-flower options took a notable leap. This shift could be attributed to the country's tourism industry adapting to international standards and responding to the demands of more discerning travelers. Starting in 2000, four-star and three-star accommodations have been the preferred choice for most tourists, remaining relatively stable in numbers. While the data exhibits slight fluctuations from year to year, it suggests that Romania has maintained a consistent level of mid-range accommodation options. The unclassified category has seen substantial growth, possibly indicating a trend of more diverse and unique lodging experiences that may not fit traditional star or flower classifications. This aligns with the broader global trend of travelers seeking unconventional and distinctive stays, including boutique hotels, guesthouses, and specialty lodgings. It's noteworthy that the year 2020 stands out due to the COVID-19 pandemic, which had a significant impact on the tourism industry, resulting in decreased numbers across all categories. However, there was a remarkable resurgence in 2022, indicating the potential for recovery and growth in Romania's tourism sector. The data reveals the evolving dynamics of Romania's tourism sector, with shifts in accommodation preferences influenced by changing consumer expectations, economic conditions, and global travel trends. Policymakers and industry stakeholders can leverage this information to make informed decisions and adapt to the evolving needs and desires of tourists, further enhancing the country's position as a tourist destination (Figure 9).

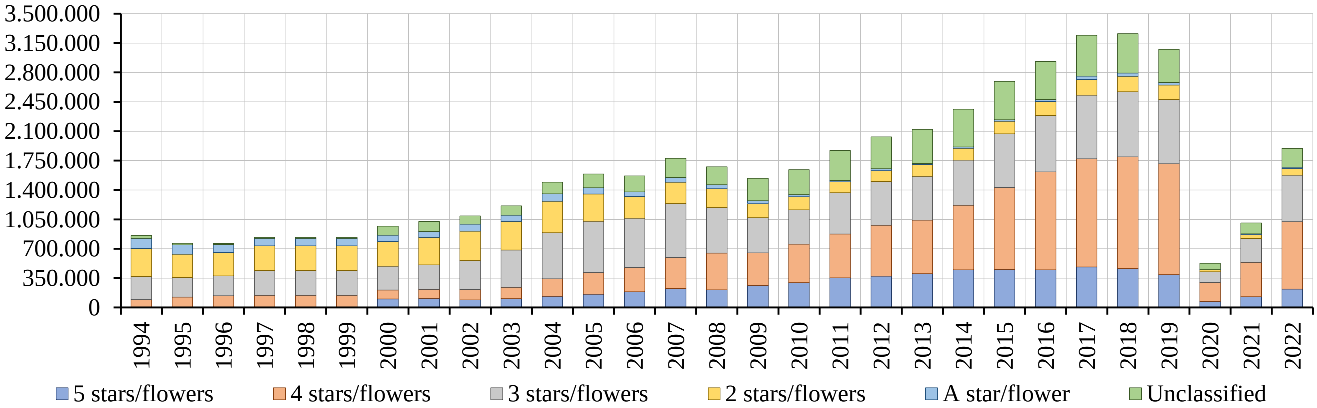


Figure 9. Arrivals of foreign tourists in Romania by comfort categories in the period 1994-2022
(Data source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table)

HOW LONG FOREIGN TOURISTS STAY IN ROMANIA?

Romania, a country of picturesque landscapes, rich cultural heritage, and historical treasures, has been attracting a growing number of foreign tourists in recent years. While the influx of visitors is undoubtedly significant, understanding the duration of their stay within the country is a crucial aspect of comprehending the dynamics of international tourism in Romania.

This part of the article embarks on a journey to investigate the temporal dimension of foreign tourists' visits, specifically, how long they choose to stay in Romania. The *how long* factor plays a vital role in not only assessing the economic impact of tourism but also the travelers' ability to delve deeper into the country's diverse experiences and destinations.

By exploring data, trends, and influencing factors, we aim to provide an in-depth overview of the duration of foreign tourists' visits. Beyond the numbers, we delve into the experiences and motivations that drive tourists to extend their stay, discovering the cultural treasures, natural wonders, and the hidden gems that encourage an extended exploration of Romania.

As we navigate the intricate fabric of *how long foreign tourists stay in Romania*, we aim to shed light on the travelers' interaction with the country and the role this factor plays in the broader context of tourism dynamics. This part of the article offers an essential perspective on the temporal aspects of international tourism in Romania, emphasizing the richness of experiences that can be had during various durations of stay. In order to methodologically understand *how long foreign tourists stay in Romania*, we need to define *tourist overnight stay*, and *a tourist stay*.

Tourist overnight stay (or simply *overnight*) refers to the temporary accommodation of tourists in tourist accommodation facilities such as hotels, guesthouses, rented apartments, or other lodging facilities. It involves spending one or more nights in a tourist accommodation facility during a journey or tourist stay. Tourist overnight stays are a crucial indicator in the tourism industry and are used to measure the volume and intensity of tourist activity in a particular tourist destination. Statistics on tourist overnight stays can provide valuable information about the number of tourists visiting a destination, the average length of stay, accommodation preferences, and can contribute to the analysis of the economic impact of tourism on a region or country. Tourist overnight stays can be influenced by various factors such as the attractiveness of the destination, the availability and diversity of lodging facilities, local events and festivals, the tourist season, transportation accessibility, and many others. A popular and well-developed tourist destination will attract a large number of tourists and, consequently, tourist overnight stays. To record tourist overnight stays, tourists must make a reservation and pay for accommodation in an authorized tourist accommodation facility. Tourist accommodation facilities are required to report tourist overnight stays to the relevant authorities for proper monitoring and tourism statistics.

A tourist stay refers to a limited period of time during which a tourist travels and accommodates in a tourist destination with the purpose of relaxation, entertainment, or exploration. A tourist stay can vary in duration, ranging from a few days to several weeks or even months (maximum 12), depending on the individual traveler's preferences and possibilities. During a tourist stay, travelers typically enjoy the attractions and facilities offered by their destination, such as visiting tourist attractions, exploring natural landscapes, participating in recreational and cultural activities, relaxing on the beach, or engaging in sports. Additionally, a tourist stay may include culinary experiences, shopping, museum visits, participation in local events, or other destination-specific activities. A tourist stay can be independently organized by the tourist or can be purchased as a travel package from a travel agency or tour operator. Depending on personal preferences and interests, the tourist stay can be customized to fit the individual needs and desires of the tourist. It is calculated by the ratio of tourist overnight stays to tourist arrivals.

The number of overnight stays by foreign tourists in Romania has seen significant fluctuations over the years. In 1990, there were 4,238,153 overnight stays, which decreased to 3,269,191 in 1991. This downward trend continued in 1992 with 3,141,355 stays and further dropped to 2,744,042 in 1993. However, a noticeable increase occurred in 1994, reaching 2,758,400 stays, which was followed by a decline in 1995 to 2,380,706 stays. From 1996 to 1999, there was a relatively stable period with around 2.2 to 2.5 million stays. The year 2000 marked a significant increase to 2,149,358 stays, and this growth continued in 2001 (2,390,531) and 2002 (2,534,225). A remarkable peak was observed in 2005, with 3,464,134 stays, and then fluctuated in the following years, reaching the highest point in 2017 with 5,291,036 stays. In 2020, there was a significant drop to 997,365 stays, likely due to the COVID-19 pandemic, but it started to recover in 2021 with 1,924,533 stays and continued to rise in 2022, reaching 3,666,533 stays. These fluctuations reflect the impact of various factors such as global events, economic conditions, and tourism policies on foreign tourists' preferences for visiting Romania. The data on overnight stays of foreign tourists in Romania reveals several interesting trends and potential influencing factors. In the early 1990s, the country experienced a period of instability, which was reflected in the significant drop in overnight stays from 1990 to 1993, likely due to political and economic changes. The subsequent growth in 1994 may suggest increased confidence in the country as a tourist destination. From 1996 to 1999, overnight stays remained relatively stable, possibly indicating a period of recovery and growth in the tourism sector. The sudden increase in 2000 might be attributed to improved marketing efforts, infrastructure development, or emerging travel trends. This trend continued until 2002, suggesting that Romania's appeal to foreign tourists was on the rise. The data shows fluctuations in the following years, reflecting the global economic and political climate, as well as Romania's efforts to promote itself as a tourist destination. The peak in 2005 might be related to international events or marketing campaigns that boosted Romania's visibility. Starting from 2008, there was a noticeable decline, potentially influenced by the global financial crisis and its impact on travel. The data remained relatively stable until 2015, when Romania began to experience a substantial increase in overnight stays. This surge could be due to improved tourism infrastructure, better international marketing, or emerging travel trends that favored Romania. The sudden drop in 2020, with only 997,365 overnight stays, can be attributed to the COVID-19 pandemic, which severely affected international travel. However, it's promising to see a recovery in 2021 and 2022, with increasing numbers of foreign tourists choosing Romania as their destination, possibly driven by eased travel restrictions, vaccinations, and a renewed interest in exploring the country. The data on overnight stays of foreign tourists in Romania reflects the complex interplay of economic, political, and global factors on the country's tourism industry. It underscores the importance of adaptability and resilience in the tourism sector, as well as the potential for Romania to continue growing as a tourist destination in the post-pandemic era (Figure 10).

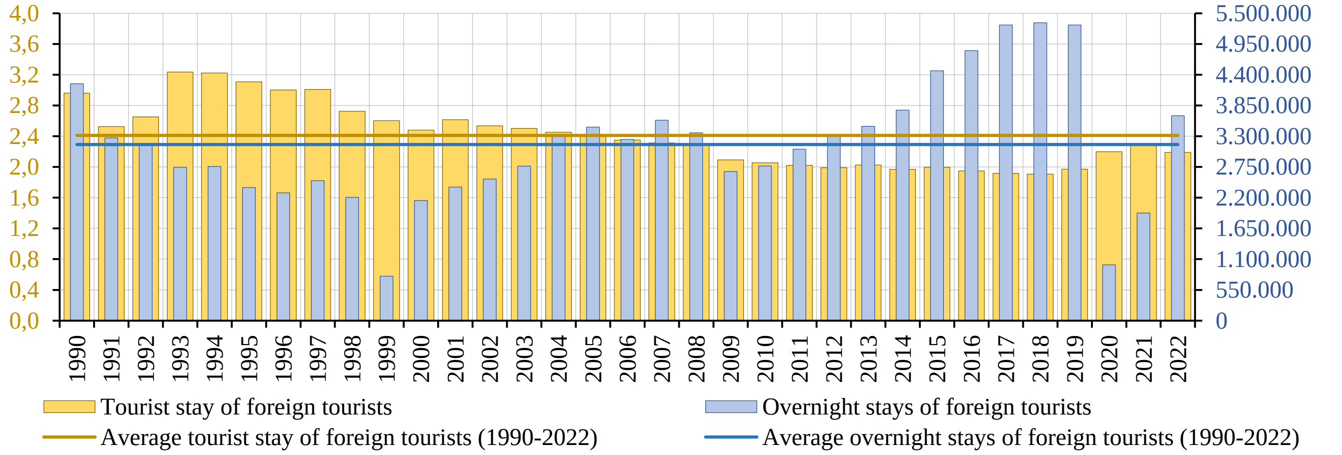


Figure 10. Arrivals of foreign tourists in Romania by comfort categories in the period 1994-2022
(Data source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table)

The data on the average tourist stay of foreign tourists in Romania provides valuable insights into the dynamics of the country's tourism industry. In 1990, tourists spent an average of 3.0 days during their visits, indicating a reasonably extended stay, possibly influenced by the novelty of Romania as a travel destination following the fall of communism. The subsequent years showed fluctuations in the average stay, but the general trend remained relatively stable until 1999 when the average stay decreased to 2.6 days. From 1999 to 2011, the average tourist stay fluctuated between 2.0 and 2.7 days, revealing variations in travel patterns. The lowest point was reached in 2011 when the average stay dropped to 2.0 days, possibly due to changes in tourism offerings or economic factors. However, there was a slight recovery in the following years, with an average stay of 2.3 days in 2012, suggesting that Romania's tourism sector adapted to changing trends. From 2012 to 2017, there was a prolonged period of shorter stays, with the average stay fluctuating around 2.0 to 1.9 days, indicating changing tourism patterns, such as shorter getaways or business-related travel. In 2018, there was a small increase in the average stay to 2.0 days, and in 2019, it remained at the same level, indicating efforts to attract tourists for longer durations, emphasizing Romania's rich cultural and natural attractions. The data for 2020 shows a further increase to 2.2 days, which might be a result of strategic initiatives or external factors, such as the COVID-19 pandemic, which prompted travelers to seek longer, more immersive experiences in less crowded destinations. In 2021, the average tourist stay increased to 2.3 days, indicating a potential rebound in the tourism industry as travel restrictions eased and tourists sought longer and more meaningful stays. The overall average tourist stay of foreign tourists in Romania from 1990 to 2022 was 2.4 days, highlighting the adaptability of Romania's tourism sector to changing travel trends and the potential for further growth and development in the coming years, with a focus on attracting tourists for more extended and enriching experiences (Figure 10).

WHAT MEANS OF TRANSPORTATION FOREIGN TOURISTS USE TO COME TO ROMANIA?

Romania, with its diverse landscapes, historic charm, and vibrant cultural offerings, has become a destination of increasing appeal to travelers from around the world. However, before foreign tourists can immerse themselves in the wonders of this Eastern European nation, they face a fundamental decision: how to reach Romania. The choice of transportation means is a pivotal element in the travel experience, shaping not only the journey but also influencing environmental considerations, local economies, and tourism infrastructure. This part of the article embarks on an exploration of the diverse means of transportation employed by foreign tourists to reach Romania. Whether arriving by air, land, or sea, these choices are driven by a combination of practicality, cost, and the desire to explore the less-traveled corners of this beautiful country. By delving into data, preferences, and the factors influencing these decisions, we aim to provide an in-depth overview of the means of transportation foreign tourists use. This exploration will not only unveil the practical aspects of travel but also highlight the unique experiences and cultural encounters that each method of transportation offers. Additionally, it sheds light on the impact of these choices on the nation's infrastructure and the environment. As we navigate the intricate web of *what means of transportation foreign tourists use to come to Romania*, we aim to provide a comprehensive understanding of the dynamics of international travel to Romania. This part of the article offers valuable insights into the choices made by travelers and the broader implications of transportation decisions in the context of tourism in this diverse and captivating nation.

In order to methodologically understand *what means of transportation foreign tourists use to come to Romania*, we need to define *road means of transport*, *railway means of transport*, *air means of transport*, and *naval means of transport*:

- *Road transportation*: Road transportation refers to all vehicles that travel on roads and highways, including personal cars, buses, minibuses, and coaches. Foreign tourists visiting Romania use road transportation, such as renting cars or traveling by bus or coach, to explore the country. This option offers them great flexibility in choosing their itinerary and provides access to less-known and less accessible areas compared to other means of transportation.
- *Railway transportation*: Railway transportation involves the use of trains to travel within and to Romania. Trains are a popular choice for foreign tourists who wish to explore the country, as they offer a comfortable and environmentally friendly mode of transportation. Through the railway network, tourists can travel safely and admire Romania's picturesque landscapes.
- *Air transportation*: Air transportation is a fast and efficient way to reach Romania from other countries. Major airports in Romania, such as Henri Coandă International Airport in Bucharest, serve as primary entry points for foreign tourists. This transportation option is preferred for long-distance journeys, reducing travel time and providing access to a wide range of destinations within Romania.
- *Maritime transportation*: Maritime transportation refers to journeys on water, including cruises and river or lake crossings. Tourists visiting Romania can opt for cruises on the Danube River or traverse the country's lakes and rivers using ferries or other watercraft. This mode of transportation offers a unique perspective on Romania's natural landscapes and cultural heritage along its waterways.

Foreign tourists visiting Romania have a wide range of transportation options to explore their preferred destinations, whether they prefer the freedom of road transportation, the comfort of trains, the speed of airplanes, or the serene experience of maritime transportation. The choice depends on personal preferences and travel itineraries.

Analyzing the data on the means of transport used by foreign tourists to enter Romania offers a comprehensive view of the changing dynamics in the tourism industry. In 1990, road transport was the dominant mode, with 3,670,000 arrivals, while railway and air transport accounted for 2,349,000 and 271,000 visitors, respectively, and naval transport hosted 242,000 tourists. Over the years, there were notable fluctuations. By 2004, road and air transport were nearly equal, with around 5.4 million arrivals each. This shift likely indicates increased accessibility through air travel, driven by factors such as expanding airline networks and affordable airfares. In 2015, air transport surpassed road transport, welcoming 7,475,000 tourists compared to 4,428,000 by road, reflecting the growing importance of air travel as a preferred means of entering the country. This trend continued in 2016, as air transport further expanded, hosting 2,257,000 visitors, while road and naval transport decreased. By 2022, the travel landscape had shifted again, with 9,547,000 tourists arriving by road, reflecting the increased importance of road connectivity in the region. Meanwhile, air transport remained significant with 2,547,000 arrivals, and naval transport experienced a noticeable increase with 451,000 tourists. These fluctuations can be attributed to various factors, including infrastructure development, economic conditions, and global events like the COVID-19 pandemic, which significantly impacted the tourism industry in 2020. Analyzing these trends in the context of other tourism-related data reveals the interplay between the means of transport and other aspects of the tourism sector. For example, the number of overnight stays of foreign tourists and the average tourist stay length fluctuated over the years. In the early '90s, the average stay was relatively consistent at around 2.4 days. However, in the following years, it gradually increased to 2.5-3.2 days, potentially influenced by factors such as improved infrastructure and diversification of tourist attractions. These statistics highlight the intricate relationship between transport, tourist preferences, and overall tourist activity. The means of transport used by foreign tourists are both influenced by and influence the broader tourism landscape, reflecting changes in accessibility, infrastructure, and global trends in the travel industry. Understanding these dynamics is crucial for stakeholders in the Romanian tourism sector, as it helps adapt strategies and infrastructure to meet the evolving needs and preferences of international visitors (Figure 11).

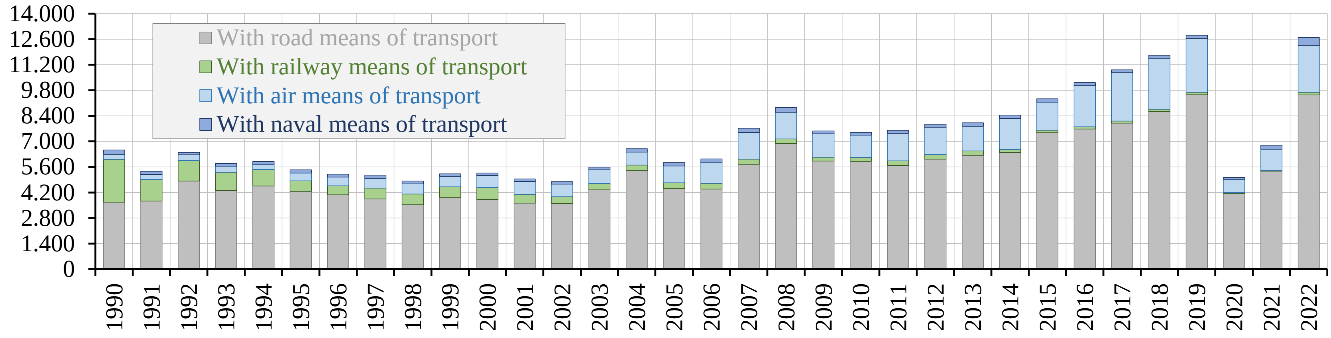


Figure 11. Arrivals of foreign visitors in Romania by means of transport usedin the period 1994-2022
(Data source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table)

WHERE FOREIGN TOURISTS WHO VISIT ROMANIA COME FROM?

Romania, a nation blessed with natural beauty, rich history, and diverse cultural heritage, has become an increasingly popular destination for international travelers. The unique tapestry of experiences that Romania offers has not only drawn the attention of wanderers from around the world but has also sparked a significant question: where do these foreign tourists come from? This part of the article embarks on a journey to explore the geographical origins of foreign tourists who choose Romania as their destination. Understanding the diversity of nationalities and regions that contribute to the country's tourism sector is not only an exercise in cultural exchange but also essential for shaping marketing strategies, economic planning, and cross-cultural appreciation. By delving into data, trends, and cultural influences, we aim to provide a comprehensive overview of the nationalities and regions from which foreign tourists originate.

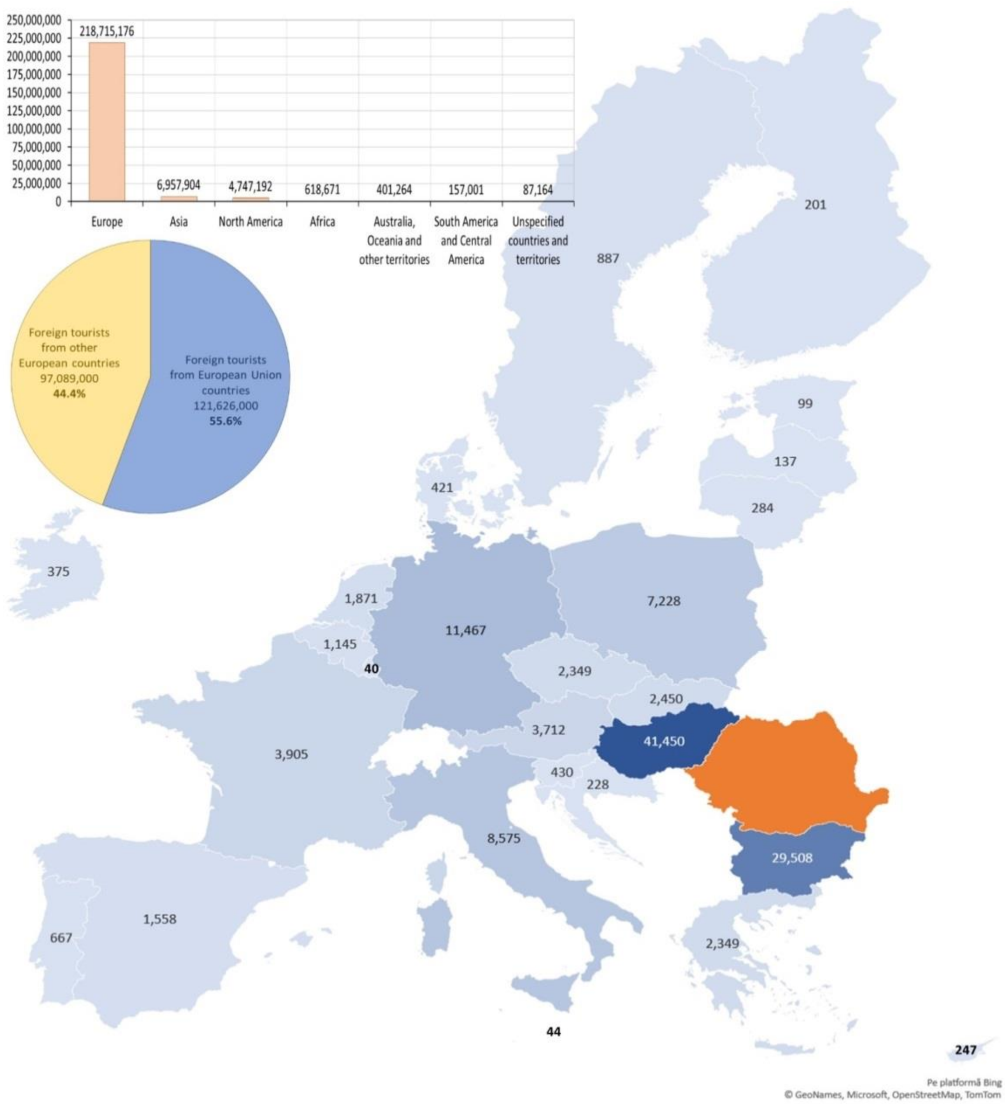


Figure 12. Tourists arriving in Romania by country of origin in the period 1990-2022
(Data source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table, the values on the map are represented in thousands)

Beyond the numbers, we delve into the motivations, preferences, and experiences that drive travelers from different corners of the world to visit Romania. As we navigate the intricate landscape of *where foreign tourists who visit Romania come from*, we aim to shed light on the rich tapestry of global connections that Romania has fostered through tourism. This part of the article offers a valuable perspective on the geographical dimensions of international tourism in Romania, emphasizing the diverse backgrounds and cultural encounters that enrich the travel experience within this captivating nation. In order to methodologically understand *where foreign tourists who visit Romania come from*, we need to define *country of origin*:

The term *country of origin* refers to the country from which tourists visiting a particular tourist destination originate. It is a measure used to identify the geographical origin of tourists and to analyze the behavior and characteristics of tourists based on their country of origin. Determining the country of origin of the tourist flow involves recording and analyzing demographic and statistical data, such as the nationality and residence of tourists at the time of their visit. This information can be obtained through arrival registration forms in a tourist destination, surveys, immigration system databases, or through tourism companies and accommodation providers. Identifying the country of origin of the tourist flow provides insight into the source market and can be used to assess the effectiveness of tourism promotion and marketing strategies in different countries. It helps in understanding the preferences, travel behavior, and spending patterns of tourists from different markets, allowing the destination to better tailor its offerings to their needs and interests. It is important to note that the country of origin of the tourist flow can vary from one destination to another and may change due to factors such as economic developments, political changes, travel trends, and transportation accessibility. The dataset provides a comprehensive overview of foreign tourist arrivals in Romania between 1990 and 2022, categorized by regions and specific countries. The total number of arrivals displayed fluctuations, with a peak in 2019 at 12,697 thousand arrivals and a low point in 1999 at 4,831 thousand arrivals. European tourists, including those from the European Union (EU), constituted a substantial portion of the arrivals, with EU arrivals showing consistent growth over the years. Specific countries such as Austria, Bulgaria, Italy, and the United Kingdom exhibited varying trends, with some countries experiencing significant increases in arrivals in recent years. Other regions, including Africa, North America, and Asia, saw diverse patterns, with Asia showing a notable increase in arrivals. The dataset reflects the dynamic nature of tourism in Romania, influenced by factors like economic conditions and geopolitical changes, and suggests the country's appeal to a diverse range of international visitors (Figure 12).

CONCLUSION

The analyses of the data offer a comprehensive study of foreign tourists visiting Romania, enriched with additional insights:

- *Tourist arrivals trends*: The dataset covering arrivals from 1990 to 2022 reveals significant fluctuations over the years, highlighting both growth and temporary declines. In recent years, Romania has been attracting a substantial number of foreign tourists, which aligns with the statistic that one in five tourists in the country is of foreign origin. This indicates the nation's growing appeal to international visitors.
- *Seasonal preferences*: Foreign tourists predominantly choose to visit Romania during the months between May and October, indicating a preference for milder weather and the opportunity to explore the country's scenic beauty during these months.
- *Destination choices*: The key destinations of foreign tourists, such as București and county capitals like Brașov, Constanța, Sibiu, Timișoara, and Cluj-Napoca, stand out as significant draws. These urban areas, known for their cultural and historical significance, are favored choices for foreign travelers.
- *Accommodation preferences*: Foreign tourists often opt for hotel accommodations, with a particular preference for establishments offering 4-star or 3-star comfort and service, highlighting their desire for a comfortable and enjoyable stay.
- *Average stay duration*: On average, foreign tourists stay in Romania for 2.4 days, which indicates that many come for shorter visits. This information is valuable for businesses and destinations to tailor experiences accordingly.
- *Travel by road*: Foreign tourists overwhelmingly use road transport as their primary means of reaching Romania, underlining the significance of efficient road infrastructure and connectivity to the tourism industry.
- *European origin*: As one of the primary sources of foreign tourists, Europe plays a pivotal role in Romania's tourism landscape. This data aligns with the fact that foreign tourists primarily originate from European countries.

Thus, Romania's tourism industry has experienced substantial growth, with increasing interest from foreign visitors. The data reveals that foreign tourists are attracted to Romania's cities, particularly during the warmer months. Their strong preference for hotels, the prevalent choice of road transport, and their average stay duration of 2.4 days provide valuable insights for further developing tourism infrastructure and services. It is essential for Romania to continue targeting European markets and urban destinations to maximize its appeal to foreign tourists.

Author Contributions: Conceptualization, M.I.S., I.J., M.G., M.S.S., T.H.H and M.Y.A.; methodology, M.I.S., I.J., M.S.S. and M.Y.A.; software, M.I.S., M.G. and M.S.S.; validation, I.J., M.G. and M.S.S.; formal analysis M.I.S., M.S.S. and T.H.H; investigation, I.J. and M.G.; data curation, M.I.S., I.J., M.G. and M.S.S.; writing – original draft preparation, M.I.S., I.J., M.G. and M.S.S.; writing – review and editing, M.I.S., I.J., M.G. and M.S.S.; visualization, M.I.S., I.J., M.G., M.S.S., T.H.H and M.Y.A.; supervision, I.J., M.S.S. and M.Y.A.; project administration, M.I.S., I.J., M.G., M.S.S., T.H.H and M.Y.A.; All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: This work was supported by the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia [Grant No. 5303].

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Airey, D., & Tribe, J. (Eds.). (2007). *Developments in Tourism Research*. Taylor & Francis.
Algieri, B., & Álvarez, A. (2022). Assessing the ability of regions to attract foreign tourists: The case of Italy. *Tourism Economics*, *23*(3), 788-811. https://doi.org/10.1177/13548166211068669.
Barcus, H., Jones, R., & Schmitz, S. (Eds.). (2022). *Rural Transformations: Globalization and Its Implications for Rural People, Land, and Economies*. Taylor & Francis.
Beirman, D. (2021). *Tourism Crises and Destination Recovery*. SAGE Publications.
Culiuc, A. (2014). *Determinants of International Tourism*. International Monetary Fund.
Dincă, I. (2016). Derivate Iconic and Symbolic from the Composition of the Rural Landscapes Dominated by the Fortified Churches from Transylvania, Romania. *GeoJournal of Tourism and Geosites*, *9*(1), 32-46.
Dwyer, L., & Forsyth, P. (1997). Measuring the benefits and yield from foreign tourism. *International Journal of Social Economics*, *24*(1/2/3), 223-236. https://doi.org/10.1108/03068299710161232.
Fu, Y., & Timothy, D.J. (2021). Social media constraints and destination images: The potential of barrier-free internet access for foreign tourists in an internet-restricted destination. *Tourism Management Perspectives*, *39*(1), 100771. https://doi.org/10.1016/j.tmp.2020.100771.
Fuchs, M., Gretzel, U., Höpken, W., & Xiang, Z. (Eds.). (2022). *Handbook of E-Tourism*. Springer International Publishing.
Gaceu, O. (2009). Climate Characteristics of the Fog Phenomenon and Its Influence on the Tourists and the Tourist Activities in the Apuseni Mountains. *GeoJournal of Tourism and Geosites*, *2*(1), 29-34.
Gozner, M. (2015). Solutions for the Development of Leisure Tourism by Specific Arrangements (Cyclotourism) in the Albac – Arieșeni Territorial System (Alba County, Romania). *GeoJournal of Tourism and Geosites*, *8*(1), 59-66.
Gozner, M., & Josan, I. (2013). Legislative Aspects Concerning Tourism Planning Issues in Romania. *GeoJournal of Tourism and Geosites*, *12*(2), 94-100.
Gozner, M., Josan, I., Baias, Ș., & Măduța, F.M. (2016). The Religious Attractions – An Expression of Authenticity in the Territorial System Albac - Arieșeni and Alba County (Romania). *GeoJournal of Tourism and Geosites*, *9*(1), 112-124.
Gozner, M., Tătar, C.F., Stupariu, M.I., & Măduța, F.M. (2017). Nature, Photography, and Tourism in Bihor-Vlădeasa Mountains (Romania). *GeoJournal of Tourism and Geosites*, *11*(2), 210-219.
Hall, C.M., & Coles, T. (2008). *International Business and Tourism: Global Issues, Contemporary Interactions*. (Eds.), Taylor & Francis.
Hall, D.R., Smith, M.K., & Marciszewska, B. (Eds.). (2006). *Tourism in the New Europe: The Challenges and Opportunities of EU Enlargement*. CABI Publications.
Hampton, A. (2018). *Tourism Management: Problems and Prospects*. Edtech.
Ilieș, A., Deac, A.L., Ilieș, D.C., & Carțiș, H. (2014). The Role of Tourist Resources in Determining a Typology of Support-Local Administrative Territorial Units (LATUs) with Resorts in Romania. *GeoJournal of Tourism and Geosites*, *7*(2), 226-236.
Ilieş, A., Ilieş, D.C., Josan, I., Grama, V., & Gozner, M. (2008). Romanian Rural Tourism between Authentic/Traditional and Modern/Contemporary. The Case of Crişana and Maramureş Areas. *GeoJournal of Tourism and Geosites*, *1*(2), 140-148.
Ilieș, D.C., Dehoorne, O., & Ilieș, A. (2011). Some Examples of Natural Hazards Affecting Geosites and Tourist Activities. *GeoJournal of Tourism and Geosites*, *7*(1), 33-38.
Ilieș, D.C., Caciora, T., Herman, G.V., Ilieș, A., Ropa, M., & Baias, Ș. (2020). Geohazards affecting cultural heritage monuments. A complex case study from Romania. *GeoJournal of Tourism and Geosites*, 31(3), 1103–1112. https://doi.org/10.30892/gtg.31323-546
Ilieș, D.C., Marcu, F., Caciora, T., Indrie, L., Ilieș, A., Albu, A., Costea, M., Burtă, L., Baias, Ș., & Ilieș, M. (2021). Investigations of Museum Indoor Microclimate and Air Quality. Case Study from Romania. *Atmosphere*, *12*, 286. https://doi.org/10.3390/atmos12020286
Ilieș, D.C., Safarov, B., Caciora, T., Ilieș, A., Grama, V., Ilies, G., Huniadi, A., Zharas, B., Hodor, N., & Sandor, M. (2022). Museal Indoor Air Quality and Public Health: An Integrated Approach for Exhibits Preservation and Ensuring Human Health. *Sustain. Sci. Pract. Policy*, *14*, 2462. https://doi.org/10.3390/su14042462
Ilieş, G., & Gallo, A. (2008). Qualitative Research on Tourism in Maramureş Land. *GeoJournal of Tourism and Geosites*, *1*(2), 129-136.
Ilieș, G., & Ilieș, M. (2015). Identity-Based Geo- and Tourism Branding Strategies Derived from Rural Maramureș Land (Romania). *GeoJournal of Tourism and Geosites*, *8*(2), 179-186.
Ilieş, M., & Hotea, M. (2010). Examples of Good Practice Applied in Rural Tourism Activities in the Maramureş Land: Vadu Izei and Săpânţa. *GeoJournal of Tourism and Geosites*, *6*(2), 219-229.
Indrie, L., Oana, D., Ilies, M., Ilies, D.C., Lincu, A., Ilies, A., Baias, S., Herman, G.V., Onet, A., Costea, M., Marcu, F., Burta, L., & Oana, I. (2019). Calitatea aerului din interiorul muzeelor și conservarea operelor de artă din materiale textile. Studiu de caz: Casa-muzeu Sălacea, România/ Indoor air quality of museums and conservation of textiles art works. Case study: Salacea Museum House, Romania, *Industria Textila Journal*, 1/2019, 88-93. http://www.revistaindustriatextila. ro/images/2019/1/Industria%20textila%20no%201_2019_web.pdf
Inkson, C., & Minnaert, L. (2012). *Tourism Management: An Introduction*. SAGE Publications.
Lew, A.A., Williams, A.M., & Hall, C.M. (Eds.). (2014). *The Wiley Blackwell Companion to Tourism*, Wiley.
Lowry, L.L. (Ed.). (2016). *The SAGE International Encyclopedia of Travel and Tourism*, Volume 1. SAGE Publications.
Maeda, T.N., Yoshida, M., Toriumi, F., & Ohashi, H. (2018). Extraction of Tourist Destinations and Comparative Analysis of Preferences Between Foreign Tourists and Domestic Tourists on the Basis of Geotagged Social Media Data. *International Journal of Geo-Information*, *7*(3), 99. https://doi.org/10.3390/ijgi7030099.
Mazza, B., & Sobry, C. (Eds.). (2022). *Sport Tourism and Its Territorial Development and Opportunities*. Cambridge Scholars Publishing.
Menor-Campos, A., Pérez-Gálvez, J.C., Hidalgo-Fernández, A., & López-Guzmán, T. (2020). Foreign Tourists in World Heritage Sites: A Motivation-Based Segmentation. *Sustainability*, *12*(8), 3263. https://doi.org/10.3390/su12083263.

Mohamed, I., & Moradi, L. (2011). A Model of E-Tourism Satisfaction Factors for Foreign Tourists. *Australian Journal of Basic and Applied Sciences*, *5*(12), 877-883. ISSN 1991-8178.
OECD. (2014). *OECD Studies on Tourism Tourism and the Creative Economy*. OECD Publishing.
OECD. (2020). *OECD Tourism Trends and Policies 2020*. OECD Publishing.
Popescu, A., Hontus, A.C., & Caratus-Stanciu, M. (2020). Trends and Changes in Tourist Flow in Romania in the Period 2009-2018. *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*, *20*(1), 425-436.
Postelnicu, C., & Dabija, D.C. (2017). Challenges and Development Prospects for Tourism in Romania. *Ecoforum*, *5*(1), 84-89. ISSN 2344–2174.
Ramshaw, G., & Gammon, S. (Eds.). (2013). *Heritage, Sport and Tourism: Sporting Pasts – Tourist Futures*. Taylor & Francis.
Sönmez, S.F., & Graefe, A.R. (1998). Influence of terrorism risk on foreign tourism decisions. *Annals of Tourism Research*, *25*(1), 112-144. https://doi.org/10.1016/S0160-7383(97)00072-8.
Stașac, M., & Herman, G.V. (2010). Ethnographic Values of the Traditional Village of “Zarand Land”. *GeoJournal of Tourism and Geosites*, *6*(2), 152-162.
Stupariu, M.I. (2017). Study on Structural Dimensions of Establishment of Touristic Reception with Functions of Touristic Accommodation in Countries of European Union. *Folia Geographica*, *59*(2), 60-77.
Stupariu, M.I., & Josan, I. (2014). The Quality of Hotel Services: Case Study - The County Seat Municipalities of the North-West Development Region. *GeoJournal of Tourism and Geosites*, *7*(2), 207-214.
Stupariu, M.I., & Morar, C. (2018). Tourism Seasonality in the Spas of Romania. *GeoJournal of Tourism and Geosites*, *11*(2), 573-584. https://doi.org/10.30892/gtg.22225-312.
Stupariu, M., Tătar, C.F., Stașac, M.S., Linc, R., Bucur, L., Dincă, I., Nistor, S., Filimon C., & Filimon, A.L. (2022). A Tourist Flow Study of the Rural Metropolitan Area of Oradea Compared to Bihor County. *Folia Geographica*, *64*(2), 21-45.
Tătar, C.F., & Herman, G.V. (2013). Identity Encounters: Host-Guest Interactions in the Land of Moţi (Romania). *GeoJournal of Tourism and Geosites*, *11*(1), 66-74.
Tătar, C.F., Herman, G.V., & Gozner, M. (2018). Tourist Guides’ Contribution to Sustainability in Romania. *GeoJournal of Tourism and Geosites*, *11*(1), 282-287. https://doi.org/10.30892/gtg.21122-287.
Telfer, D.J., & Sharpley, R. (Eds.). (2002). *Tourism and Development: Concepts and Issues*. Channel View Publications.
Tung, L.T., & Thang, P.N. (2022). Impact of Exchange Rate on Foreign Tourist Demand: Evidence from Developing Countries. *GeoJournal of Tourism and Geosites*, *45*(4spl), 1579-1585. https://doi.org/10.30892/gtg.454spl06-977.
Ungureanu, M., & Lăzuran (Giurău), A.L. (2014). The Creation of the Ciocăneşti Tourist Destination Brand. *GeoJournal of Tourism and Geosites*, *7*(2), 125-141.
Uslu, A., Pekerşen, Y., & Tunca, A. (2020). Evaluation of Communication Skills of Historical Bazaar Tradesmen: A Research on Foreign Tourists Visiting Edirne. *GeoJournal of Tourism and Geosites*, *13*(2spl), 835-842. https://doi.org/10.30892/gtg.302spl08-512.
Vellas, F., & Bécherel, L. (1995). *International Tourism: An Economic Perspective*. Macmillan Education UK.
Vellas, F., & Bécherel, L. (2016). *The International Marketing of Travel and Tourism: A Strategic Approach*. Macmillan Education UK.
http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table

Article history: Received: 15.09.2023 Revised: 17.10.2023 Accepted: 14.11.2023 Available online: 19.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1546-1554
DOI 10.30892/gtg.50433-1151

GUEST`S PREFERENCES FOR DIFFERENT FOODS AT HOTEL'S BREAKFAST: RESULTS OF AN ON-LINE SURVEY

Fernanda LEITE-PEREIRA*
University of Aveiro, Department de Economics, Management, Industrial
Engineering and Tourism, Aveiro, Portugal, e-mail: fernandaleitepereira@gmail.com

Filipa BRANDÃO
University of Aveiro, Department de Economics, Management,
Industrial Engineering and Tourism, Aveiro, Portugal, e-mail:filipa.brandao@ua.pt

Rui COSTA
University of Aveiro, Department de Economics, Management,
Industrial Engineering and Tourism, Aveiro, Portugal, e-mail:rui.costa@ua.pt

Citation: Leite-Pereira, F., Brandão, F., & Costa, R. (2023). GUEST`S PREFERENCES FOR DIFFERENT FOODS AT HOTEL'S BREAKFAST: RESULTS OF AN ON-LINE SURVEY. *GeoJournal of Tourism and Geosites*, 50(4), 1546–1554. https://doi.org/10.30892/gtg.50433-1151

Abstract: Consumer choice and satisfaction are very important for the hotel industry. For guests, food has a big impact on satisfaction and so does breakfast. The objective of this work is to know what the preferences of guests in a hotel breakfast are and how this varies according to their characteristics. An online questionnaire was sent using social media to hotel guests (n=626). Most respondents live in Europe (62%) and they prefer fruit juices (37%) and pastries (37%) while non-European residents suggested fruits (58%) and dairy products (39%) as the main preferences. Respondents aged over 55 years old have also preferences for fruits and dairy products, whereas guests aged 18-34 prefer pastries. For families traveling with children, bread was preferred for breakfast. Moreover, guests between the ages of 18 and 34 prefer lactose-free foods; and vegans or vegetarians or guests between the ages of 35 and 54 prefer gluten-free foods; whereas those 35 or younger prefer sugar foods. Most women prefer lactose-free food and non-Europeans give more importance to low-carbohydrate food while Europeans prefer lactose-free food and vegetarians or vegans. Breakfast is a meal valued by guests. Knowing the preferences of the guests following the profile of each one will be an asset for hotel projects that can satisfy and retain their customers. As far as we are aware, this is the first assessment of travellers about their preferences in hotels breakfast.

Key words: Breakfast, hotel, food choice, satisfaction, guests, preferences

* * * * * *

INTRODUCTION

Knowing consumers' profile and its relationship with the service or product used contributes to the positioning strategy and competitive advantage of a company. Meeting customer needs and understanding their preferences is a challenge and requires great commitment of marketing strategies in addition to requiring great availability and, according to Otto and Ritchie (1996), also financial investment. Tourist experience and gastronomy are two fundamental topics of a trip (Getz et al., 2014; Mowinckel, 2016). These two elements can define the choice of the destination and even its subsequent evaluation (Chen and Tsai, 2007). Previous studies have also shown that food contributes to travel satisfaction and even return intention (Quan and Wang, 2004; Kim et al., 2011; Björk and Kauppinen-Räisänen, 2017).

Also, food is essential for human health. Food intake triggers the body to absorb nutrients so that it can perform essential functions. However, eating is much more than ingesting food, becoming a socio-cultural activity more than just a nutritional issue. In fact, eating involves socialization, communication, preferences, aversions, and cultural influences (Ornellas, 2001). And, that includes breakfast, which is an essential part of the daily routine and which, that when we travel, may become even more relevant. When we talk about tourism and consequently travel, we increase the importance of breakfast, since tourist and hotel guests often only take this meal for granted. For instance, when travelling with children, this can be even more difficult. With more rigid schedules and special needs, children need even more care with their diet, which intensifies the need for at least one quality meal, which can be breakfast.

Cultural diversity, food intolerances and specific individual preferences mean that breakfast served in hotels, in addition to good service, must be planned in relation to product options and qualities to satisfactorily serve its customers.

To the best of our knowledge there are no studies determining the preference of guests regarding the food served at breakfast in hotels, particularly the nutritionally differentiated food. Therefore, this study aims to find out the guest`s preferences for hotel`s breakfast. Thus, this study aims to assess the importance that guests attach to nutritionally differentiated foods and what are their food preferences for breakfast in hotels.

* Corresponding author

LITERATURE REVIEW

Importance of guest satisfaction and preferences for the hospitality industry

The quality of a service or product and customer satisfaction are undeniably the two fundamental concepts in the theory and practice of services marketing. Some studies, such as Aras (2023), show that variables such as quality and satisfaction can have a positive effect on the intention to choose and/or return somewhere, however the same author reveals that the opposite effect can also happen. In today's world, where globalization generates intense competition between companies, the solution for competitive advantage lies in delivering services that satisfy customers, and in hospitality it is no different.

The hospitality industry suffers from the increased expectations of consumers who are increasingly demanding, and, in contrast, it is known, that the success of this industry is based on customer satisfaction, not only in the accommodation service, but also in the other services offered by the accommodation, such as food for example (Kapera, 2015), including breakfast. Nowadays customers are more informed and seek services that exceed their needs and offer products of their preference. Consumers select a product from a set of alternatives using individual choice criteria that meets or exceeds their motivations and needs. Motivation is a very relevant factor for consumers and stands out for influencing the choice of a destination (Pérez Gálvez et al., 2023). Understanding consumer choice is therefore fundamental in hotel marketing (Bettman et al., 2008). Customer satisfaction becomes a priority for hotel developments for several reasons, such as in customer loyalty, increased sales, and positive word-of-mouth publicity (Ha and Jang 2010).

Knowing consumers and catering to their preferences is a great differentiator for a hotel or resort and can make a difference in guests' stay (Kapera, 2015). Kandampully and Suhartanto (2000) showed that hotel image and customer satisfaction with reception, housekeeping, food and beverage and price are important factors in determining customer loyalty. Knowing your customers and gaining their loyalty, in addition to being an important sustainability factor for hotel businesses, generating greater competitiveness and benefits in relation to the competition, makes marketing initiatives more assertive (Leite-Pereira et al., 2022). Choice behaviors are influenced not only by cognitive attributes, but also by affective and sensory attributes, especially in the restaurant area, where the act of eating involves a number of attributes in addition to physical, emotional and social ones. Thomé and Hoppe (2018) presented the five theories on consumer choice behavior: the ability of the product to fulfill its purpose is the functional value; the social value relates the personal choice with the social one; already when the feeling interferes in the choice is an emotional value; the epistemic value is related to a new product; and the conditional is a set of values associated with the choice.

Regarding choice in food, social and emotional values are very important because eating habits are related to feelings and social and personal values, memories pleasures or aversions that can influence choices (Sweeney and Soutar, 2001; Lease et al., 2014). The restaurant service in hotels and the breakfast meal, aims to satisfy the culinary preferences and needs of guests, or even external customers who may enjoy this service that can vary greatly depending on the size of the hotel, its location and mainly according to its target audience (Kapera, 2015). The range of services offered by hotel restaurants is diverse and depends on several factors mentioned above. To be successful, hotel owners and managers need to take a closer look at hotel restaurants and to consider the customer's point of view (Hu et al., 2009).

With breakfast it should be no different. This highly rated meal on hotel sales platforms (Leite-Pereira et al., 2020) is important for guests as an integral part of a new routine, where it may become the only balanced meal of the day. It is true that individuals have their own food preferences but often, even foods that are not part of a person's daily meal routine, can become a preference when it comes to hotels. Furthermore, some foods are not even chosen as part of the meal, but the fact that they are available already pleases the customer, bringing satisfaction. The diversity of foods in breakfast was the dimension most valued by guests in a publication about this meal, made by Leite-Pereira et al., 2020, followed by food quality, which shows that a varied offer of products in the breakfast lunch is important for guest satisfaction and, according to McCall and Lynn (2008), the availability of food also helps to create the establishment's identity. However, there is still no evidence about guests' preferences in breakfast.

Therefore, the following research hypotheses were proposed for the present study:

H1a: There are differences in breakfast food preferences according to nationality of guests.

H1b: There are differences in breakfast food preferences depending on guests' age.

H1c: There are differences in breakfast food preferences between men and women.

H1d: There are differences in breakfast food preferences among families traveling with children.

Guests’ preferences for nutritionally differentiated foods at breakfast

The habit of eating breakfast improves short-term memory, problem-solving efficiency, it is also related to the improvement of metabolic parameters related to cardiovascular disease risks and the decrease of abdominal circumference. This meal taken in a proper way, i.e., with the inclusion of foods rich in fiber, fruits and whole grains for example, is also related to controlling body weight and reducing the risk of developing hypertension (Anderson et al., 2009). Breakfast, for being a meal so valued by guests (Leite-Pereira et al., 2022), can be an important focus for the hotel to differentiate itself before the competition, generate positive comments from customers and consequently make them loyal. Singh and Alhamad (2022) in a recent study on breakfast, it was concluded that this meal was one of the attributes that influenced accommodation booking decisions and the rating given by guests to hotels, however, this influence did not occur when the guests' motivation was for religious tourism.

The particularities of breakfast, such as the diversity of options, the quality of the food and the facilities are the features most appreciated by guests (Leite-Pereira et al., 2020) and among the variety of food options may be nutritionally differentiated foods. These foods have become a trend in recent years, not only by individuals with specific nutritional needs, allergic or with some food intolerance, but most often by the fashion that has settled around these foods that are said to be relevant in the general well-being of the individual and even in aesthetic issues (Oliveira et al., 2018; Braga et al., 2019). Focusing on individuals with food allergies and intolerances who need to be careful about their diet and tailor their routine to these conditions, travel should encompass the entire strategy of food options, at leas t at the destination accommodation, as it can often be a challenge to find the specific foods for their diet.

Foods with specific nutritional compositions such as restricted or free of sugar, fat, gluten or lactose are examples of the most common foods that hotels can make available at breakfast. However, as we mentioned before, the tendency for nutritionally differentiated foods increases, such as: foods with high protein content, low carbohydrate percentage, foods rich in fiber, among others (Zopf et al., 2018; Lagiou et al., 2007). Thus, either by trend or by guest need, hotels could make a variety of these foods available to satisfy their guests. Therefore, the following hypothesis is proposed for the study:

H2a: There are differences in food preferences for products for specific nutritional needs in hotel's breakfast according to the nationality of guests

H2b: There are differences in food preferences for products for specific nutritional needs in hotel's breakfast according to the age of guests

H2c: There are differences in food preferences for products for specific nutritional needs in hotel's breakfast according to the gender of guests

H2d: There are differences in food preferences for products for specific nutritional needs in hotel's breakfast for guests traveling with children

METHODOLOGY

Data collection

An online questionnaire was developed specifically to assess behavior intention of guests towards breakfast (Leite-Pereira et al., 2022) and for the current study. The questionnaire was developed for guests according to references from the tourism and hotel industry (Illum et al., 2010; McCarthy et al., 2010) a method also used in studies in the gastronomy area (Lee et al., 2015). For this study, 6 questions were considered to answer hypotheses (Table1) and questions on:

- Information about the last stay in a hotel where breakfast was served.
- Questions about hotel´s breakfast.
- Questions about personal information with questions related to age, sex, nationality, among others.

Most of the questions in the questionnaire were open questions. Also, questions using the 5-point Likert scale or with scales ranging from "not at all important" to "extremely important" were also used (Nemoto and Beglar, 2014), in addition to multiple questions choice. Most answers were mandatory, except for open questions. This questionnaire was presented both in Portuguese and in English and validated after the first test with 15 answers, with only minor changes, namely in translations.

Table 1. Relation between research hypothesis and the survey questions

Hypothesis	Questions
	Which products do you like the most when you have breakfast in hotels? Please indicate the top 3 +
H1a: There are differences in breakfast food preferences among guests according to the country of residence.	Country of residence?
H1b: There are differences in breakfast food preferences among guests' age.	Age?
H1c: There are differences in breakfast food preferences between men and women	Gender?
H1d: There are differences in breakfast food preferences among families traveling with children.	With whom did you travel?
	Please identify which products are most important to you considering a specific diet (e.g., gluten free, lactose free, low carb, sugar free...) +
H2a: There are differences in food preferences for products for specific nutritional needs in hotel's breakfast according to the age of guests	Age?
H2b: There are differences in food preferences for products for specific nutritional needs in hotel's breakfast according to the nationality of guests	Country of residence?
H2c: There are differences in food preferences for products for specific nutritional needs in hotel's breakfast according to the gender of guests	Gender?
H2d: There are differences in food preferences for products for specific nutritional needs in hotel's breakfast for guests traveling with children.	With whom did you travel?

Participants

The LimeSurvey program was used to prepare the questionnaire and its link was sent through the participants' social networks (Whatsapp, Facebook and emails) between 05/29/2020 and 08/14/2020. The chosen population was unknown, and a non-probabilistic sample was taken (for convenience). A total of 626 valid questionnaires were analyzed.

List of variables and statistical analysis

The questionnaire data were exported and analyzed using the SPSS (Statistical Package for the Social Sciences) programme. Proportions and Chi-square were used to describe and determine differences among groups with $p<0.05$ considered significant.

RESULTS

Guests' profile

In Table 2 and Figure 1, the most relevant characteristics of the guests answering the questionnaires for our study are included. A total of 626 questionnaires were analysed. Forty-four percent were participants with ages between 35 and 54 years old and 431 were answered by women (69%). Sixty-two percent were living in Europe (62%). When describing the travel itself, 77% of guests answered that the reason for staying in the last hotel they visited was leisure or vacations and 57% were couples (32% without and 25% with children).

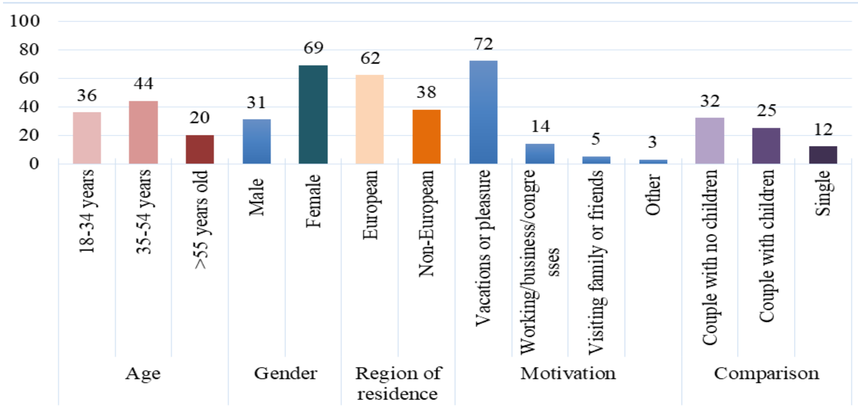


Figure 1. Guests' main characteristics

Table 2. Relevant characteristics of the guests

Age (years) n (%)	
18-34	227 (36)
35-54	272(44)
>55	127 (20)
Gender n (%)	
Male	195 (31)
Female	431 (69)
Region of residence n (%)	
European	385 (61,5)
Non-European	241 (38,5)
Motivation n (%)	
Vacations or pleasure	482 (77)
Working/business	64 (10)
Congresses or exhibitions	25 (4)
Study	13 (2)
Health	2 (0)
Visiting family or friends	34 (5)
Religion	2 (0)
Gastronomy	1 (0)
Other	3 (0.5)
Companions n (%)	
Couple with no children	199 (32)
Couple with children	159 (25)
Single	75 (12)

When asked about their overall satisfaction about the hotel's breakfast they visited lastly, 75% answered that they were satisfied and 63% thought that the specific foods were important to be present on breakfast.

Validation of hypotheses

In Figure 2 and Table 3, the differences between the preferences of breakfast foods served and their relationship with the different nationalities of guests was presented. It was found that the nationality of the guests has an influence among breakfast food preferences, which confirms hypothesis H1aWith the majority of respondents residing in Europe (61.5%), we found that they tend to prefer fruit juices (37%) and pastries (37%). As for those residing outside Europe (38.5), the most suggested foods were fruit (58%) and dairy products (39%).

Table 3. Relevant characteristics of the guests and their food preferences in breakfast

	Fruits	**Bread**	**Pastries**	**Milk/yogurt**	**Coffee**	**Eggs**	**Juices**
Region of residence (%)	**0.032**	0.064	**0.001**	**<0.001**	0.212	0.122	**0.001**
European	48	48	37	23	30	30	37
Non-European	58	56	24	39	25	37	23
Age (years) (%)	**0.003**	**0.045**	**<0.001**	**<0.001**	0.771	0.281	0.063
18-34	44	31	47	19	26	30	39
35-54	55	49	24	35	31	37	28
>55	61	20	23	38	27	27	27
Gender (%)	0.082	0.076	0.057	0.064	0.161	**0.001**	0.149
Male	47	47	28	33	30	30	37
Female	54	53	34	28	25	37	23
Companions (%)	0.099	**0.018**	0.856	0.808	0.990	0.261	0.487
Single	42	43	29	35	29	35	31
Couple with no children	51	47	34	29	29	29	34
Couple with children	57	62	30	33	30	39	26

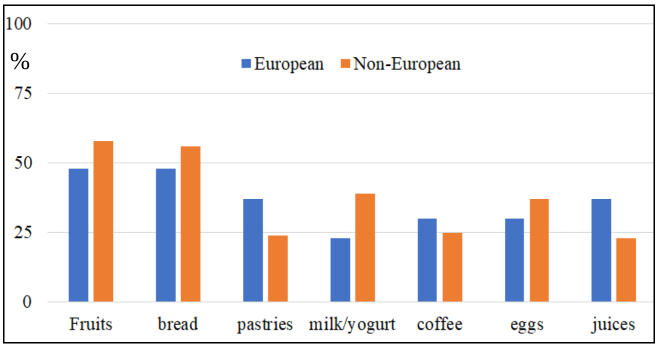


Figure 2. Breakfast food preferences among the different nationalities

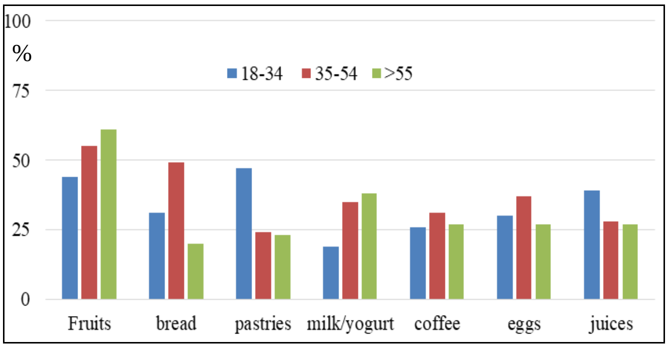


Figure 3. Differences in breakfast food preferences between guests' ages

When determining the differences between guests' preferences for foods offered at breakfast and their age, we note that respondents aged fifty-five and above have preferences for fruits and dairy products, while guests aged 18-34 prefer pastries, confirming **H1b** (Figure 3 and Table 3). Among men and women, eggs are the big difference between preference, as forty of the men cited this food as relevant for breakfast, confirming **H1c** (Figure 4 and Table 3).
When analyzing the guests' food preferences in relation to company on the trip, it was found that among families traveling with children, bread was preferred for breakfast (Figure 5 and Table 3), confirming **H1d.**

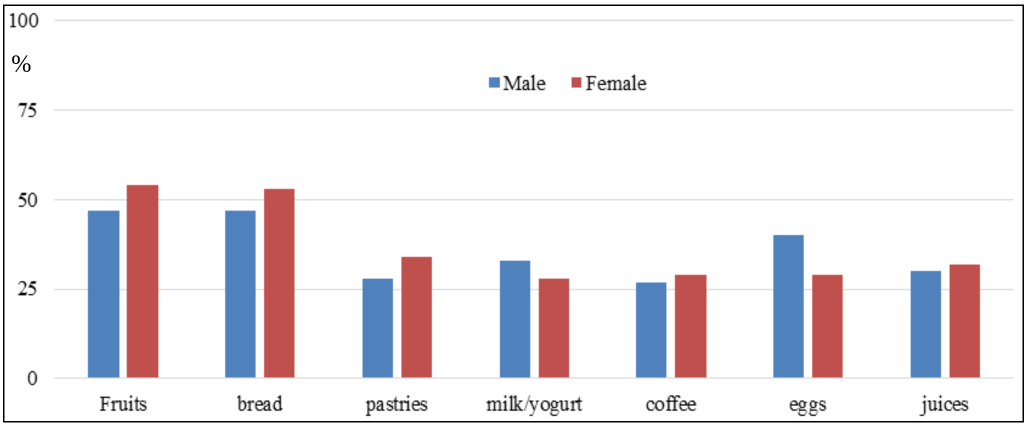


Figure 4. Differences in breakfast food preferences between genders (axis represents percentage of respondents)

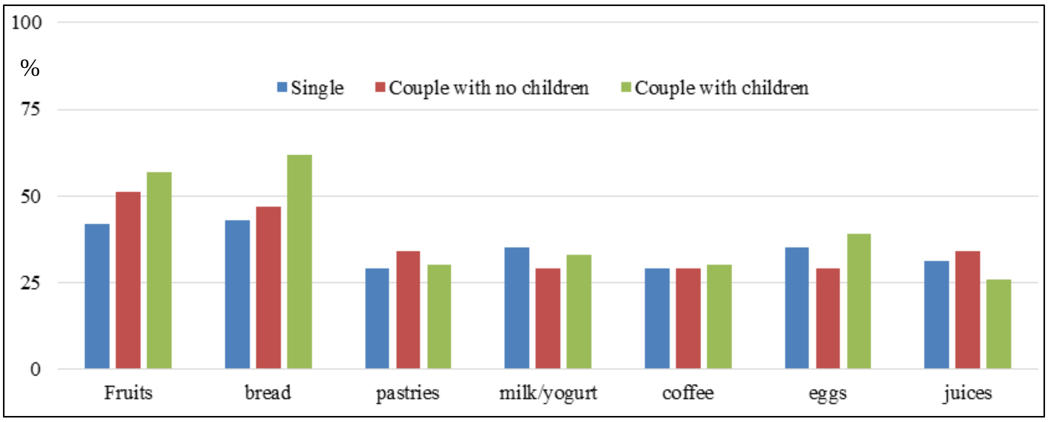


Figure 5. Differences in breakfast food preferences and the relationship to company during the (axis represents percentage of respondents)

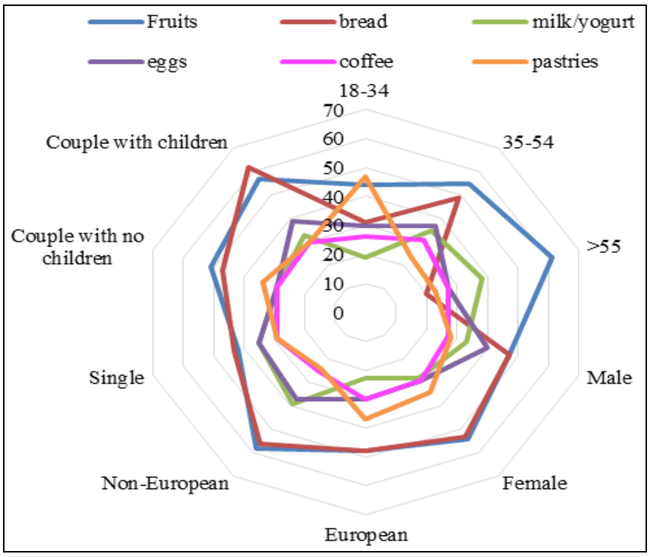


Figure 6. Differences between food preferences for a specific diet at breakfast and the relationship between the guests (axis represents percentage of respondents)

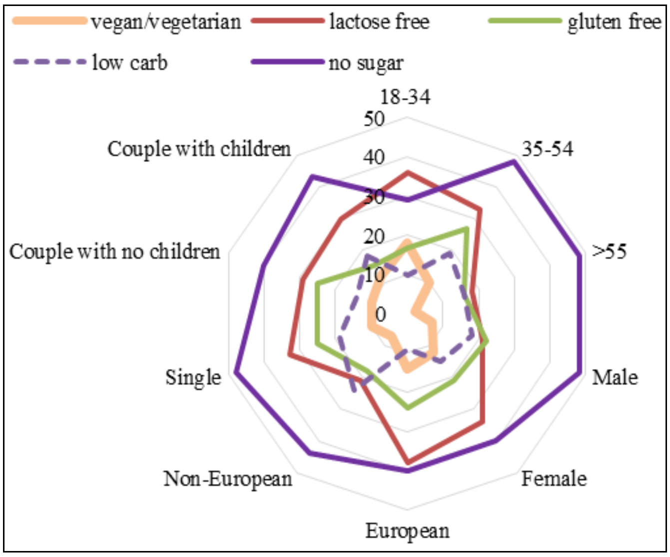


Figure 7. Differences between food preferences for a specific diet at breakfast and the relationship between the guests. (axis represents percentage of respondents)

In Figure 5, we can see in summary how guests' preferences for breakfast foods vary according to their characteristics. Questions about the importance of the presence of nutritionally differentiated foods, as well as the guests' preference about them were included in the questionnaire. Table 4 presents the results of these questions according to the characteristics relevant to this article. About the nutritionally differentiated foods the following hypotheses were tested. The preferences among products for a specific diet was evaluated among the guests and it was found that sixty-three percent of the guests responded with some type of preference. Regarding age, guests between the ages of 18 and 34 prefer lactose-free foods and vegans or vegetarians, guests between the ages of 35 and 54 prefer gluten-free foods, and the age group 35 and older prefer sugar-free foods, confirming **H2b** (Table 4 and Figure 6). Most women prefer lactose-free food, and regarding the local of residence of the guests, non-Europeans give more importance to low-carbohydrate food, while the residents in European prefer lactose-free food and vegetarians or vegans, conforming to hypotheses **H2c** and **H2a** (Table 4 and Figure 7). As for the analysis regarding guests' preference for specific dietary foods and its relation to guests traveling with children, there were no statistically significant differences, refuting **H2d.**

Table 4. Differences in food preferences for a specific diet among guest characteristics

	No sugar	Gluten free	Lactose free	Vegan/ Vegetarian	Low carb
Region of residence (%)	0.471	0.216	**<0.001**	**0.021**	**<0.001**
European	40	24	38	14	9
Non-European	44	18	21	7	24
Age (years) (%)	**0.002**	**0.035**	**0.014**	**0.001**	0.079
18-34	29	17	36	18	10
35-54	48	27	33	10	19
>55	48	16	18	2	16
Gender (%)	0.203	0.889	**0.018**	0.192	0.528
Male	48	22	21	7	18
Female	40	21	34	12	15
Companions (%)	0.556	0.106	0.864	0.821	0.629
Single	48	25	33	10	19
Couple with no children	40	25	29	10	14
Couple with children	43	15	30	12	18

DISCUSSION

Guest's food preferences

Food preferences vary among individuals. Factors such as gender, age, and culture are among those characteristics that may influence one's eating habits and preferences, but in some cases, preference overrides an individual's actual nutritional needs. One of the foods mentioned as a preference by the guests in our study was **milk and its derivatives**. These foods are sources of calcium and protein, and their consumption brings health benefits, such as avoiding the loss of bone mass common in older age (Kurajdova and Táborecka-Petrovicova 2015; Macdonald, 2010). It is known, however, that the benefits evidenced with the consumption of dairy products in adulthood stem from their intake in childhood. Even so, later consumption may bring some benefits, such as reducing the risk of bone fractures due to the combination of calcium and vitamin D, being important to highlight that in a more advanced age group it may be important to supplement these components (Fernández et al., 2015). In our manuscript, adults over 55 years old are more likely to choose milk/yogurt for breakfast, perhaps because of the well-known benefits we reported above.

Also, regarding dairy products, specifically milks and yogurts, mentioned in the questionnaires, it was found that non-Europeans gave more importance to these foods when compared to Europeans. In fact, even though the recommendation of dairy intake is 220 kg per capita/year (Francisciová, 2014), the Food and Agriculture Organization (FAO) reports that Europe has an annual per capita consumption of dairy products (with the exception of butter) of 210 kg (Hjartåker, 2002).

Another food mentioned as a preference by the guests were the **fruits**. One of the results of this article showed that adults over the age of 55 have a greater tendency to eat fruit which in nutritional terms makes sense. Fruit are foods rich in vitamins, minerals and fiber, help in decreasing the incidence of some types of cancer, metabolic diseases and in improving the immune system (Tsugane, 2004; Esmaillzadeh et al., 2006; Hsu et al., 2005). Specifically in an older population, fruit also adds micronutrients and bioactive compounds to the diet to prevent the onset of chronic diseases (Silveira et al., 2015).

In contrast, **pastries**, which included cakes, pancakes, waffles, and other sweets, were the most commonly cited option in terms of preference by guests between the ages of 18 and 34 years old. But we all know how sweets are fun! This preference comes already from the choices made by young people in their day-to-day lives, be it fast food habits, processed foods and drink (Levy et al., 2010; Moreno et al., 2010).

Specific nutritional needs

The large variation in consumption of dairy products across the different continents can be partly explained by different ability of the population to digest lactose. The highest prevalence of lactose indigestibility is found in the Far East (90%) and the lowest in northwestern Europe with an incidence of up to 10%. In Mediterranean countries, the prevalence is between 60 and 70% (Hjartåker et al., 2002). One of the results obtained from this survey was in fact that European respondents showed a tendency to place importance on lactose-free foods (in concordance with the previously description).

The demand for lactose-free foods in individuals without nutritional restrictions is justified by the same for presenting benefits such as greater intestinal comfort, however, there are studies that do not support these benefits without a real need (Corozolla and Rodrigues, 2016). Even proven lactose intolerance is not a justification for not ingesting milk, since this situation can be controlled and/or treated (Fernández et al., 2015). Consumption of yogurts and other fermented dairy products containing lactase to aid digestion, as well as consumption of low-lactose milks, are both insightful ways to avoid the associated symptoms (Turck, 2013). For Macdonald (2010) and Agostoni and Turck (2011) a consumption of approximately 250ml of milk/day can be tolerated even in individuals diagnosed with lactose intolerance if consumed with other foods.

About **eggs**, a food rich in protein and fat, which is in agreement with the study published by Prim et al. (2010). It was another important result of our article that showed it to be the choice of men for breakfast. This choice may be justified by the looking for more caloric options, the search for satiety, or by the concern with maintaining muscle mass.

According to Paslakis et al. (2020) **vegetarians or vegans** are mostly young, female and have low body mass index, a fact also reported by reported by Timko et al. (2012). Still about the study by Paslakis et al. (2020) the respondents believe that vegetarian or vegan diets can lead to nutritional deficiency. Our results showed that among young people (18 to 34 years), among young people, there was a greater preference for vegetarian or vegan foods which is in line with the study of Suleiman et al. (2009) that reports this trend among young people.

About **lowcarb foods**, which makes use of them justify this choice through the benefits of weight loss, improved cholesterol levels, appetite control, among other factors that this type of food promises, but are not always scientifically justified. According to Colombarolli et al. (2021) the consequence of a lowcarb diet is to avoid insulin peaks and high glucose uptake, besides inducing fat as an energy source.

Another benefit according to Hu et al. (2012), a lowcarb diet can not only make the individual lose weight, but also treat metabolic syndromes, in addition to improving the lipid profile, factors also confirmed by Gilberto and Tavares (2020), however, for Oliveira et al. (2018), this type of restriction has a greater cognitive restriction and food compulsions. In this study, non-European individuals place great importance on low-carbohydrate foods.

CONCLUSION

Knowledge of the consumer profile is essential for the success of an enterprise. This is also true for the restaurant area where it is essential to know the preferences of consumers in order to satisfy them. Food preferences are part of an individual context and that also shapes the health and nutrition status of an individual. The options offered by hotels in their breakfasts and appreciated by customers, satisfied or even surprised, can cause loyalty and positive comments, attracting other guests and generating better scores on websites or hotel sales platforms. Therefore, hotels should be aware of their guests' needs and preferences and serve breakfasts that are appreciated by them.

Practical Implications

For a hotel enterprise, to increase the knowledge about their guests is always an asset. Knowing what their preferences are and meeting them brings guest satisfaction, which can generate loyalty and positive comments on hotel sales platforms and websites. Breakfast is an attribute highly valued and commented by guests on online platforms and meeting their needs and preferences in this meal can be a differential for the hotel. There are several needs and several customer preferences, but to adapt an important meal for guests with products that they prioritize makes the enterprise different because it provides satisfaction and even surprise, increasing the possibility of return and loyalty, a differential from the competition

Theoretical Implications

To our knowledge, this type of study on guests' breakfast preferences had not yet been done. A questionnaire that covers guests of diverse nationalities and assesses food preferences and suggestions from them about the foods available at a hotel breakfast is a continuation of previous studies that have measured the importance of this meal for choosing a hotel and its importance for guest satisfaction and return intention (Leite-Pereira et al., 2019; Leite-Pereira et al., 2020).

Limitations and Future Research

The present study used online questionnaires to be filled out by guests, the use of face-to-face questionnaires in this type of study that includes satisfaction or preferences for food, could be done, since moments after tasting a food is the ideal time to measure this satisfaction. Studies concerning the meals provided by the hotel units or the food made available should be done; meals, such as breakfast, are valued by the guests, and knowing the profile of the customers is essential to obtain satisfaction and advance against the competition.

Author Contributions: Conceptualization, F.L.P, F.B. and R.C; methodology, F.L.P, F.B. and R.C; software, F.L; validation, F.L.P, F.B. and R.C; formal analysis, F.L.P, F.B. and R.C; investigation, F.L.P, F.B. and R.C; data curation, F.L.P, F.B. and R.C ; writing - original draft preparation, F.L.P writing - review and editing, F.L.P, F.B. and R.C visualization, F.B. and R.C..; supervision, F.B. and R.C. project administration, F.L.P. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Agostoni, C., and Turck, D. (2011). Is cow's milk harmful to a child's health? *Journal of pediatric gastroenterology and nutrition, 53*(6), 594-600. http:// doi.org/10.1097/MPG.0b013e318235b23e

Anderson, J.W., Baird, P., Davis, R.H., Ferreri, S., Knudtson, M., Koraym, A., Waters, V., & Williams, C.L. (2009). Health benefits of dietary fiber. *Nutrition reviews, 67*(4), 188-205.

Aras, S. (2023). Research on the motivations and intentions of potential cruise passengers in turkey. *GeoJournal of Tourism and Geosites, 49*(3), 885–892. https://doi.org/10.30892/gtg.49305-1089

Bettman, J.R., Luce, M.F., & Payne, J.W. (2008). Consumer decision making: A choice goals approach. In C. P. Haugtvedt, P. M.

Björk, P., & Kauppinen-Räisänen, H. (2017). A destination's gastronomy as a means for holiday well-being. *British Food Journal, 119*(7), 1578-1591. https://doi.org/10.1108/BFJ-09-2016-0394

Braga, D.C.D.A., Coletro, H.N., & Freitas, M.T.D. (2019). Composição nutricional de dietas da moda publicadas em sites e blogs (Nutritional composition of fad diets published in websites and blogs). *Revista de Nutrição, 32*. http://dx.doi.org/10.1590/1678-9865201932e170190

Colombarolli, M.S., Figueredo, L.S., & Cordás, T.A. (2021). Restrição cognitiva direcionada aos carboidratos em indivíduos praticantes de dieta low carb com compulsão alimentar: o envolvimento da culpa pelos desejos por comida [Cognitive restriction directed to carbohydrates in individuals on a low carb diet with binge eating: the involvement of guilty for food cravings]. *Einstein,* 19. https://doi.org/10.31744/einstein_journal/2021AO5599

Corozolla, W., & Rodrigues, A.G. (2016). Intolerância à Lactose e Alergia à Proteína do Leite de Vaca e o desafio de como diferenciá-las. [Lactose intolerance of cow's milk protein allergy and the challenge of how to differeniate that]. http://www. unifa.edu.br/revista_eletronica/ revistas/saude_foco/artigos/ano2016/021_intolerancia_lactose_alergia.pd

Chen, C.F., & Tsai, D. (2007). How destination image and evaluative factors affect behavioral intentions? *Tourism management, 28(4)*, 1115-1122. http://doi:10.1016/j.tourman.2006.07.007

Esmaillzadeh, A., Kimiagar, M., Mehrabi, Y., Azadbakht, L., Hu, F.B., & Willett, W.C. (2006). Fruit and vegetable intakes, C-reactive protein, and the metabolic syndrome. *The American journal of clinical nutrition, 84*(6), 1489–1497.

FAO Statistics Division (2011). Milk Consumption – Excluding Butter (Total) (kg/capita/yr) [online]. FAOStat, 2011.. http://chartsbin.com/view/1491

Fernández Fernández, E., Martínez Hernández, J.A., Martínez Suárez, V., Moreno Villares, J.M., Collado Yurrita, L.R., Hernández Cabria, M., & Morán Rey, F.J. (2015). Documento de Consenso: importância nutricional y metabólica de la leche [Consensus document of: nutritional and metabolic importance of milk]. *Nutrición Hospitalaria, 31*(1), 92- 101. https://doi:10.3305/nh.2015.31.1.8253

Getz, D., Robinson, R., Andersson, T., & Vujicic, S. (2014). *Foodies and food tourism*. Goodfellow Publishers Ltd.

Gilberto, S.L.M.C., & Tavares, R.L. (2020). Estratégia Low Carb como facilitadora do processo de emagrecimento: uma revisão sistemática [Low carb strategy as a facilitator of the weight loss process: a systematic review]. *Diálogos em Saúde, 1*(1), 146-168.

Ha, J., & Jang, S.S. (2010). Perceived values, satisfaction, and behavioral intentions: The role of familiarity in Korean restaurants. *International Journal of Hospitality Management, 29 (1)*, 2-13. https://doi:10.1016/j.ijhm.2009.03.009

Hjartåker, A., Lagiou, A., Slimani, N., Lund, E., Chirlaque, M.D., Vasilopoulou, Zavitsanos, X., Berrino, F., Sacerdote, C., Ocke, M. C., Peeters P. H. M., Engeset, D., Skeie, G., Aller, A., Amiano, P., Berglund.G., Nilsson, S., McTaggart,A., Spencer, E. A., Overvad, K., Tjønneland, A., Clavel-Chapelon, F., Linseisen, J., Schulz, M., Hemon, B., & Riboli E., (2002). Consumption of dairy products in the European Prospective Investigation into Cancer and Nutrition (EPIC) cohort: data from 35955 24-hour dietary recalls in 10 European countries. *Public health nutrition, 5*(6b), 1259-1271. https://doi10.1079/PHN2002403

Hu, T., Mills, K. T., Yao, L., Demanelis, K., Eloustaz, M., Yancy Jr., Kelly, T. N., & Bazzano, L. A., (2012). Effects of low-carbohydrate versus low-fat diets on metabolic risk factos: a meta-analysis of randomized controlled trials. *American Journal of Epidemiology, 176* (7), s44-s45. https://academic.oup.com/aje/article/176/suppl_7/S44/112289

Illum, S.F., Ivanov, S.H., & Liang, Y. (2010). Using virtual communities in tourism research. *Tourism Management, 31(3),* 335-340.

Kandampully, J., & Suhartanto, D. (2000). Customer loyalty in the hotel industry: the role of customer satisfaction and image. *International Journal of Contemporary Hospitality Management, 12(6),* 346-351.

Kapera, I. (2015). Hotel gastronomy as viewed by customers. *British Food Journal, 117(12),* 2993-3002. https://doi.org/10.1108/BFJ-02-2015-0077

Kim, Y.H., Kim, M., Goh, B.K., & Antun, J.M. (2011). The role of money: the impact on food tourists'satisfaction and intention to revisit food events. *Journal of Culinary Science and Technology, 9*(2), 85-9. https://doi.org/10.1080/15428052.2011.580708

Kurajdova, K., & Táborecka-Petrovicova, J. (2015). Literature review on factors influencing milk purchase behaviour. *International review of management and marketing, 5*(1), 9-25.

Lagiou, P., Sandin, S., Weiderpass, E., Lagiou, A., Mucci, L., Trichopoulos, D., & Adami, H.O. (2007). Low carbohydrate–high protein diet and mortality in a cohort of Swedish women. *Journal of internal medicine, 261*(4), 366-374. https://doi.org/10.1111/j.1365-2796.2007.01774.x

Lee, K.H., Packer, J., & Scott, N. (2015). Travel lifestyle preferences and destination activity choices of Slow Food members and non-members. *Tourism Management, 46,* 1-10. https://doi.org/10.1016/j.tourman.2014.05.008

Leite-Pereira, F., Brandao, F., & Costa, R. (2019). Role of breakfast in hotel selection: systematic review. *International Journal of Culture, Tourism and Hospitality Research, 13*(2), 204-217. https://doi.org/10.1108/IJCTHR-03-2019-0048

Leite-Pereira, F., Brandao, F., & Costa, R. (2020). Is breakfast an important dimension for guests' choice of hotels? An analysis of TripAdvisor online reviews. *Journal of Tourism & Development, 34,* 9-20. https://doi.org/10.34624/rtd.v0i34.22321

Leite-Pereira, F., Brandão, F., & Costa, R. (2022). The role of breakfast in hotel selection, satisfaction and intention to return: a two-fold approach looking at guests and managers'perspectives. *GeoJournal of tourism and geosites, 44*(4), 1472-1481. http://doi 10.30892/gtg.44435-967

Levy, R.B., Castro, I.R.R.D., Cardoso, L.D.O., Tavares, L.F., Sardinha, L.M.V., Gomes, F.D.S., & Costa, A.W.N.D. (2010). Consumo e comportamento alimentar entre adolescentes brasileiros: Pesquisa Nacional de Saúde do Escolar (PeNSE) [Consumption and eating behavior among Brazilians adolescentes: National Scholls Health Survey], 2009. *Ciência & Saúde Coletiva, 15,* 3085-3097.

Macdonald, H.B. (2010). The role of milk in the diet. Improving the safety and quality of milk: Woodhead Publishing Limited. http://dx.doi.org/10.1533/9781845699437.1.3

McCall, M., & Lynn, A. (2008). The effects of restaurant menu item descriptions on perceptions of quality, price, and purchase intention. *Journal of foodservice business research*, *11*(4), 439-445. https://doi.org/10.1080/15378020802519850

McCarthy, L., Stock, D., & Verma, R. (2010). How travelers use online and social media channels to make hotel-choice decisions. *Cornell Hospitality Report, 10*(18), 6-18.

Messerli, H.R., & Oyama, Y. (2004). Health and Wellness Tourism-Global. *Travel & Tourism Analyst*, 1-54.

Mowinckel, K.M. (2016). El turismo experiencial y creativo: el caso de Cantabria. [Experimental and creative tourism: the case of Cantabria]. *International journal of scientific management and tourism*, *2*(3), 195-203.

Moreno, L.A., Rodríguez, G., Fleta, J., Bueno-Lozano, M., Lázaro, A., & Bueno, G. (2010). Trends of Dietary Habits in Adolescents. *Critical Reviews in Food Science and Nutrition, 50*(2), 106- 112. https://doi.org/10.1080/10408390903467480

Mueller, H., & Kaufmann, E.L. (2001). Wellness tourism: Market analysis of a special health tourism segment and implications for the hotel industry. *Journal of vacation marketing, 7*(1), 5-17. https://doi.org/10.1177/13567667010070010

Nemoto, T., & Beglar, D. (2014). Likert-scale questionnaires. In JALT 2013 Conference Proceedings, 1-8.

Oliveira, A.I.N., da Silva, F.K.T., & da Silva, M.E. (2018). A dieta da moda low carb: uma revisão [The low carb fad diet: a review]. *Anais do VII universo ateneu:* 336.

Ornellas, L.H. (2001). Técnica dietética: seleção e preparação de alimentos [Diet technic: selection and food prepatatio]. Ed Atheneu.

Otto, J.E., & Ritchie, J.R.B. (1996). The service experience in tourism. *Tourism Management, 17*(3), 165-174.

Paslakis, G., Richardson, C., Nöhre, M., Brähler, E., Holzapfel, C., Hilbert, A., & de Zwaan, M. (2020). Prevalence and psychopathology of vegetarians and vegans–Results from a representative survey in Germany. *Scientific reports, 10*(1), 1-10. https://doi.org/10. 1038/s41598-020-63910-y

Pérez Gálvez, J.C., Fuentes Jiménez, P.A., Rodríguez Gutiérrez, P., & Medina Viruel, M.J. (2023). Emotional perception and cultural motivation on loyalty to a world heritage sites destination. *GeoJournal of Tourism and Geosites, 49*(3), 1165–1175. https://doi.org/10.1016/j.jort.2019.100226

Prim, A., Voltolini, C., Moretti, C.J., Chiarelli, G., Liberali, R., & Coutinho, V.F. (2010). Consumo de alimentos (proteína animal) de homens e mulheres no Vale do Itajaí, SC [Food consumption (animal protein) of men and women in Vale do Itajaí, SC]. *Ensaios e Ciência: Ciências Biológicas, Agrárias e da Saúde, 14*(2), 33-42.

Quan, S., & Wang, N. (2004). Towards a structural model of the tourist experience: An illustration from food experience in tourism. *Tourism Management, 25*(3), 297-305. https://doi:10.1016/S0261-5177(03)00130-4

Silveira, E.A., Martins, B.B., Abreu, L.R.S.D., & Cardoso, C.K.D.S. (2015). Baixo consumo de frutas, verduras e legumes: fatores associados em idosos em capital no Centro-Oeste do Brasil [Low Consumption of fruits and vegetables: associated factor in the elderly in a capital in the Center-West of Brazil]. *Ciência & Saúde Coletiva, 20*, 3689-3699. https://doi.org/10.1590/1413-812320152012.07352015

Singh, H.P., & Alhamad, I.A. (2022). A Novel Categorization of Key Predictive Factors Impacting Hotels'Online Ratings: A Case of Makkah. *Sustainability, 14*(24), 16588. https://doi.org/10.3390/su142416588

Suleiman, A.A., Alboqai, O.K., Kofahi, S., Aughsteen, A.A., & El-Masri, K. (2009). Vegetarianism among Jordan University students. *Journal of Biological Sciences, 9*(3), 237-242. https://doi.10.3923/jbs.2009.237.242

Timko, C.A., Hormes, J.M., & Chubski, J. (2012). Will the real vegetarian please stand up? An investigation of dietary restraint and eating disorder symptoms in vegetarians versus non-vegetarians. *Appetite, 5* (3), 982-990. https:// doi:10.1016/j.appet.2012.02.005

Tsugane, S. (2004). Dietary factor and cancer risk – evidence from epidemiological studies, Gan to Kagaku Ryoho. *Cancer & chemotherapy, 31*(6), 847-852.

Turck, D. (2013). Cow's milk and goat's milk. *Evidence-Based Research in Pediatric Nutrition*, *108*, 56-62. https://doi.org/10.1159/000351485

Zopf, Y., Reljic, D., & Dieterich, W. (2018). Dietary effects on microbiota—New trends with gluten-free or Paleo diet. *Medical Sciences, 6*(4), 92. https://doi:10.3390/medsci6040092

Article history: Received: 19.08.2023 Revised: 18.10.2023 Accepted: 15.11.2023 Available online: 19.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1555-1562
DOI 10.30892/gtg.50434-1152

HARARE AS A DESTINATION FOR INFORMAL BUSINESS TOURISM: PERSPECTIVES OF THE CROSS-BORDER TRADERS

Logistic MAKONI*
School of Tourism & Hospitality, College of Business and Economics, University of Johannesburg, Johannesburg, South Africa, e--mail, logisticm@uj.ac.za

Christian M. ROGERSON
School of Tourism & Hospitality, College of Business and Economics, University of Johannesburg, Johannesburg, South Africa, e-mail, chrismr@uj.ac.za

Tembi M. TICHAAWA
School of Tourism & Hospitality, College of Business and Economics, University of Johannesburg, Johannesburg, South Africa, e-mail, tembit@uj.ac.za

Citation: Makoni, L., Rogerson, C.M. & Tichaawa, T.M. (2023). HARARE AS A DESTINATION FOR INFORMAL BUSINESS TOURISM: PERSPECTIVES OF THE CROSS-BORDER TRADERS. *GeoJournal of Tourism and Geosites*, 50(4), 1555–1562. https://doi.org/10.30892/gtg.50434-1152

Abstract: Business tourism scholarship in the Global South is an undeveloped theme in international research. The phenomenon of business tourism in sub-Saharan Africa is urban-centred. This paper unpacks a critical dimension of business tourism in the African city, namely the activities of informal business tourists. Specifically, the focus is on Harare, Zimbabwe's capital city, as a destination for international informal business travellers. Using qualitative interviews with cross-border traders, new insight is provided on the reasons why Harare is a preferred destination for cross-border traders. It is demonstrated that Harare is assuming a growing role in the network of cities in Southern Africa (and beyond) which are connected through the mobilities and activities of informal cross-border traders.Two distinct sub-groups are differentiated within Harare's economy of international informal business tourism These are cross-border traders from other countries in sub-Saharan Africa who travel to Harare and Zimbabwean cross-border traders who visit Harare either to buy goods for resale in other countries in the region of Southern Africa or to sell in Harare goods that are purchased in neighbouring countries, mainly from South Africa.

Key words: informal business tourism, cross-border trading, urban tourism, Southern Africa, Harare

* * * * * *

INTRODUCTION

Business tourism is a critical facet of tourism development and in Africa focused mainly on large urban destinations. It is argued by Davidson (2019) that after many years of under-representation and neglect in tourism scholarship, there is an observed upturn in the volume of international literature devoted to business tourism. Unsurprisingly, the majority of academic writings on business tourism relate to urban tourism destinations in the Global North. In the Global South in recent years there is also an emerging scholarship on aspects of business tourism (Makoni and Rogerson, 2023). This literature includes works on issues relating to various aspects of formal business tourism as well as informal business tourism which is acknowledged as a distinctive aspect of business tourism in the urban Global South (Rogerson and Letsie, 2013; Rogerson, 2015, 2018; Rogerson and Rogerson, 2021). Building upon the mobilities approach to tourism from so-termed 'emerging world regions' the concept of informal business tourism is another contribution to move beyond Eurocentric viewpoints in tourism studies (Cohen and Cohen, 2015a, 2015b). In urban sub-Saharan Africa the need to transcend Eurocentric perspectives on tourism is highlighted by the dominance of 'informality'.

A decade ago Steck et al. (2013:145) could observe that informality had become "emblematic of the African city". Likewise Crush et al. (2015:10) pinpointed that the informal economy could be styled as "the main game in town" across urban Africa. Arguably, the contemporary African city is characterized by high and ever-expanding levels of informality. For example, Grant (2015) highlights that across much of contemporary Africa informality is the permanent condition for the majority of its urbanites and more broadly a defining feature of the landscape, politics and economy of urban Africa. In the economy of business tourism informality is manifested in the activities of cross-border traders.

In business tourism scholarship among recent issues coming under scrutiny are the differentiated nature of cities as business tourism destinations (Davidson, 2020). The objective of this paper is to investigate Zimbabwe's capital city – Harare - as a business tourism city and more specifically to analyse the city as a destination for international informal business travellers. The study therefore addresses a knowledge gap in business tourism literature about the Global South in general and the African business city in particular by investigating the reasons why cross-border traders decide to conduct their business operations in Harare. Overall, research conducted on informal business tourism in African cities contribute fresh insight to the

* Corresponding author

little recognised ‘other half of urban tourism’, namely that of urban destinations in the Global South (Rogerson and Rogerson, 2021). The following sections give a discussion of literature context and research methods before turning to a profile of Harare’s informal business tourists and their reasons for choosing Zimbabwe’s capital city as a business destination.

LITERATURE REVIEW

The phenomenon of informal business tourism encompasses a segment of domestic informal business tourism as well as international informal business tourism - cross-border trading - which is observed as a widespread and critically important activity in much of sub-Saharan Africa (Rogerson, 2015; Dobler, 2016; Nshimbi and Moyo, 2017; Bouet et al., 2018; Ubba Kodero, 2020; Kahira and Kadirov, 2020; World Bank, 2020; Nakayama, 2022; Dzawanda and Matsa, 2023). Dzawanda et al. (2023: 522) define it as “an activity that entails the buying and selling of goods across national boundaries, usually conducted on a small-scale with traders that operate as unregistered sole traders”.

A similar definition is provided by Kahiya and Kadirov (2020: 89) that it is “market-based exchanges of legally produced/acquired goods across national borders which occurs outside the remit of formal commercial activity”. It is pointed out that the communities of informal cross-border traders “are called ‘informal’ because, generally, they travel with their goods, operate on a relatively small-scale, do not access preferential tariff agreements” and “often buy and/or sell in informal-sector markets (International Organization for Migration 2010: 7).

In tourism writings Timothy and Teye (2005) first drew attention to the mobilities of such traders and vendors in research on borderland spaces in West Africa. Their work sought to investigate these cross-border traders as a “form of business traveller that is unique to the developing world” (Timothy and Teye, 2005: 83) and thereby to extend from a developing world perspective “the traditional views of business travel in tourism”. Brenton and Soprano (2018: 4) view the phenomenon of informal cross-border trading as “a pervasive phenomenon in Africa” and “a major feature of African economic and social landscapes”. Further, Kahiya and Kadirov (2020: 88) suggest that informal cross border trading “is part of the fabric of sub-Saharan Africa which encompasses state fragility, poverty, rural to urban migration, food security, economic reform, inequality, economic empowerment, and formal and informal markets”. Arguably, the activities of these cross-border traders are the international manifestation of informal sector business tourism mobilities in sub-Saharan Africa (Masango and Haraldsson, 2010; Rogerson, 2015; Dobler, 2016; Tichaawa, 2021).

According to widely cited estimates by Afrika and Ajumbo (2012) informal trade is a vital source of income for at least 43 percent of the population of sub-Saharan Africa, a critical contributor to food security and to women’s economic empowerment as females dominate the business. Nakayama (2022: 66) points out that in sub-Saharan Africa informal cross-border trading became a highly visible phenomenon “between the late 1970s and the early 1980s when the Structural Adjustment Programme (SAP) was introduced by the World Bank and the International Monetary Fund”. According to Nakayama (2022: 66) the SAP “resulted in an economic decline with the shrinking of formal sectors, specifically damaging women-headed households”. Among others Núñez (2009: 10) points out that in “Southern Africa the economic necessity to undertake this form of entrepreneurship is compounded by a lack of formal sector employment; many people get involved in informal cross-border trading activities as a response to unemployment”.

Brenton and Soprano (2018: 4) confirm that “the vast majority of Africa’s small-scale traders are female”. Salia et al. (2020: 1) point to the fact that the participation of women in informal cross-border trading “in the context of high mobility and circular migration has become an increasing phenomenon in sub-Saharan Africa, especially the Western, Eastern, and Southern Africa (SADC) sub-regions. Manjokoto and Ranga (2017: 27) consider that cross-border trading in Africa “provides specific opportunities for the empowerment of women” and that with “access to some capital, this creates an opportunity to alleviate poverty”. The United Nations Entity for Gender Equality and the Empowerment of Women (UN Women) projects that informal cross-border traders account for 30-40% of intra-regional trade within the Southern African Development Community and that women comprise at least 70 % of the informal cross border traders (Kudejira, 2020). Dzawanda et al. (2022: 1) aver that informal cross-border trade is “a significant part” of trade in sub-Saharan Africa and contributes towards the achievement of the Sustainable Development Goals in particular by providing employment opportunities for poor and vulnerable groups and thus helps in poverty reduction through providing a significant contribution of income into households. The extensive research studies prepared by the Southern African Migration Project demonstrate that informal cross-border trading plays a critical role in poverty alleviation, food security and household livelihoods in Southern Africa (Crush et al., 2015; Peberdy et al., 2015; Chikanda and Raimundo, 2017; Chikanda and Tawodzera, 2017; Tawodzera and Chikanda, 2017).

Typically, across parts of Africa the business of informal cross-border trading represents ‘proximity trade’ that involves the short-distance movement of goods between markets close to a border (Timothy and Teye, 2005). In many countries of Southern Africa, however, cross-border traders go beyond the spaces of borderlands and travel longer distances to farther cities or towns in order either to sell their goods or purchase items that they might sell on their own side of the border or even in adjacent countries. Among others, Peberdy et al. (2015: 1) stress that in Southern Africa informal cross-border trade is “a significant feature of regional trade and international mobility”. In extant literature the most well-documented urban destinations for cross-border trading are the cities of Johannesburg and Maputo. Johannesburg is the pivot for a constellation of networks of informal cross-border traders that have expanded since South Africa’s reinsertion into global networks following democratic transition in 1994 (Rogerson, 2018; Zack and Landau, 2022). The city of Maputo has become a critical hub for mukerho traders who travel between Mozambique and South Africa to bring goods to supply the capital city’s retail markets (Piscitelli, 2015). As will be shown in our research the city of Harare is emerging as another significant destination for informal business travellers in the region of Southern Africa.

MATERIALS AND METHODS

The research findings are extracted from a larger investigation of Harare as an African business tourism city and here are from a semi-structured survey conducted between 2020 and 2022 of 300 cross-border traders (CBTs) visiting Harare for the purpose of either buying or selling goods in the city. In addition, interviews were conducted variously at the major bus terminals servicing the international travellers. A convenience sampling approach was used to target respondents. Furthermore, during the initial data collection period, it became evident that a snowballing technique could be employed which was then adopted to add to the final data that was collected. The choice of the sample was informed by the inability to draw a representative survey population of informal cross-border traders and their businesses in the city. Key issues examined were the socio-demographic profiles of the respondents with a view to determine who they are as well as their choice of Harare as a city to conduct informal business. The key findings are examined and discussed below.

RESULTS AND DISCUSSION

Who are informal business tourists in Harare?

The research disclosed two distinct sub-groups within Harare's economy of international informal business tourism. First, are those Zimbabwean cross-border traders who travel to Harare either to buy goods for resale in other countries in the region of Southern Africa or to sell in Harare goods that are purchased in neighbouring countries, mainly from South Africa. The strong historical linkages that exist between Zimbabwean cross-border traders and South Africa are documented in studies by Bamu (2017), Tawodzera and Chikanda (2017) and by Dzawanda and Matsa (2021). Second, are a cohort of cross-border traders from other countries who travel to Harare as part of the activity of international informal business tourism. The study captured participants from 14 different countries in sub-Saharan Africa, including travelling as far as from Ghana, Nigeria or Gabon. The largest share (two-thirds) of the non-Zimbabwean cross-border traders were, however, drawn from surrounding countries, most importantly South Africa, Botswana, Namibia, Mozambique, and Zambia.

Arguably, the business activities of these non-Zimbabwean cross-border traders have not been well-documented in extant literature on cross-border trading in the region of Southern Africa. The finding from Harare that nearly 20 percent of the non-Zimbabwean cross-border traders were from South Africa is particularly noteworthy. The research studies conducted a decade earlier by the Southern African Migration Project stressed that "although South Africa is a major source of goods purchased by traders, the absence of South African informal traders was very noticeable" (Peberdy et al., 2015: 2). This suggests that the high levels of recorded unemployment over the past decade in South Africa are a catalyst to the emergence of a community of South African cross-border traders who are choosing to trade in Harare among other cities in Southern Africa.

Key characteristics of these two segments of Harare's informal business economy are given on Table 1. In a confirmation of the results of previous studies cross-border traders are a highly gendered group, comprised mainly of women. It is apparent women were the most important group in the cross-border traders, representing 78 % Zimbabwean traders and 69 % of non-Zimbabweans (Table 1). The cohort of women traders would be classed as relatively young with over 90 percent below the age of 40 years. Certain age differences were revealed across the two groups with the Zimbabwean group having 26 percent aged less than 30 as compared to 5 percent for the non-Zimbabweans. Education levels among the two groups were similar with both groups generally well-educated.

Table 1. Profile of Cross-border traders in Harare (Source: Authors Survey)

Gender	**Zimbabwean CBT (n=102, in %)**	**Non-Zimbabwean CBT (n=198, in %)**
Female	78	69
Male	22	28
I prefer not to say	0	3
Age	**Zimbabwean CBT (n=102, in %)**	**Non-Zimbabwean CBT (n=198, in %)**
20-29 years old	26	5
30-39 years old	70	89
40-49 years old	4	6
Level of education	**Zimbabwean CBT (n=102, in %)**	**Non-Zimbabwean CBT (n=198, in %)**
No formal education	2	7
Some primary school education	1	3
Primary school completed	0	2
Some secondary school education	0	5
Secondary school completed	12	24
Some form of tertiary education	26	9
Diploma or Certificate	30	30
Undergraduate degree completed	23	20
Postgraduate degree complete	6	2
Number of years in business	**Zimbabwean CBT (n=102, in %)**	**Non-Zimbabwean CBT (n=198, in %)**
1-3 years	2	16
4-6 years	26	71
7-10 years	52	10
Over 10 years	20	4

The responses for years in business point to the fact that as a whole the Zimbabwean group are more well-established – 72 percent operating for more than 7 years – as compared to the non-Zimbabwean traders. With regards to frequency of travel to Harare the results disclosed not surprisingly that the Zimbabweans were more regular business tourists in Harare (often three visits a month) than their foreign counterparts. The majority of the non-Zimbabwean participants indicated that they do not travel frequently to Harare and that their travel to the city is largely contingent on availability of funds (80%), and usually occurs once in a month (76%). In terms of products, food was found to be the most significant product brought into Harare by the Zimbabwean traders.

Also, cosmetics and accessories are the other important products brought by Zimbabwean traders, while the non-Zimbabwean traders were found to be bringing in mostly accessories. Taken together, cosmetics are the most common goods brought into Harare by Zimbabwean and non-Zimbabwean traders combined (66%).

Choosing Harare as a business tourism destination

It is argued that cross-border trading between Zimbabwe and South Africa started on a small-scale in the 1980s and that the increased status of the informal economy in urban Zimbabwe "can be ascribed to direct consequences of the colonial legacy, the post-independence socialist bias in economic policy, and the secular recession that began in the mid-1980s" (Dzawanda et al., 2023: 522).Over the past three decades the economy of Zimbabwe has witnessed economic collapse, hyperinflation, escalating unemployment, and the progressive hollowing out of the formal economy since the adoption and implementation of the Economic Structural Adjustment Programme (ESAP) between 1990 and 1995 (Chirisa, 2009). According to Kudejira (2020: 4) informal cross-border trading "emerged as an important alternative livelihood strategy" in the aftermath of ESAP of the mid-1990s and the post-2000 collapse which pushed Zimbabwe into a highly informalised economy". Beyond ESAP some observers attribute the spiralling decline of the economy to "a series of counter-productive political decisions taken from late 1997" (Dzawanda et al., 2023: 522). These include actions relating land appropriation, large payments to war veterans that undermined fiscal discipline and the decision to send Zimbabwean troops into the DR Congo. By 2004 the national rate of inflation was running in excess of 600 percent. As Tawodzera (2023: 86) points out in the post-2000 period the national economy "further contracted due to the implementation of the fast-track land reform program".

The implosion of the formal economy triggered a further surge in the informal economy, including of participation in informal cross-border trade. Rogerson (2016: 238) asserts that "the harsh economic downturn was particularly felt in the country's cities". Potts (2006: 288) stresses that for the majority of urban households that depend on the informal economy, including cross-border trading, "was not optional but utterly essential". As the country's major urban centre and capital, Harare has been the epicentre and borne the brunt of the shrinkage of Zimbabwe's economy (Chadambuka, 2021). Given this situation it might be expected that Harare would not be a promising destination for the activities of cross-border traders. The study participants were asked to indicate their reasons for choosing Harare as their destination for cross-border trading. Certain differences in the responses and perspectives were evidenced from the Zimbabwean groups of cross-border traders as compared to the cohort of non-Zimbabweans. For Zimbabweans the emphasis in the interviews was upon Harare as the largest city in the country and critically of issues around economic downturn and the chronic shortages of basic goods that could be supplied by participating in the international circuits of cross-border trading. The infrastructure of flea markets established within Harare was also strongly profiled as a basis for the selection of Harare over other destinations in Zimbabwe. These markets are a connection with the local circuits of informal business tourists who come into Harare from the country's secondary centres, small towns and rural areas.

Our country has been living in poverty for over 20 years. Our poverty is not just about us not having money and poor living conditions, but also it stretches to lack of basic things we need to survive like toilet paper and cooking oil. Can you imagine! And many people want to come to Harare to buy these things that is why I am in Harare (Zimbabwean [Masvingo] female CBT 42yrs).

There are very good flea markets in Harare and many Zimbabweans who are trading get stands in those markets, but they have nothing to trade if we don't supply them with things to sell. There is nothing in Zimbabwe besides just the fruits and the vegetables, so these guys need us to supply them with clothes and electrical things (Zimbabwean [Karoyi] male CBT 28yrs).

For non-Zimbabwean CBTs, there exist a wide range of destinations in Southern Africa where they might conduct their business. In selecting Harare several key issues were highlighted by the non-Zimbabwean CBTs. Importantly, it was suggested that whilst South Africa (Johannesburg in particular) has long been the favoured destination and the pivot of international informal business tourism in Southern Africa the city was beginning to lose its dominant competitive position in the regional network of cross-border traders. Asked to explain their choice of Harare several respondents indicated comparisons with South Africa.

If I were to answer this question about 12 years ago, I would say that there is not a better country to visit for my business than South Africa. It's true that South Africa is still by far the best place to go to, but honestly they don't want African foreigners anymore but they are not direct about it. There are so many bad things happening to people travelling to South Africa, and it's worse for my kind of business because I can lose my goods anytime. That's why I now chose to come to Zimbabwe, there is no pressure here especially in their flea markets (Mozambican [Pemba] male CBT 28yrs).

Crossing into South Africa you must always be on the lookout for anything from the border. You are asked for passports everywhere by the police, and many South Africans you meet are not friendly. You are made to feel like an intruder. And also the crime there, you can be robbed of your money or your stuff you go to sell. Even the police can search you of your money at Park Station in Johannesburg. In 2015 the police took 300 dollars in my purse when they were searching me when I arrived at Park Station. I was not able to buy the stuff I had travelled to buy there. The truth is that there are so many bad things that happen to people going to buy stuff in South Africa. Even if you ask them they will tell you that they are just taking big risks because South Africa has everything, but everyday you live in fear when you are doing this *business in South Africa. That's why I come to Harare, at least here I know everyone can buy my products and I am not scared of being robbed or harassed by anyone* (Zambian [Ndola] female CBT 36yrs).

The immigration laws of South Africa are not friendly like in Zimbabwe. In South Africa they can stamp your passport with only a 7 day or 2 weeks, so your time is very limited to do business. If you want to stay longer you must buy 90 days at the border. So to me it's just unnecessary. Zimbabwe does not have those things, so I can come in Harare and there are a lot of South African things in Harare. I don't know how Zimbabweans do it; they have everything you need in Harare but the country is poor (Nigerian [Lagos] female CBT 36yrs).

Harare is the best for me, even during the political situations in 2008 it was still better to come to Zimbabwe than to go to South Africa. There are people who bring stuff from South Africa to Harare. I prefer getting it in Harare than going South myself. South Africa is just overrated. All the Africans in South Africa are made to feel like criminals, even those who have papers are still not treated well. South Africa is the only country in Africa where an African is made to feel like a foreigner. I travel to many countries and wherever I go I am welcomed and treated like a visitor. The laws in many African countries protect foreign nationals, but in South Africa the word foreigner is just the same as a criminal and I honestly don't feel safe anymore to go there with my business (Congolese [Kinshasa] female CBT 43yrs).

As a whole it is evident that for this group of non-Zimbabwean CBTs issues of widespread xenophobia in South Africa, visa and border challenges (including corruption and harassment), inherent safety and crime issues combine to make Harare and Zimbabwe a preferred destination for these informal business tourists as compared to the potential attractions of Johannesburg or South Africa more generally. Beyond the direct comparisons made between Zimbabwe and the negatives of South Africa several other reasons were forwarded for cross-border traders to opt for Harare as a business tourism destination. One overarching theme related to the collapse of the country's formal economy, the accompanying shortages of goods in formal retail outlets and of the opportunities thereby offered to these cross-border traders by the size of the market in Harare albeit a city where the majority of the population live in circumstances of poverty and necessarily seek out the cheapest prices for basic commodities. These are issues which parallel those discussed by the Zimbabwean CBTs.

There is no competition with the formal industry in Zimbabwe. This is making it easy for me to push my business in the capital of this country (Ghanaian female CBT 26yrs).

Because Harare is the capital city and it has big market places with a great opportunity to trade my goods, Zimbabwean people have need for the cleaning equipment I sell because it is scarce in the country's formal shops shelves (Mostwana [Gaborone] female CBT 37yrs).

Zimbabwe is a poor country with a very small formal industry. The products I bring to this country are needed every day so it's better for me to travel here (Mozambican [Pemba] male CBT 28yrs).

A similar response was given by a Zambian participant whose family background was Zimbabwe.

My parents are from Zimbabwe. They left in the 1980s during the Gukurahundi[1] *killings and settled in Zambia, when I began this business, It was because I saw many Zimbabweans crossing into Zambia to buy toilet papers and baby diapers and other things that are surprisingly not found in Zimbabwe. The poverty in the country keeps getting worse and cross-borders like us are helping the country and its people to survive the poverty. Harare is a central business city for my goods because I have many Zimbabweans coming to the city to get these products* (Zambian [Lusaka] female CBT 36yrs).

Other CBTs stressed that their choice of Harare was tilted by factors around the availability of the markets in the city and opportunities not only to sell goods brought into Harare but also to purchase at local flea markets certain products for sale in the home country. In this regard Harare is becoming attractive as a geographical locus within the broader circulation of products and wider circuits or networks of cross-border trading as observed in Southern Africa. Further, in addition to the international networks of trading and shopping there is the linkage within Harare to domestic circuits of informal business tourists in terms of the activities of domestic shopper/traders.

I cross the border into Zimbabwe at Machipanda [Zimbabwe-Mozambican border in the Manicaland Province] with my clothes which I sell in bulk in Harare flea markets. In Mozambique many people survive on fishing, and fishing rods are on high demand. I use my money to buy the advanced fishing rods that they bring from South Africa (Mozambican [Chimoio] male CBT 26yrs).

I chose Harare because it is a big city and also has a large number of people and has the majority of my target market (Mozambican [Pemba] male CBT 28yrs).

Because most of the people come to this city in large numbers and it is good for business (Kenyan [Kikuyu] female CBT 38yrs).

I make traditional herbs and come to sell them here in Harare because Zimbabwean people are struggling in the health system. The medicine in their clinics and hospitals is not enough. My medicine is in demand here and it sells fast. I use my profit to buy empty paint buckets that are coming from South Africa. We have water problems in Malawi and these buckets are in demand for storing water (Malawian [Lilongwe] female traditional healer 48yrs).

One Tanzanian trader pointed to market opportunities for CBTs to service also the small community of higher-income Harare residents with specialized products.

I bring dried bush meat [venison] to Harare. It is not in demand in the city centre because Zimbabweans want important things like food. But people in rich suburbs need it and I also bring them art. Even important politicians in Harare call me to bring it to their homes. The hotels in Harare also call me for supply. When they pay me I go to the Harare

[1] This was a period of ethnic violence between 1982 and 1987 in Zimbabwe, carried out by the Zimbabwean government under Robert Mugabe, directed against the Ndebele people

markets to buy the sports jerseys and sneakers from Mozambicans and South African business people [referring to the CBTs] because the people in Tanzania love them, especially basketball jerseys (Tanzanian [Dodoma] male hunter/CBT 41yrs).

For a large segment of the non-Zimbabwean CBTs the scarcity of local goods in Harare was the key factor driving their decision to do business in Harare. The participants indicated that they were travelling to sell different goods in Harare that were mostly in short supply or absent commodities in the city. Such participants considered themselves crucial for supplying these goods to Harare residents.

In Zimbabwe there was a time where you cannot find even a toilet paper in the big shops (referring to formal shops) shelves. And everyday people need those important items, we have to be there to make sure there is a good supply of those things (Motswana [Gaborone] female CBT 37yrs).

Clothes, shoes, baby clothes, socks, school shoes, uniforms. I am not sure if there is anything in the shops in Zimbabwe. I sell these ones to people who sell things in Harare, they always call me after a week to bring more stuff. They are always telling me that there is nothing in Zimbabwe and they need me (Mozambican [Maputo] female CBT 28).

Clothes because I have clothes of many sizes. They say clothes are expensive in Zimbabwe, and when they find them cheap is in China shops but the shops are always having few sizes. To me it's important to come here with these clothes because I am always having demand (Mozambican [Maputo] male CBT 32).

Empty buckets, green bar soaps, candles and candle wax, paraffin, turpentine because there is a growing business now in Harare. There are people who are making detergents and some cleaning material like floor polish. There is a shortage of detergents in Zimbabwe and people are doing it themselves. So I saw a business from them and they are always happy to see me come especially with the buckets, because they make the detergents and display them in Harare flea markets in the buckets and containers I sell to them. They also tell me that they can even sell the candles I bring to areas where there is no electricity. I also bring red candles, many of them because I was told that the healers and the prophets always ask the people they help to bring a red candle (Namibian [Omaruru] female CBT 36yrs).

The group of South African cross-border traders in Harare provided similar responses to those of traders from other African countries concerning the market opportunities for their informal businesses.

Harare is good because other Zimbabweans selling their things are coming here so it makes it easier for me to get Zimbabwean products like their tobacco and chibuku [traditional alcohol beverage] which I buy and go to sell in my country (South African [Johannesburg] male CBT 28yrs).

The big shops like TM and Spar are just a name now in Zimbabwe. If things are not very expensive in those shops, they are not there. If you ask anyone in the street now, they tell you that they prefer to buy Maq (referring to a washing powder), cooking oil and green bar soaps from us because it is very expensive in TM. Last year there was a trending joke about cooking oil- People were saying that a man can pay lobola with cooking oil, and videos were trending on social media where a man would be woken up by his wife in the morning just to pour cooking oil measurements into the cooking pot. Because of the shortage. It is so funny and pitiful that a whole country fails to afford cooking oil in its shops (South African [Johannesburg] male CBT 26yrs).

Because of the poverty in this country, people cannot afford goods in the supermarket and big shops, I love coming here because the demand is high from many Zimbabweans. (South African [Cape Town] male CBT 29yrs).

Rice, sugar, powder milk, floor, cooking oil, honey, eggs and many food stuff. Food is a big problems in Zimbabwe, the people in Harare are always complaining of how expensive food is, especially meat. I wish I can be able to cross-border with fresh meat, I will make a lot of money. You can never go wrong if you bring foodstuff to Zimbabwe, there is always a market for it (South African [Musina] female CBT 33yrs).

I sell cell phones, phone covers, cell phone batteries and battery charges, and all the small things. Because in Zimbabwe these things I sell are very expensive in shops or they will find fong kong ones in China shops there. I sell original things and people like that because I still sell them cheap (South African [Johannesburg] male CBT 31yrs).

Overall, the different groups of non-Zimbabwean cross-border traders emphasized the business relationships and linkages they establish with local Zimbabwean traders operating in the city markets of Harare. In addition, they pinpointed also the various types of local Zimbabwean products that they purchase for resale in their home destinations. For South African traders an important set of products were specialized Zimbabwean food items for supply to the market provided by the large community of Zimbabweans who are residents of South Africa's major cities.

Us we cross-borders and come here, and we are already connected to the Zimbabwe people who buy and sell the things we bring. We find them waiting for us at bus stations or sometimes we even go to them at the markets (South African [Johannesburg] female CBT 29yrs).

Our business is like a give and take situation. We are bringing important things to Zimbabweans, and when we leave, we also have important things, like the traditional herbs that Zimbabweans make are very strong and effective, and also their art can sell well in South Africa. So in my business, the Zimbabwean traders need my products and I want their herbs and art, it's like that (South African [Johannesburg] female CBT 38yrs).

When we travel here with stuff, like now I am coming in with a lot of stuff I am coming with orders for these people who are selling in Harare. They ask me for orders and I ask them also for orders. If they don't have, they ask their friends to get me the stuff I want. So sometimes I have to wait for someone coming from Kariba with matemba [kapenta fish] then I end up staying for more days until they get with my order to Harare. For my business I always bring things like solar, torches and batteries because they say to me that these are wanted in Zimbabwe. Sometimes I even come with cooking oil. And, in South Africa there are many Zimbabweans there who want Zimbabwean food like matemba and madora, *mazoe and cerevita, and even masese [Zimbabwean locally brewed traditional beer]. So I have to wait for a few days in Harare for my people there to bring them* (South African [Johannesburg] male CBT 42yrs).

Our kind of business has provided options for people in Zimbabwe to make a choice to either go to buy what they want from the formalized trading companies or from us in the streets. So there is a balance now, and the poor can be able to make a choice, and in many cases we are the ones they choose because our prices are competitive and we can be able to get to where they are or even deliver stuff at their homes, so they save money to travel (South African [Brits] female CBT 35yrs).

CONCLUSION

Scholarship on business tourism in African cities constitutes only a small focus within the literature of urban tourism (Makoni and Rogerson, 2023). This study provides new insight on one dimension of Harare as a business city. It has centred on the city's important role as an international destination for informal business tourism. Arguably, Harare is assuming a growing role in the network of cities in Southern Africa (and beyond) which are connected through the activities of cross-border traders. Although there has emerged an extensive literature around cross-border traders in Africa much of this work centres on issues around the drivers and policy challenges of the traders.

Qualitative responses provide a valuable perspective on the reasons for cross-border traders to select Harare as a destination for their business. The results point to the fact that Harare is increasingly a preferred destination for many cross-border traders as compared to South Africa's major cities and in particular Johannesburg. Further research is merited to unpack the changing character of informal business tourism mobilities in urban Africa.

Author Contributions: Conceptualization, L.M., C.R and T.T.; methodology, L.M., C.R. and T.T.; validation, L.M., C.R and T.T. formal analysis, L.M., C.R and T.T. R.L; investigation, L.M.; data curation, L.M.; writing - original draft preparation, L.M., C.R and T.T.; writing - review and editing, L.M., C.R and T.T.; supervision, L.M.; All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Data Availability Statement: Not Applicable.

Acknowledgements: This paper is a component of a doctoral thesis completed at the University of Johannesburg, South Africa. The financial support of the University of Johannesburg is acknowledged. Thanks to inputs made to the paper by Skye Norfolk, Lulu White and Robbie Norfolk.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Afrika, J.G.K., & Ajumbo, G. (2012). *Informal cross border trade in Africa: Implications and policy recommendations.* African Development Bank, Tunis.

Bamu, P.H. (2017). An analysis of the role and regulation of Zimbabwean cross-border traders. In C. Nshimbi & I. Moyo (Eds.), *Migration, Cross-Border Trade and development in Africa,* 125-158. Palgrave-Macmillan, Cham. https://doi.org/10.1007/978-3-319-55399-3

Bouet, A., Pace, K., & Glauber, J. (2018). *Informal Cross-Border Trade in Africa: How much ? Why? And What Impact* . International Food Policy Research Institute, Discussion Paper 01783, Washington DC.

Brenton, P., & Soprano, C. (2018). Small-scale cross-border trade in Africa: Why it matters and how it should be supported. *Bridges Africa* 7 (4), 3-6.

Chadambuka, R.A. (2021). *Exploring informal cross-border trading and poverty reduction in Harare*. Master of Management dissertation, University of the Witwatersrand, Johannesburg.

Chikanda, A., & Raimundo, I. (2017). Informal entrepreneurship and cross-border trade between Mozambique and South Africa. *African Human Mobility Review, 3* (2), 943-974. http://dx.doi.org/10.14426/ahmr.v3i2.833

Chikanda, A., & Tawodzera, G. (2017). *Informal entrepreneurship and cross-border trade between Zimbabwe and South Africa,* Southern African Migration Programme Migration Policy Series No. 74, Cape Town.

Chirisa, I. (2009). The geography of informal sector operations (ISOs): A perspective of urban Zimbabwe. *Journal of Geography and Regional Planning, 2* (4), 66-79.

Cohen, E., & Cohen, S.A. (2015a). A mobilities approach to tourism from emerging world regions. *Current Issues in Tourism, 18* (1), 11-43. http://dx.doi.org/10.1080/13683500.2014.898617

Cohen, E., & Cohen, S.A. (2015b). Beyond Eurocentrism in tourism: A paradigm shift in mobilities. *Tourism Recreation Research, 40* (2), 157–68. http://dx.doi.org/10.1080/02508281.2015.1039331

Crush, J., Skinner, C., & Chikanda, A. (2015). *Informal migrant entrepreneurship and inclusive growth in South Africa, Zimbabwe and Mozambique.* Southern African Migration Programme Migration Policy Series No. 68, Cape Town.

Davidson, R. (2019). Research into business tourism: Past, present and future. *International Journal of Tourist Cities, 5* (2), 117-118.

Davidson, R. (2020). The emergence of the business tourism city. In A.M. Morrison & J.A. Coca-Stefaniak (Eds.), *Routledge Handbook of Tourism Cities,*162-173, Routledge, Abingdon.

Dobler, G. (2016). The green, the grey and the blue: A typology of cross-border trade in Africa. *Journal of Modern African Studies,* 54 (1), 145-169. https://doi.org/10.1017/S0022278X15000993

Dzawanda, B., & Matsa, M. (2021). From Millennium Development Goals to Sustainable development goal through informal cross-border trading: An escape for the poor in a suffocating national economy in Gweru, Zimbabwe. In W.L. Filho, R. Pretorius & L.O. de Sousa (Eds), *Sustainable development in Africa*, 613-632, Springer, Cham. http://dx.doi.org/10.1007/978-3-030-74693-3_34

Dzawanda, B., & Matsa, M.M. (2023). Strategies for survival in an informal economy: Illegalities of Zimbabwean informal cross border traders at ports of entries in Southern Africa. *International Journal of Community Well-Being*, *6*, 203-221. http://dx.doi.org/10.1007/s42413-023-00191-z

Dzawanda, B., Matsa, M., & Nicolau, M. (2022). A catastrophic threat to the already vulnerable towards 2030: impact of COVID-19 lockdown on livelihood outcome of informal cross border traders in Gweru, Zimbabwe. *Social Sciences & Humanities Open*, 6 (1), 100316. http://dx.doi.org/10.1016/j.ssaho.2022.100316

Dzawanda, B., Nicolau, M., Matsa, M., & Kusena, W. (2023). Livelihood outcomes of informal cross border traders prior to the rise of the virtual cash economy in Gweru, Zimbabwe. *Journal of Borderland Studies*, 38 (1), 75-94. https://doi.org/10.1080/08865655.2020.1865187

Grant, R. (2015). *Africa: Geographies of Change.* Oxford University Press, New York.

International Organization for Migration (2010). *Informal Cross-border trade: Sector Report.* International Organization for Migration, Pretoria.

Kahiya, E., & Kadirov, D. (2020). Informal cross border trade as a substratum marketing system: A review and conceptual framework. *Journal of Macromarketing,* 40 (1), 88-109. https://doi.org/10.1177/0276146719897115

Kudejira, D. (2020). *COVID-19 and the Plight of Informal Cross Border Traders in Zimbabwe.* Memorial University of Newfoundland On the Move Partnership Working Paper, St John's Canada.

Makoni, L., & Rogerson, C.M. (2023). Business tourism in an African city: Evidence from Harare, Zimbabwe. *Studia Periegetica, 43* (3), 25-48. https://doi.org/10.58683/sp.596

Manjokoto, C., & Ranga, D. (2017). Opportunities and challenges faced by women involved in informal cross-border trade in the city of Mutare during a prolonged economic crisis in Zimbabwe. *Journal of the Indian Ocean Region*, 13 (1), 25-39.

Masango, R., & Haraldsson, M. (2010). *Across Southern African Borders with Informal Cross Border Traders.* Economic Justice Network of the Fellowship of Christian Councils in Southern Africa, Cape Town.

Nakayama, Y. (2022). *Why do informal cross-border traders (ICBTs) operate informally?: The paradox of the formalization of ICBTs in Africa.* African Studies Center Tokyo University of Foreign Studies Working Paper, Tokyo.

Nshimbi, C., & Moyo, I. (Eds.), (2017). *Migration, Cross-Border Trade and Development in Africa*. Palgrave-Macmillan, Cham. https://doi.org/10.1007/978-3-319-55399-3

Núñez, R.J. (2009). *Circular migration and employment in Southern Africa.* Trade and Industry Policy Secretariat Working Paper Series 2009-06, Pretoria.

Peberdy, S., Crush, J., Tevera, D., Campbell, E., Raimundo, I., Tsoka, M., Zindela, N., Tawodzera, G., Nickanaor, N., Mulenga, C., Green, T., & Msibi, N. (2015). *Calibrating informal cross-border trade in Southern Africa*. Southern African Migration Programme Migration Policy Series No. 69, Cape Town.

Potts, D. (2006). 'Restoring order?': Operation Murambatsvina and the urban crisis in Zimbabwe. *Journal of Southern African Studies,* 32 (2), 273-291. https://doi.org/10.1080/03057070600656200

Rogerson, C.M. (2015). Unpacking business tourism mobilities in sub-Saharan Africa. *Current Issues in Tourism*, *18* (1), 44-56. https://doi.org/10.1080/13683500.2014.898619

Rogerson, C.M. (2016). Responding to informality in urban Africa: Street trading in Harare, Zimbabwe. *Urban Forum,* 27, 229-251. https://doi.org/10.1007/s12132-016-9273-0

Rogerson, C.M. (2018). Informal sector city tourism: Cross border shoppers in Johannesburg. *GeoJournal of Tourism and Geosites, 22* (2), 372-387. https://doi.org/10.30892/gtg.22209-296

Rogerson, C.M., & Letsie, T. (2013). Informal sector business tourism in the Global South: Evidence from Maseru, Lesotho. *Urban Forum, 24,* 485-502. https://doi.org/10.1007/s12132-013-9196-y

Rogerson, C.M., & Rogerson, J.M. (2021). The other half of urban tourism: Research directions in the Global South. In C.M. Rogerson & J.M. Rogerson (Eds), *Urban tourism in the Global South: South African perspectives*, 1-37, Springer, Cham.

Salia, J.G., Sidat, M., Dias, S.F., Martins, M.R.O., & Craveiro, I. (2020). High mobility and STIs/HIV among women informal cross border traders in Southern Mozambique: Exploring knowledge, risk perception, and sexual behaviors. *International Journal of Environmental Research and Public Health, 17,* 4724. https://doi.org/10.3390/ijerph17134724

Steck, J.F., Didier, S., Morange, M., & Rubin, M. (2013). Informality, public space and urban governance: An approach through street trading (Abidjan, Cape Town, Johannesburg, Lomé and Nairobi). In S. Bekker & L. Fourchard (Eds.), *Politics and Policies Governing Cities in Africa*, 145-167, HSRC Press, Cape Town.

Tawodzera, G. (2023). The role of the informal sector in Epworth's food system, Zimbabwe. In L. Riley & J. Crush (Eds.), *Transforming urban food systems in secondary cities in Africa,* 85-102, Palgrave-Macmillan, Cham. https://doi.org/10.1007/978-3-030-93072-1_5

Tawodzera, G., & Chikanda, A. (2017). Linking Harare and Johannesburg through informal cross-border entrepreneurship. *African Human Mobility Review, 3* (2), 910-942.

Tichaawa, T. (2021). Informal business tourism in Cameroon. *GeoJournal of Tourism and Geosites, 38* (4), 1289-1298. https://doi.org/10.30892/gtg.38437-771

Timothy, D., & Teye, V.B. (2005). Informal sector business travelers in the developing world: A borderlands perspective. *The Journal of Tourism Studies*, 16, 82-92.

Ubba Kodero, C. (2020). Development without borders?: Informal cross-border trade in Africa. In S.O. Oloruntoba & T. Falola (Eds.), *The Palgrave Handbook of Political Economy,*1051-1067, Palgrave-Macmillan, Cham.

World Bank (2020). *Monitoring small-scale cross-border trade in Africa. Issues, Approaches and Lessons.* The World Bank, Washington DC. https://doi.org/10.1596/34884

Zack, T., & Landau, L.B. (2022). An enclave entrepôt: The informal migration industry and Johannesburg's socio-spatial transformation. *Urban Studies, 59* (11), 2333-2351. https://uk.sagepub.com/en-gb/journals-permissions

Article history: Received: 27.09.2023 Revised: 19.10.2023 Accepted: 16.11.2023 Available online: 21.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1563-1572
DOI 10.30892/gtg.50435-1153

ADVANCING TOURISM DESTINATION AMIDST COVID-19 IN KAZAKHSTAN: A FOCUS ON SOCIAL TOURISM INITIATIVES

Aliya AKTYMBAYEVA
Al-Farabi Kazakh National University, Faculty of Geography and Environmental Sciences, Almaty, Kazakhstan,
e-mail: aliya.aktymbayeva@kaznu.edu.kz

Yeldar NURULY
Al-Farabi Kazakh National University, Faculty of Geography and Environmental Sciences, Almaty, Kazakhstan,
e-mail: yeldar.nuruly@kaznu.edu.kz

Madina BAZARBEKOVA
Al-Farabi Kazakh National University, Faculty of Geography and Environmental Sciences, Almaty, Kazakhstan,
e-mail: madina.bazarbekova@kaznu.edu.kz

Gulbaram KULAKHMETOVA
Al-Farabi Kazakh National University, Faculty of Geography and Environmental Sciences, Almaty, Kazakhstan,
e-mail: mereke.sakypbek@kaznu.edu.kz

Aiman ZHAKUPOVA
Al-Farabi Kazakh National University, Faculty of Geography and Environmental Sciences, Almaty, Kazakhstan,
e-mail: Aiman.Zhakupova@kaznu.edu.kz

Youssef EL ARCHI*
National School of Business and Management of Tangier, Abdelmalek Essaâdi University, Morocco, e-mail: elarchi.youssef@etu.uae.ac.ma

Brahim BENBBA
National School of Business and Management of Tangier, Abdelmalek Essaâdi University, Morocco, e-mail: b.benbba@uae.ac.ma

Yerlan ISSAKOV
Abai Kazakh National Pedagogical University, Institute of Natural Sciences and Geography, Department of Geography And Ecology, Almaty, Kazakhstan, e-mail: erlan.issakov@gmail.com

Lóránt Dénes DÁVID*
John von Neumann University, Faculty of Economics and Business, Kecskemét, Hungary; Hungarian University of Agriculture and Life Sciences, Institute of Rural Development and Sustainable Economy, Gödöllő, Hungary, e-mail: david.lorant.denes@gtk.uni-neumann.hu

Citation: Aktymbayeva, A., Nuruly, Y., Bazarbekova, M., Kulakhmetova, G., Zhakupova A., El Archi, Y., Benbba, B., Issakov, Y., & Dávid, L.D. (2023). ADVANCING TOURISM DESTINATION AMIDST COVID-19 IN KAZAKHSTAN: A FOCUS ON SOCIAL TOURISM INITIATIVES. *GeoJournal of Tourism and Geosites*, 50(4), 1563–1572. https://doi.org/10.30892/gtg.50435-1153

Abstract: This research is focused on advancing tourism destinations in Kazakhstan amidst the challenges posed by the COVID-19 pandemic, with a specific emphasis on encouraging domestic tourism. Over the past year, the Kazakhstani tourism market has exhibited significant potential for the growth of domestic tourism, highlighting the need to explore innovative approaches to counter the widespread disruptions caused by COVID-19 in the global tourism industry. The pandemic has not only resulted in considerable financial losses and damages to the tourism sector worldwide but has also had a profound impact on individuals' stress levels and their overall satisfaction of essential needs. This paper conducts a comprehensive analysis of domestic tourism trends in recent years, evaluates the current state of the tourism industry in the face of a pandemic, and explores mechanisms that can effectively attract local tourists, encouraging them to explore their own country and contribute to the development of domestic tourism destinations. It is important to note that prior to the pandemic, Kazakhstani tourists predominantly favored outbound travel destinations, resulting in a notably low proportion of local tourists. Nevertheless, this investigation reveals that tourism destinations can be advanced by targeting local tourists, particularly those engaging in social tourism initiatives. One notable strategy for destination promotion is to motivate the local population to explore the diverse offerings within their own country, fostering a sense of pride and excitement about domestic travel experiences. This research thus offers valuable insights into the potential revitalization of the tourism sector in Kazakhstan amidst the ongoing challenges posed by COVID-19.

Key words: Destination marketing, destination promotion, domestic tourism, social tourism, COVID-19

* * * * * *

* Corresponding author

INTRODUCTION

The Kazakhstan tourism industry can be categorized into three primary segments: international inbound tourism, domestic tourism, and outbound tourism (Baiburiev et al., 2018). Among these, domestic tourism historically contributed the least to the Kazakhstani economy. Domestic tourism is characterized by citizens traveling within the country without crossing its borders temporarily (Cohen and Cohen, 2015). It involves a departure from one's permanent residence to explore various areas or regions for one or more tourism-related purposes (Cooper and Hall, 2007). Domestic tourism is intricately linked with international tourism as it acts as a catalyst for increasing the number of incoming tourists from other countries. In comparison to outbound tourism, domestic tourism offers several advantages (Nurov et al., 2021):

- it is a cost-effective travel option.
- there is no need for a passport or visa application.
- it eliminates acclimatization issues.
- it allows citizens to explore their homeland, visit historical and cultural sites and attractions.

All nations are interested in promoting domestic tourism to bolster the tourism sector and retain financial resources within the country (Archer, 1978). The COVID-19 pandemic has had a catastrophic impact on international tourism, potentially causing global economic losses exceeding $4 trillion in 2020 and 2021, as reported by the OECD Policy Responses to Coronavirus. The tourism industry is currently facing challenging times, necessitating significant interventions and the adoption of new technologies to usher in novel trends and development approaches (El Archi and Benbba, 2023a). This includes restructuring the industry's functioning and supporting tourism businesses and regions (Cheng et al., 2023). During the pandemic, the primary goal is to balance tourists' recreation with their safety and to implement anti-crisis measures that support the tourism sector during and after the pandemic (Szromek, 2021).

The pandemic has brought about a near-complete standstill in the tourism industry, not only in Kazakhstan but across the globe. In many countries, tourism is a dynamic and highly profitable economic sector, contributing 10.4% to global GDP and generating 1 in 4 new jobs worldwide (WTTC, 2021). The mobility of people, both domestically and internationally, significantly addresses employment issues and results in substantial income for the state and various tourism enterprises (Tóth and Dávid, 2010). A well-organized tourism industry enhances foreign exchange earnings and tax revenue for the government (Zaei and Zaei, 2013). Moreover, tourism, in all its forms, serves both commercial and social purposes, with the primary focus being on meeting individuals' needs for relaxation, travel, and health maintenance, including rehabilitation and recreation (Puczkó, 2010). Additionally, the educational and cultural aspects of tourism play a pivotal role in this context (Lengyel et al., 2019; Issakov et al., 2023a; Ayzhan et al., 2021).

BACKGROUND OF THE DEVELOPMENT

Kazakhstan, a vast and breathtakingly beautiful landlocked country located in Central Asia, boasts an impressive ethnic diversity with over 150 nationalities coexisting within its expansive 2.7 million square kilometers of territory. The country emerged as a modern nation, gaining its independence in 1991 following the dissolution of the Soviet Union. Situated at the heart of the Eurasian continent, Kazakhstan shares its borders with Russia to the north and west, China to the east, and Kyrgyzstan, Uzbekistan, and Turkmenistan to the south (Figure 1) (Allayarov et al., 2021; Aktymbayeva et al., 2021; Issakov et al., 2022). The modern borders of Kazakhstan emerged in the 20th century as a Soviet creation when it became a Soviet republic in 1920. Following the Soviet Union's dissolution, Kazakhstan declared itself an independent state and adopted a unitary republic of presidential-parliamentary type. Kazakhstan possesses an abundance of tourism resources, with numerous scenic landscapes, historical sites, and a rich cultural heritage (Nagy, 2019). The roots of tourism development in Kazakhstan can be traced back to the 1920s and 1930s when the Soviet Union promoted outdoor activities. During this period, the nation saw the construction of tourist centers, rest homes, and sanatoriums. From the 1960s until the Soviet Union's collapse, tourism experienced widespread and rapid growth (Issakov et al., 2023b). It encompassed the entire population, supported by a vast network of tourism organizations, agencies, and accommodations across the Soviet territory.

a)

b)

Capital	Astana 51°10′N 71°26′E
Largest city	Almaty 43°16′39″N 76°53′45″E
Official languages	Kazakh, Russian
Ethnic groups	70.7% - Kazakh, 15.2% - Russian, 3.3% - Uzbek, 1.9% - Ukrainian, 1.5% - Uyghur, 1.1% - German, 1.1% - Tatar, 5.2% - Others
Religion	70.3% - Islam, 17.2% - Christianity, 11.01% - No response, 2.25% - Atheism, 0.2% - Others
Area Total Water (%)	2,724,902 km^2 2.8
Population 2023 estimate	19,944,726
Time zone	UTC+5 / +6 (West / East)
ISO 3166 code	KZ

Figure 1. Republic of Kazakhstan: a) countries bordering; b) general information.

Following independence, Kazakhstan began attracting foreign tourists who were captivated by the country's stunning natural beauty, including its steppes, semi-deserts, numerous lakes, and mountain ranges. Additionally, the country's historical monuments, such as the rock paintings of Tamgaly-tas, the rocky mosques of Mangistau, and the mausoleums of

Jochi Khan (the eldest son of Genghis Khan) and the enlighteners Khoja Akhmed Yasavi and Zhusup Kopeyev, hold significant appeal for travelers and pilgrims. The development of international tourism in Kazakhstan is influenced by various external and internal factors, as well as market conditions and demand for services. The industry showed stable growth in the previous decade, but in 2020, the COVID-19 pandemic led to significant challenges in the tourism sector (Omarova et al., 2021). The economic well-being of many sectors, including tourism, is closely tied to the epidemiological security of countries worldwide (Corvalan et al., 2005). Social tourism, recognized as a type of tourism in European countries, has a long history dating back to the 19th centur. It played a pivotal role in democratizing travel for a wider population during the 20th century (McCabe and Diekmann, 2015). Today, numerous organizations promote and develop social tourism in Europe, with significant financial turnover in this field estimated to be in the millions of euros (Panasiuk and Wszendyby, 2021). Social tourism has been in existence for more than 60 years and is well-established in some countries. However, its definitions vary across different nations and contexts. In Western sources, the concept was initially defined by W. Hunziker in (1957) as "the relationships and phenomena in the field of tourism resulting from the participation in travel by economically disadvantaged or otherwise marginalized segments of society" (Ryan, 2002). Arthur Haulot emphasized that social tourism aligns with the principles of a just, noble, and satisfying life for all individuals in a modern society (Haulot, 1981).

A more recent definition from the International Organization of Social Tourism characterizes it as "the connections and phenomena related to the participation of individuals from disadvantaged backgrounds, or those unable to partake in tourism, holidays, and their benefits, for whatever reason" (Minnaert et al., 2012). This definition underscores the social and moral dimensions of social tourism. Recognizing that the tourism market cannot cater to everyone, interventions are necessary to ensure accessibility for all. A more recent and comprehensive definition, proposed by L. Minnaert et al., highlights that social tourism is "tourism with added moral value for the host or guest parties of the tourist exchange," further emphasizing its moral aspects (Minnaert et al., 2006). Another perspective on social tourism is based on the "right to rest." According to the Declaration of the World Tourism Conference in Manila (1980), "Social tourism is an objective which society must pursue in the interest of those citizens who are least privileged in the exercise of their right to rest". J. Haukeland defines social tourism as follows: "The concept of 'social tourism' means that everybody, regardless of economic or social situation, should have the opportunity to go on vacation. Seen in this light, holiday travel is treated like any other human right whose social loss should be compensated by the welfare state" (Haukeland, 1990).

Table 1. Comparative analysis of definitions of social tourism

Author	Object	Subject	Funding	Goal
(Hunziker, 1957)	Undefined	Poor and disadvantaged	Undefined	Participation in tourism
(ISTO, 2010)	Social organizations	Poor people	Undefined	Participation in tourism
(Minnaert et al., 2006)	Receiving / guest country	Receiving / guest country	Undefined	Add additional moral value to tourism
Manila Declaration on World Tourism (UNWTO, 1980)	Society	All citizens	Undefined	The right to recreation and tourism
(Haukeland, 1990)	State	All citizens	Undefined	The right to recreation and tourism
(Committee European Economic and Social, 2006)	Undefined	All citizens	Undefined	The right to recreation and tourism
(Birzhakov, 2011)	State, state and non-state foundations and other charity organizations	Schoolchildren, students, pensioners, war and labor veterans, and others	State, state and non-state foundations and other charity organizations	Participation in tourism
Law “On the Basics of Tourist Activities in the Russian Federation”(Law, 1996)	Undefined	Undefined	State	Travel
Draft Federal Law “On Social Tourism”, Committee of the State Duma of the Russian Federation on Tourism and Sports	Undefined	Weakly protected citizens	Undefined	Meeting the needs of tourism
Draft Federal Law “On Social Tourism”, the Russian Association for Social Tourism and the Moscow Center of the Academy of Tourism	Undefined	Citizens of the Russian Federation	State and others	Exercise of the right to travel
(Serdobolskaya, 2003a)	Undefined	All citizens	Undefined	Subsidized tourism
(de Almeida, 2011)	State	Individual	State	Psychophysical rehabilitation and socio-cultural development

The Economic and Social Committee of the European Union sees social tourism as organized by associations, cooperatives, and trade unions in some countries. It aims to provide travel access to a broad range of people, especially from vulnerable populations. Their definition is, "Everyone has the right to rest on a daily, weekly, and annual basis, and the right to free time, which allows them to develop every aspect of their personality and their social integration. The right to tourism is a concrete expression of this general right, and social tourism is a tool for achieving a universally accessible means to realize this right" (European Commission, 2011). In Soviet and Russian contexts, definitions of social tourism vary. Birzhakov's (2011) definition characterizes it as "a type of tourism subsidized from funds allocated for social needs to create conditions for travel for schoolchildren, young people, pensioners, war and labor veterans, and other citizens receiving social support from the state, state and non-state funds, and charitable organizations".

Serdobolskaya (2003) offers a different perspective, defining social tourism as a type that encompasses all social strata and age groups, with trips subsidized based on the social category of the citizen. This includes privileged categories such as children, students, pensioners, war veterans, civil servants, military personnel, clergymen, and employees whose travel may be subsidized by their employers. Almeida (2011) sees social tourism as "a type of tourism socially and politically promoted by the state for psychophysical rehabilitation and socio-cultural development of an individual in accordance with the principles of sustainable development, which should be expanded at the places of visit, i.e., in tourist regions". For a comparative analysis of these definitions based on various criteria, refer to Table 1.

Belanger and Jolin conducted a study on the International Social Tourism Organisation (ISTO), recognizing its significance in facilitating the exchange of experience among participating countries and the coordination of collaborative efforts. The establishment of ISTO has played a pivotal role in advancing social tourism on a global scale (Bélanger and Jolin, 2011). A systematic analysis of social tourism schemes in Europe was carried out by A. Diekmann and S. McCabe. They identified various schemes for implementing social tourism, including public funding, public-private partnerships, and charitable donations. This research also pinpointed the target groups for social tourism and assessed the potential risks associated with the increasing commercialization of social tourism, which may exclude socially vulnerable groups and reduce the number of beneficiaries. The work comprehensively examines multiple aspects of social tourism in Europe (Diekmann and McCabe, 2011). P. Hunter-Johnson conducted a study on the involvement of charities in social tourism. Despite limited funding and a shortage of qualified personnel, charitable organizations play a significant role in advancing social tourism (Ogutu et al., 2023). The study emphasizes the need for cooperation among charitable organizations, the commercial sector, and the state to ensure broader access to social tourism services for the population (Hunter-Jones, 2011).

FEATURES OF DOMESTIC TOURISM DURING COVID-19

Kazakhstan is traditionally considered a country that primarily supplies tourists rather than attracting them. This practice is often associated with highly developed nations boasting substantial industrial potential and elevated living standards. In many economic aspects, Kazakhstan lags behind such countries, making it essential for the country to focus on attracting tourists to stimulate an inflow of capital. As depicted in Figure 2, the structure of tourism types in Kazakhstan exhibits significant imbalances. Outbound tourism significantly dominates the landscape, accounting for 68%, while inbound tourism constitutes only 7%, and domestic tourism makes up 25% (National Bureau of Statistics, 2019). Consequently, there are substantial disparities in the development of different types of tourism within the Republic of Kazakhstan. This pronounced prevalence of outbound tourism results in an inconspicuous outflow of capital.For Kazakhstan's sustainable development, it is imperative to foster the growth of inbound and domestic tourism. Inbound tourism contributes to foreign exchange earnings for the country's economy, while domestic tourism facilitates the rejuvenation of the local population, directs monetary gains from tourism toward domestic recreational facilities, and bolsters the internal economic infrastructure. Domestic tourism also serves educational purposes, promoting patriotism and instilling a sense of pride in the nation among its citizens.

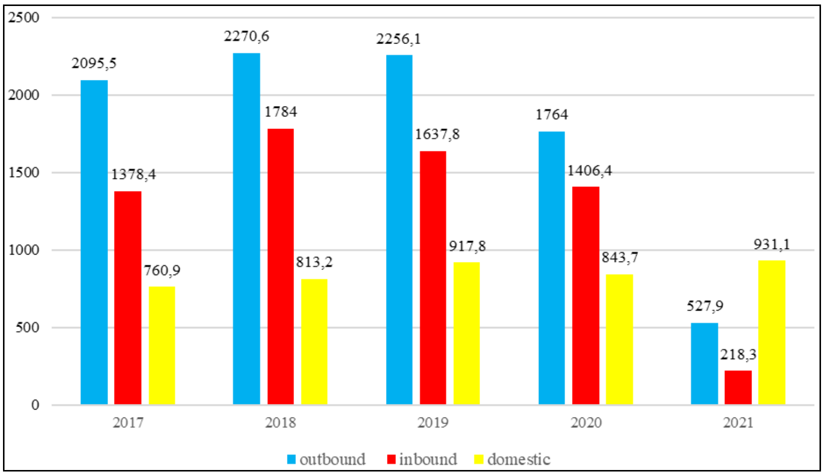


Figure 2. The number of tourists January-March, thousand
(Source: National Bureau of Statistics, 2021)

In the first quarter of this year, the number of both inbound and outbound tourists in Kazakhstan experienced significant declines compared to the same period last year, with drops of 6.4 and 3.3 times, respectively, resulting in figures of 218.3 thousand and 527.9 thousand people. In contrast, domestic tourism witnessed growth, with a 10.4% increase in the number of tourists over the year, reaching 931.1 thousand people.Examining another crucial factor - hotel occupancy - reveals intriguing insights. In 2019, the average hotel occupancy in Kazakhstan was a mere 24.9% (National Bureau of Statistics, 2020). This means that accommodations like hotels, sanatoriums, and resorts remain largely unoccupied, constituting an inefficient use of their available capacity. However, these properties remain profitable, indicating that their current low utilization covers all fixed costs. This opens up the possibility of offering social vouchers at a cost that only covers direct expenses. By increasing occupancy to at least 50%, an additional 7.56 million bed-days could be provided, equating to a week's vacation for over a million Kazakh citizens. This analysis suggests a potential improvement in the strategy for developing domestic tourism. Instead of directing substantial investments into creating new resorts and hotels, maximizing the use of existing facilities by Kazakh citizens could greatly boost the industry and establish an institute of social tourism.

The COVID-19 pandemic has led to a significant decrease in international travel, with air travel permitted in only ten countries globally. Travelers abroad must contend with various restrictions, including quarantine, lockdowns, curfews, bans on intercity movement, and the closure of restaurants and museums. In this context, companies specializing in domestic tourism, including hotel owners, have found themselves in a favorable position (UNWTO, 2020).

Another noteworthy observation from this "coronavirus season" is the increased desire of people to explore the wild and remote corners of the country. This trend has led to the popularity of glamping (glamorous camping), glampervans (comfortable mobile homes), camps, lodges, and eco-friendly hotels. For example, the Burabay National Park, a three-hour drive north of the capital, Astana, has become a preferred option for city dwellers. In Almaty, the Ile Alatau mountains, located to the south, offer similar attractions. Guesthouses and hotels in these areas have experienced a surge in demand, with guesthouses in mountain villages like Zhaidakbulak, near the Charyn Valley and the Kyrgyz border, being fully booked weeks in advance during the previous summer (Leiper, 1989).

METHODS

To analyze and summarize the material systematically, it should be sorted and screened using acceptable methodologies. In this paper, a systematic review was employed to comprehensively rearrange the literature on social tourism policy studies. The process of locating and assessing papers related to a given subject of study is referred to as a systematic review (Montori et al., 2003). The goal is to complete and expand on the current literature on research problems, as well as to provide a theoretical foundation for scientific study. This method is chosen to address the shortcomings of narrative reviews, which may lack objectivity and comprehensiveness. By conducting a more extensive literature collection and employing rigorous inclusion criteria, systematic reviews offer more authentic and reliable conclusions (Tranfield et al., 2003). Numerous studies in the field of tourism have undertaken systematic literature reviews (El Archi et al., 2023b; Rahmat et al., 2023). The decision to undertake a systematic review was motivated by the need to generate a robust conceptual framework that policymakers can use to understand the policy implications of social tourism during lockdowns and how social tourism can be harnessed for the development of domestic tourism. The systematic review process involved several key steps (Figure 3):

Figure 3. Research Flowchart (Source: compiled by the authors)

- Defining research questions and objectives: The first step was to define clear research questions and objectives that guided the review. In this case, the primary focus was on understanding the policy implications of social tourism during lockdowns and its potential role in domestic tourism development (Hunt et al., 2018).
- Search strategy: A comprehensive search strategy was developed to identify relevant literature. This involved using various academic databases, search engines, and specific keywords related to social tourism policy, lockdowns, and domestic tourism development (Nightingale, 2009).
- Inclusion and exclusion criteria: Inclusion and exclusion criteria were established to determine which studies would be included in the review. These criteria helped ensure that the selected studies were directly relevant to the research questions. For instance, studies that did not focus on policy implications or domestic tourism were excluded (Meline, 2006).
- Study selection: A rigorous process was employed to select studies. Initially, all identified records were screened based on title and abstract. Subsequently, full texts of potentially relevant papers were reviewed to determine their eligibility (Rother, 2007).
- Data extraction: Data from the selected studies were extracted systematically. This included information on study objectives, methodologies, findings, and policy implications related to social tourism (Jonnalagadda et al., 2015).
- Quality assessment: Each selected study was critically appraised for its methodological rigor and the quality of evidence presented. This step was crucial to ensure the reliability and validity of the findings (Kitchenham et al., 2009).
- Synthesis of results: The data from selected studies were synthesized, and common themes and patterns were identified. This synthesis aimed to provide a clear overview of the existing literature on social tourism policy during lockdowns and its relevance to domestic tourism development (Sampaio and Mancini, 2007).
- Conceptual framework development: The review's findings were used to develop a robust conceptual framework that policymakers can utilize to understand the policy implications of social tourism during lockdowns and its role in promoting domestic tourism (Morioka and de Carvalho, 2016). By employing a systematic review methodology, this study aims to offer policymakers and researchers a well-structured and comprehensive understanding of the policy implications of social tourism in the context of lockdowns and how it can contribute to the development of domestic tourism. This approach ensures the reliability and objectivity of the research, leading to more authentic and actionable insights.

RESULTS AND DISCUSSION

The tourist destination is a decisive element of the tourist system (Manhas et al., 2021). It can be described as a center (territory) with all kinds of amenities, facilities and services to meet all kinds of needs of tourists. In other words, a tourist destination includes the most important and decisive elements of tourism that tourists need (El Archi et al., 2023c). The region of the tourist destination is one of the most important in the tourist system, since the tourist destinations themselves and their image attract tourists, motivate the visit, thus activating the entire tourist system. The term "tourist destination" was coined by Leiper in the mid-1980s. Now the destination is a geographic area with certain boundaries, which can attract and satisfy the needs of a fairly wide group of tourists (Mccabe, 2009; Setiawan et al., 2021). A destination is a combination of the following components: an attraction (natural wealth or man-made, that is, what prompts a tourist to travel); amenities (accommodation, food, entertainment, as well as retail and other service businesses such as banks, exchange offices, hairdressers, medical enterprises, i.e. everything that not only provides shelter and food, but also creates a general feeling hospitality of tourists by this destination); accessibility (remoteness of the destination from tourist markets makes them vulnerable to lower demand, since such a destination can only be reached by long journeys (Kim and Yoon, 2003; Lojo et al., 2020). Therefore, the development and maintenance of effective transport links with tourist markets is necessary for the success of the destination (Prideaux, 2000).

But for tourists it is not only physical accessibility that is important. destination, i.e. external transport links with it, but also the presence of developed internal transport links (Khadaroo and Seetanah, 2008). In other words, services such as car rental, provision of local transport for sightseeing tours and transfers to accommodation in the destination are important for them); support services that provide services such as advertising the destination, coordinating and managing its development, providing the population and organizations with the necessary information and reservation services, providing equipment (catering, sports, etc.), providing the destination with management personnel.

The destination has cultural value: visitors should find the destination attractive and worth the time and money spent traveling. Thus, it is important to maintain the distinction of the destination environment from the usual "home" environment with good design and management, in order to avoid the development of a "unified tourist landscape".

The destination is inseparable, i.e. a tourism product is consumed where it is produced, and in order to experience it, tourists must be physically present at the destination. It should be noted that the processes of production and consumption of a tourist product coincide not only in space, but also in time, i.e. destinations cannot be stocked up (hotel rooms, theatre tickets, etc. cannot be set aside in the "off season" for later sale during, for example, the theatre season). Thus, the seasonality of the destination is the most important problem, as it reduces their profitability and makes them ineffective in terms of the use of fixed assets of the destination. For a seasonal destination, peak season (3-4 months) should provide a major contributor to fixed costs that are payable throughout the year.Services and amenities of the destination are used not only by tourists, but also by other people: local residents and employees of this destination. Thus, the enterprises of the destination cannot be focused only on local residents or only on tourists, they must focus on both.

To meet the definition of sustainable tourism, destinations must apply interdisciplinary, holistic (holistic) and integrative approach that includes four main goals / indicators (El Archi et al., 2023d):

1) Demonstration of sustainable destination management.
2) Maximizing social and economic benefits for local communities and minimizing negative impact.
3) Maximizing benefits for local communities, visitors and facilities cultural heritage with minimal impact.
4) Maximizing environmental benefits and minimizing negative influence.

These criteria are intended to be used by any type of destination and scale. When considering the phenomenon of social tourism in the world, it is obvious that, first of all, one should focus on the developed capitalist countries. There is a big difference in the mentality and in the structure of state systems, and this hinders the conduct of scientific research, since it is difficult to separate the cultural differences of different countries from the peculiarities of the implementation of the social tourism system. At the same time, if the analysis of the system is carried out in only one country, then there is a high probability of obtaining a too specific solution that cannot be applied in Kazakhstan. Due to the above circumstances, the most convenient for studying the world experience of social tourism would be a group of countries with similar values and with approximately the same level of socio-cultural and economic development, and belonging to developed countries.

The analysis of social tourism systems highlights the similarities and differences, and provides explanations for the similarities in the ways of organizing connections between the factors of supply and demand. The demand for social tourism is described first, followed by an analysis of the various systems. The next step is to define the role of intermediaries between recipients and providers of social tourism. It also analyzes the relationship between the social and commercial sectors of tourism and analyzes the benefits of such cooperation. Despite different definitions and historical differences in social tourism, there is a set of elements that are the same for all approaches. The greatest similarity of systems can be observed in target groups and delivery methods of tours. Figure 4 shows a generalized structure of the social tourism organization system in Europe. Supply and demand factors and their key elements are similar throughout Europe, and important system elements such as financing methods and intermediaries can vary

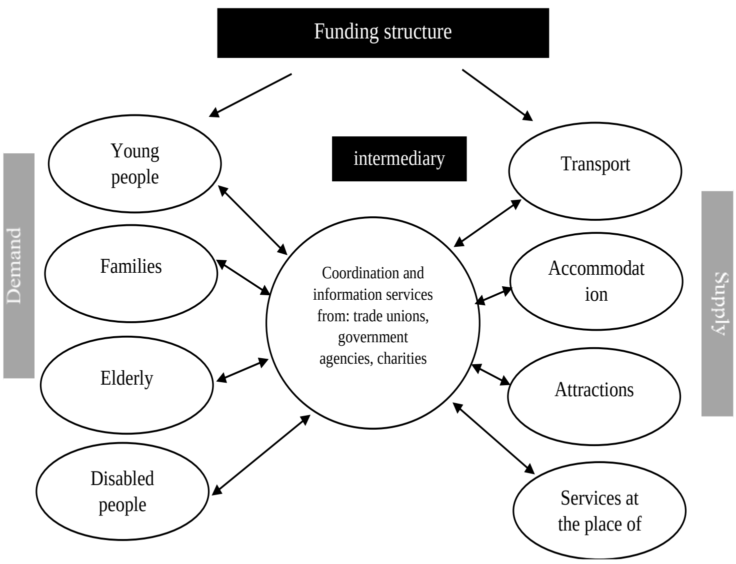


Figure 4. Generalized structure of the system of organizing social tourism in Europe

greatly from country to country.Common elements of demand are based on the fact that the target audience of social tourism is approximately the same in all countries. As mentioned earlier, there are 4 target groups for the development of social tourism: young people, elderly people, people with disabilities and families.Social tourism systems are highly dependent on the funding structures and conditions in the country. Despite this, we can distinguish three main sources of social benefits, which are shown in Figure 5. It should be noted that many countries use more than one scheme. The choice of these target groups may have two drawbacks. First, the definition of groups is not precise enough: not all young and old people, families and people with disabilities are excluded from the tourism process and therefore must reap the benefits of social tourism. Secondly, these target groups do not cover all social groups that are excluded from tourism.

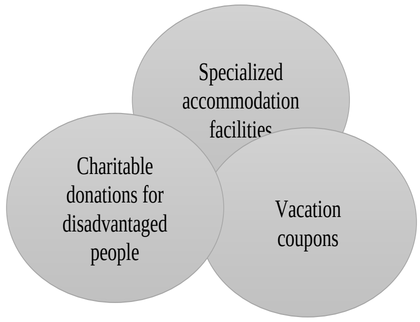


Figure 5. Main sources of social benefits

For example, one socio-demographic group is obviously excluded from these groups – they are single people aged 30-65 who do not fit either the Family or Elderly category. There are different approaches to supporting these groups: in some countries they are funded on a targeted basis, in others they are included in more universal structures. The elements of the offer may include transportation, accommodation and recreation services. In some countries, this may be part of a commercial tourism supply chain. World experience indisputably proves that the massiveness of publicly available social tourism covers its cheapness with the total inflow and rapid turnover of real money, which increases employment, investment in tourism directly on the ground, and at the same time tax revenues to municipal and federal budgets. It should be noted that in Kazakhstan country the inhibiting factors for the development of tourism are: first of all, the low technical level of equipment of the tourism industry, the low level of professionalism of the tourist personnel. Both of these factors currently do not allow attracting a powerful tourist flow from abroad, and, thereby, stimulating the development of domestic tourism and its social sphere.

Meanwhile, social tourism, especially in relation to people with disabilities, people with disabilities, youth and the elderly, is widely used in Western countries. Their projects are interesting, first of all, by the mechanisms of work, the degree of cooperation and involvement of clients and partners, and the forms of public-private partnership.

Important participants in the social tourism sector in Europe are non-profit and social organizations, the volunteer sector, public associations, economic communities, social cooperatives, social and solidarity economy, that is, production structures that are neither public nor private companies, but focused on individual and social goals, not profit. France, Belgium, Portugal and Spain often use the term "social and solidarity economy" for this type of organization, as they are generally characterized by five principles: free membership, limited profitability, democratic and active governance, collective or social purpose, and public funding. and private foundations. For example, the charter of the National Union of Tourism Associations (UNAT) in France provides for the following tasks:

- guarantee access to tourism and recreation for a large number of people from different social strata;
- emphasize the humanistic and collectivist values of tourism for society and the role of tourism in the growth of personal well-being and social cohesion;
- to achieve economic benefits through the support of social organizations, youth and family associations working in the social and solidarity economy;
- to support the sustainable development of the tourist destination, respecting the ecological and socio-cultural characteristics of the destination.

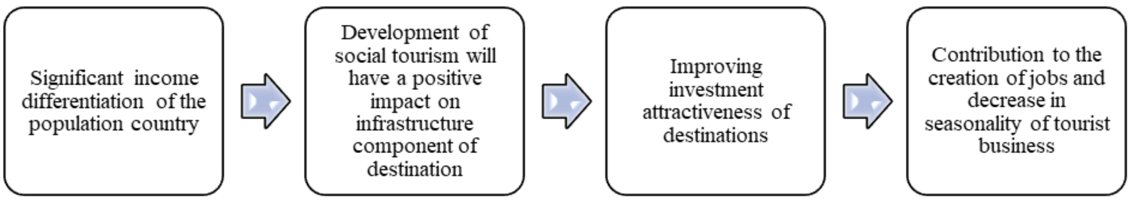


Figure 6. The need to develop the sphere social tourism in the Kazakhstan is due to the following factors (Source: compiled by the authors)

The development of social tourism contributes to the creation of infrastructure of tourist areas, their sustainable development. Development of social tourism is of great importance for consumers of tourist products and services. Not rising only general cultural development part of the population, but also its health due to all kinds of social programs. World experience clearly shows that the mass character of publicly available social tourism covers its cheapness with the total inflow and fast the turnover of real money, which increases employment, investment in tourism directly in the destination, and at the same time tax receipts (Eusébio et al., 2016; Ianioglo and Rissanen, 2020; Issakov et al., 2023c). Now in Kazakhstan there is approximately 1 million people with disabilities, and more than 12 million people, i.e., almost half of the population is young and old. They belong to socially unprotected categories of citizens, and their opportunities to travel, if not reduced to zero, then at least are extremely limited. One can imagine what changes will take place in Kazakhstani tourism if a significant part of these people is involved in trips, outdoor activities – i.e., set them in motion. It will be at least 10 million people (National Bureau of Statistics, 2022). For the analysis of social tourism in the Republic of Kazakhstan, the SWOT analysis method was chosen as the most suitable for developing strategies for creating new products. Since SWOT analysis is the main tool of factor analysis in this work, the preference is given to the quantitative method of analysis.

Table 2. SWOT analysis of social tourism in the Republic of Kazakhstan (Source: compiled by the authors)

	Positive	Negative
INTERNAL	**Strengths** • Promotes human development and socialization. • Increases the level of social responsibility of the country and business. • Promotes infrastructure development. • Involves an additional number of people in the tourist exchange. • It is recognized in developed countries as the norm of life	**Weaknesses** • It is possible to develop dependent attitudes in the population. • Depends on government funding or business patronage. • It is not widely known among the population, and has a strong association with the USSR. • Lack of a regulatory framework governing the industry
EXTERNAL	**Opportunities** • A large market for social tourism. • Social tensions associated with the destabilization of the economy. • The state's focus on the development of the tourism industry. • Low occupancy of accommodation facilities and the sanatorium complex in particular	**Threats** • Refusal of business to cooperate. • Refusal of the state to support social tourism. • Refusal of the population to participate in social tourism. • Corruption

For the successful development of social tourism in Kazakhstan, a systematic approach and sequence of actions is required. It is necessary to initially develop strategic and tactical plans for the development of the industry. These measures are the result of an analysis of world experience and a SWOT analysis of social tourism. With the implementation of the measures described in this part of the dissertation, the likelihood of the successful development of social tourism in our country will greatly increase. As one of the measures to counter the threats to social tourism, we propose the creation of a social tourism coordinator. The development and implementation of measures for the development of the social services sector will increase number of tourists by providing opportunity for more citizens of Kazakhstan to exercise their right to rest and work, and the growth of investments with parties to the budget and private investors will contribute to the development of the infrastructure component of the territory.

CONCLUSION

A significant portion of Kazakhstan's population, currently not engaged in tourist exchange, represents a substantial reservoir for the growth of domestic tourism. Stimulating these individuals to travel and take breaks within the country is of paramount importance. Social tourism can serve as a valuable method for this stimulation. It's worth noting that when discussing the benefits of domestic travel, the emphasis should be placed on the safety of stays, accessibility to medical care, absence of language barriers, and the state's natural beauty. These factors contribute not only to physical rejuvenation but also to intellectual, spiritual, and creative development, along with instilling patriotism in younger generations.

The development of the tourism industry in the region yields several positive outcomes. It significantly boosts the gross regional product, increases profits for local businesses in the tourism and related sectors, augments tax and non-tax revenues for the regional budget, and fosters a multiplier effect in the local economy. Additionally, it plays a pivotal role in enhancing the structure of the regional payment balance, reducing unemployment, and elevating the average income of the economically active population. The development of a tourism destination is a multifaceted and gradual process that involves defining a territory as a potential tourist destination and subsequently transforming it into one. This progression is influenced by a variety of factors within the internal and external environment. Leveraging social tourism for destination development ensures the optimal utilization of natural resources, a fundamental element in tourism development. It also supports crucial ecological processes, aids in preserving natural resources and biodiversity, and ensures the sustainability of long-term economic operations. Furthermore, it provides equitable distribution of socio-economic benefits, including sustainable employment and income opportunities, social security for host communities, and, in turn, contributes to poverty reduction.

Author Contributions: Conceptualization, Y.I. and Y.E.A.; methodology, Y.I. and L.D.D.; software, Y.I. and B.B.; validation, Y.I. and L.D.D. and B.A.; formal analysis, Y.I. and Y.E.A. and A.A.; investigation, Y.I. and L.D.D. and G.K.; data curation, Y.E.A. and L.D.D. and S.A. and Y.I.; writing - original draft preparation, Y.I. and B.B.; writing - review and editing, Y.E.A. and B.B. and Z.T. and B.A. and A.Z; visualization, A.A. and G.K. and S.A. and Y.E.A. and B.B.; supervision, Y.I. and Y.E.A. and Z.T. and B.B.; project administration, Y.I. and L.D.D. All authors have read and agreed to the published version of the manuscript.

Funding: This research has been funded by the Science Committee of the Ministry of Education and Science of the Republic of Kazakhstan (Grant No. AP08956934 “Development of a mechanism for the formation and implementation of social tourism in the Republic of Kazakhstan by involving the state, employers and employees”).

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: This research was supported by the Hungarian University of Agriculture and Life Sciences (MATE) and Al-Farabi Kazakh National University.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Aktymbayeva, B., Koshkimbayeva, U., Abisheva, Z., Tokbergenova, U., & Tumazhanova, M. (2020). Tourism industry development and governance: a comparative stage review of Kazakhstan's experience for the years of independence, 1991-2020. *GeoJournal of Tourism and Geosites,* 34(1), 69-76. https://doi.org/10.30892/gtg.34110-621

Allayarov, P., Embergenov, B., & Han, S. (2018). Problems and Prospects of sustainable tourism in the Republic of Kazakhstan. *Business and Economic Research*, 8. https://doi.org/10.5296/ber.v8i2.12951

Archer, B. (1978). Domestic tourism as a development factor. *Annals of Tourism Research,* 5(1), 126–141. https://doi.org/10.1016/0160-7383(78)90007-5

Ayzhan, S., Kulyash, K., Kulash, M., Zabira, M., Yerlan, I., & Nurbol, U. (2021). Teaching and Learning foundation of the elective course "Cultural Geography". *World Journal on Educational Technology: Current Issues*, 13(4), 1040–1050. https://doi.org/10.18844/wjet.v 13i4.6297

Baiburiev, R., David, L., Abdreyeva, S., Zhakupova, A., & Artemyev, A. (2018). Impacts of tourism activities on economy of Kazakhstan. *GeoJournal of Tourism and Geosites,* 22 (2), 480–488. https://doi.org/10.30892/gtg.22217-304

Bélanger, C.É., & Jolin, L. (2011). The International Organisation of Social Tourism (ISTO) working towards a right to holidays and tourism for all. *Current Issues in Tourism,* 14(5), 475–482. https://doi.org/10.1080/13683500.2011.568056

Birzhakov, M.B. (2011). *Специальные виды туризма [Special types of tourism].* Saint Petersburg: SPbGEEU, Russia, 70 p, (In Russian).

Cheng, Y., Zhu, K., Zhou, Q., El Archi, Y., Kabil, M., Remenyik, B., & Dávid, L.D. (2023). Tourism Ecological Efficiency and Sustainable Development in the Hanjiang River Basin: A Super-Efficiency Slacks-Based Measure Model Study. *Sustainability,* 15(7), 6159. https://doi.org/10.3390/su15076159

Cohen, E., & Cohen, S.A. (2015). A mobilities approach to tourism from emerging world regions. *Current Issues in Tourism*, 18(1), 11–43. https://doi.org/10.1080/13683500.2014.898617

Cooper, C., & Hall, C.M. (2007). *Contemporary Tourism (1st ed.).* Routledge. https://doi.org/10.4324/9780080554990

Corvalan, C., Hales, S., & McMichael, A.J. (2005). Ecosystems and human well-being: Health synthesis. World Health Organization.

de Almeida, M.V. (2011). The development of social tourism in Brazil. *Current Issues in Tourism,* 14(5), 483–489. https://doi.org/10.1080/13683500.2011.568057

Diekmann, A., & McCabe, S. (2011). Systems of social tourism in the European Union: A critical review. *Current Issues in Tourism*, 14(5), 417–430. https://doi.org/10.1080/13683500.2011.568052

El Archi, Y., & Benbba, B. (2023a). The Applications of Technology Acceptance Models in Tourism and Hospitality Research: A Systematic Literature Review. *Journal of Environmental Management & Tourism,* 14(2), 379–391. https://doi.org/10.14505/jemt.v14.2(66).08

El Archi, Y., Benbba, B., Nizamatdinova, Z., Issakov, Y., Vargáné, G.I., & Dávid, L.D. (2023b). Systematic Literature Review Analysing Smart Tourism Destinations in Context of Sustainable Development: Current Applications and Future Directions. *Sustainability*, 15(6), 5086. https://doi.org/10.3390/su15065086

El Archi, Y., Benbba, B., Kabil, M., & Dávid, L.D. (2023c). Digital Technologies for Sustainable Tourism Destinations: State of the Art and Research Agenda. *Administrative Sciences,* 13(8), 184. https://doi.org/10.3390/admsci13080184

El Archi, Y., Benbba, B., Zhu, K., El Andaloussi, Z., Pataki, L., & Dávid, L.D. (2023d). Mapping the Nexus between Sustainability and Digitalization in Tourist Destinations: A Bibliometric Analysis. *Sustainability*, 15(12), 9717. https://doi.org/10.3390/su15129717

European Commission. (2011). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Youth Opportunities Initiative*. Brussels, Belgium: European Commission. http://hdl.voced.edu.au/10707/196672

Eusébio, C., Carneiro, M., Kastenholz, E., & Alvelos, H. (2016). The impact of social tourism for seniors on the economic development of tourism destinations. *European Journal of Tourism Research*, 12, 5–24. https://doi.org/10.54055/ejtr.v12i.210

Haukeland, J.V. (1990). Non-travelers. The flip side of motivation. *Annals of Tourism Research,* 17(2), 172–184. https://doi.org/10. 1016/0160-7383(90)90082-3

Haulot, A. (1981). Social tourism: Current dimensions and future developments. *International Journal of Tourism Management*, 2(3), 207–212. https://www.sciencedirect.com/science/article/pii/0143251681900074

Hunt, H., Pollock, A., Campbell, P., Estcourt, L., & Brunton, G. (2018). An introduction to overviews of reviews: Planning a relevant research question and objective for an overview. *Systematic Reviews,* 7(1), 39. https://doi.org/10.1186/s13643-018-0695-8

Hunter-Jones, P. (2011). The role of charities in social tourism. *Current Issues in Tourism,* 14(5), 445–458. https://doi.org/10.1080/ 13683500.2011.568054

Hunziker, W. (1957). Cio che rimarrebbe ancora da dire sul turismo sociale. *Revue de Tourisme,* 2, 52–57.

Issakov, Y., Aktymbayeva, B., Artemyev, A., Kubessova, G., Abdreyeva, S., Surina, A., Tuyebekova, Z., El Archi, Y., Benbba, B., & Dávid, L.D. (2023a). Digital transformation reshaping tourism education: investigating the influence of moocs on teaching tourism fundamentals and local lore. *GeoJournal of Tourism and Geosites*, 49(3), 1015–1026. https://doi.org/10.30892/gtg.49317-1101

Issakov, Y., Kamelkhan, G., Imanbekova, B., Zhoya, K., Zheldibayev, A., Molzhigitova, D., & Dávid, L.D. (2023b). Study of the Problems and Prospects of Small Tourism Business Development in the City of Almaty. *GeoJournal of Tourism and Geosites*, 46(1), 293–303. https://doi.org/10.30892/gtg.46133-1027

Issakov, Y., Laiskhanov, S., Mazbayev, O., Nurbol, U., Zheldibayev, A., Kamelkhan, G., & Dávid, L.D. (2022). Opportunities to use mobile GIS applications in the formation of tourist and local lore competencies in students: Case study in Almaty, Kazakhstan. *GeoJournal of Tourism and Geosites*, 41(2), 597–605. https://doi.org/10.30892/gtg.41234-868

Issakov, Y., Imanbekova, B., Beisembinova, A., Moldgaliyeva, A., Abisheva, Z., Ussenov, N., & Dávid, L. (2023c). Study of the effectiveness of tourism and local lore activities of geography teachers in Kazakhstan. *GeoJournal of Tourism and Geosites*, 48(2spl), 741–750. https://doi.org/10.30892/gtg.482spl08-1074

ISTO. (2010). Social Tourism Inquiry The social and economic benefits of social tourism Submission of International Social Tourism Organisation. 1–5. http://www.bits-int.org/

Jonnalagadda, S.R., Goyal, P., & Huffman, M.D. (2015). Automating data extraction in systematic reviews: A systematic review. *Systematic Reviews,* 4(1), 78. https://doi.org/10.1186/s13643-015-0066-7

Khadaroo, J., & Seetanah, B. (2008). The role of transport infrastructure in international tourism development: A gravity model approach. *Tourism Management,* 29(5), 831–840. https://doi.org/10.1016/j.tourman.2007.09.005

Kim, S., & Yoon, Y. (2003). The Hierarchical Effects of Affective and Cognitive Components on Tourism Destination Image. *Journal of Travel & Tourism Marketing,* 14(2), 1–22. https://doi.org/10.1300/J073v14n02_01

Kitchenham, B., Brereton, O.P., Budgen, D., Turner, M., Bailey, J., & Linkman, S. (2009). Systematic literature reviews in software engineering–a systematic literature review. *Information and Software Technology*, 51(1), 7–15. https://doi.org/10.1016/j.infsof.2008.09.009

Law, F. (1996). On the basics of tourist activity in the Russian Federation. *Federal Law*, (132-FZ). https://normativ.kontur.ru/document?moduleId=1&documentId=450799

Leiper, N. (1989). Main destination ratios: Analyses of tourist flows. *Annals of Tourism Research*, 16(4), 530–541. https://doi.org/10.1016/0160-7383(89)90007-8

Lengyel, A., Szőke, Sz., Kovács, S., Dávid, L.D., Bácsné, B.É. & Müller, A. (2019). Assessing the essential pre-conditions of an authentic sustainability curriculum. *International Journal of Sustainability in Higher Education*, 20(2), 309-340. https://www.emerald.com/insight/content/doi/10.1108/IJSHE-09-2018-0150/full/html

Lojo, A., Li, M., & Xu, H. (2020). Online tourism destination image: Components, information sources, and incongruence. *Journal of Travel & Tourism Marketing*, 37(4), 495–509. https://doi.org/10.1080/10548408.2020.1785370

Manhas, P.S., Singh, R., Fodor, G., Berghauer, S., Mir, M.A., & David, L.D. (2021). Examination of impact of responsible tourism practices on quality of life of destination communities. *GeoJournal of Tourism and Geosites*, 36(2spl), 688–697. https://doi.org/10.30892/gtg.362spl17-699

McCabe, S. (2009). Who Needs a Holiday? Evaluating Social Tourism. *Annals of Tourism Research*, 36, 667–688. https://doi.org/10.1016/j.annals.2009.06.005

McCabe, S., & Diekmann, A. (2015). The rights to tourism: Reflections on social tourism and human rights. *Tourism Recreation Research*, 40(2), 194–204. https://doi.org/10.1080/02508281.2015.1049022

Meline, T. (2006). Selecting Studies for Systemic Review: Inclusion and Exclusion Criteria. *Contemporary Issues in Communication Science and Disorders*, 33(Spring), 21–27. https://doi.org/10.1044/cicsd_33_S_21

Minnaert, L., Diekmann, A., & McCabe, S. (2012). Defining social tourism and its historical context. *Social Tourism in Europe: Theory and Practice*, 18–30.

Minnaert, L., Maitland, R., & Miller, G. (2006). Social tourism and its ethical foundations. *Tourism, Culture and Communication*, 7(1), 7–17. https://doi.org/10.3727/109830406778493533

Montori, V.M., Wilczynski, N.L., Morgan, D., Haynes, R.B., & Hedges Team. (2003). Systematic reviews: a cross-sectional study of location and citation counts. *BMC medicine*, 1, 1-7. https://doi.org/10.1186/1741-7015-1-2

Morioka, S.N., & de Carvalho, M.M. (2016). A systematic literature review towards a conceptual framework for integrating sustainability performance into business. *Journal of Cleaner Production*, 136, 134–146. https://doi.org/10.1016/j.jclepro.2016.01.104

Nagy, B. (2019). Tourism with No Resources? *Acta Universitatis Sapientiae, Economics and Business.* 7(1), 5-22. https://doi.org/10.1515/auseb-2019-0001

Nightingale, A. (2009). *A guide to systematic literature reviews.* Surgery (Oxford), 27(9), 381–384.

Nurov, Z.S., Khamroyeva, F.K., & Kadirova, D.R. (2021). Development of domestic tourism as a priority of the economy. *E-Conference Globe*, 271–275. https://papers.econferenceglobe.com/index.php/ecg/article/view/104/101

Ogutu, H., El Archi, Y., & Dénes Dávid, L. (2023). Current trends in sustainable organization management: A bibliometric analysis. *Oeconomia Copernicana*, 14(1), 11–45. https://doi.org/10.24136/oc.2023.001

Omarova, A., Nurumov, A., Karipova, A., Kabdullina, G., Aimurzina, B., & Kamenova, M. (2021). Analysis of the development of innovative activities of the tourism industry in the influence of pandemic. *Journal of Environmental Management & Tourism*, 12(6 (54), 1442–1453. https://www.ceeol.com/search/article-detail?id=1019407

Panasiuk, A., & Wszendybył-Skulska, E. (2021). Social aspects of tourism policy in the European Union. The example of Poland and Slovakia. *Economies*, 9(1), 16. https://doi.org/10.3390/economies9010016

Prideaux, B. (2000). The role of the transport system in destination development. *Tourism Management*, 21(1), 53–63. https://doi.org/10.1016/S0261-5177(99)00079-5

Puczkó, L. (2010). Health, Wellness and Tourism: healthy tourists, healthy business. *In Proceeding of the Travel and Tourism Research Association Europe 2010 Annual Conference*, 1-3, Europe Chapter

Rahmat, A.F., El Archi, Y., Putra, M.A., Benbba, B., Mominov, S., Liudmila, P., Issakov, Y., Kabil, M., & Dávid, L.D. (2023). Pivotal Issues of Water-Based Tourism in Worldwide Literature. *Water*, 15(16), 2886. https://doi.org/10.3390/w15162886

Rother, E.T. (2007). Systematic literature review X narrative review. *Acta Paulista de Enfermagem*, 20, v–vi. https://doi.org/10.1590/S0103-21002007000200001

Ryan, C. (2002). Equity, management, power sharing and sustainability - Issues of the 'new tourism'. *Tourism Management*, 23(1), 17–26. https://doi.org/10.1016/S0261-5177(01)00064-4

Sampaio, R.F., & Mancini, M.C. (2007). Systematic review studies: A guide for careful synthesis of the scientific evidence. *Brazilian Journal of Physical Therapy*, 11, 83–89. https://doi.org/10.1590/S1413-35552007000100013

Serdobolskaya, I.O. (2003). *Государственное регулирование социального туризма и пути его совершенствования в Российской Федерации [Public regulation of social tourism and ways to improve it in the Russian Federation].* St. Petersburg University of Economics and Finance, Russia, 20 p, (In Russian).

Setiawan, P., Moaaz, K., Vasa, L., Pallás, E.I., & Dávid, L.D. (2021). Reviving an Unpopular Tourism Destination through the Placemaking Approach: Case Study of Ngawen Temple, Indonesia. *Sustainability*, 13(12), 1-21. https://doi.org/10.3390/su13126704

Szromek, A.R. (2021). The role of health resort enterprises in health prevention during the epidemic crisis caused by COVID-19. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(2), 133. https://doi.org/10.3390/joitmc7020133

Tóth, G., & Dávid, L. (2010). Tourism and accessibility: An integrated approach. *Applied Geography*, 30(4), 666–677. https://doi.org/10.1016/j.apgeog.2010.01.008

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. *British Journal of Management*, 14(3), 207–222. https://doi.org/10.1111/1467-8551.00375

Ianioglo, A., & Rissanen, M. (2020). Global trends and tourism development in peripheral areas. *Scandinavian Journal of Hospitality and Tourism*, 20(5), 520-539. https://doi.org/10.1080/15022250.2020.1848620

UNWTO. (2020). World Tourism Barometer May 2020 – Special focus on the Impact of COVID-19. https://www.unwto.org/

UNWTO. (1980). Manila Declaration on World Tourism. *The World Tourism Conference*, October, 4. http://www.e-unwto.org/doi/pdf/10.18111/unwtodeclarations.1980.6.4.1.

World Travel and Tourism Council (WTTC). (2021). World - Economic Impact 2021. Global Economic Impact & Trends, 1–2. https://wttc.org/

Zaei, M.E., & Zaei, M.E. (2013). The impacts of tourism industry on host community. *European Journal of Tourism Hospitality and Research*, 1(2), 12–21. www.ea-journals.org

***National Bureau of Statistics. (2019-2022). In Kazakh. https://stat.gov.kz/?ref=xranks

Article history: Received: 14.09.2023 Revised: 20.10.2023 Accepted: 17.11.2023 Available online: 28.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1573-1580
DOI 10.30892/gtg.50436-1154

EXAMINING CURRENT AND FUTURE CHALLENGES OF SEA LEVEL RISE ON COASTAL NATIONAL PARKS

Kaitano DUBE*
Ecotourism Management, Vaal University of Technology, Vanderbijlpark, South Africa;
Emirates Aviation University, Dubai International Academic, Dubai, United Arab Emirates, e-mail: kaitanod@vut.ac.za

David CHIKODZI
Institute of Corporate Citizenship, University of South Africa, Pretoria, South Africa, e-mail:dchikodzi@hotmail.com

Citation: Dube, K. & Chikodzi, D. (2023). EXAMINING CURRENT AND FUTURE CHALLENGES OF SEA LEVEL RISE ON COASTAL NATIONAL PARKS. *GeoJournal of Tourism and Geosites*, 50(4), 1573–1580. https://doi.org/10.30892/gtg.50436-1154

Abstract: Over the past decade, the increase in extreme weather events requires each sector to reflect on vulnerabilities to develop strategies for ramping up climate action. Owing to the shortage of climate data, significant knowledge gaps exist in some sectors of society and the economy, particularly in developing countries such as Africa. This has caused challenges for adaptation and resilience building as governments and other stakeholders cannot leverage knowledge for policy and practice and to seek funding for climate change action. This study responds to this knowledge by examining sea level challenges and their implications on coastal national parks in South Africa. The key question for this study is the most at-risk areas regarding sea level in coastal national parks and the implications of sea level on coastal national parks. The study utilises primary, secondary and archival data to arrive at conclusions. The study also uses climate change modelling data from SSP2-4.5 and SSP3-7.0. The study found that the most vulnerable coastal park in South Africa is the Garden Route National Park, which has the highest sea level rise, which will result in the Knysna section followed by the Cape Point section of Table Mountain, which will see the areas witnessing a 1m rise in sea level around 2100. Sea level rise is a threat to infrastructure, heritage, beaches, tourism employees and tourist safety, to mention but a few. The study recommends scaling up climate change action to assist the parks in adapting and building climate change resilience.

Keywords: coastal tourism, loss and damage, climate vulnerability, heritage, nature tourism, sea level rise

* * * * * *

INTRODUCTION

Coastal areas are critical in human development amongst nation-states. The coastlines form part of the earth's most populated (Agoubi, 2021) and economically active parts (Toimil et al., 2020). For decades, coastal areas have been celebrated for their contributions towards improving the quality of life through the various recreational and tourism opportunities they offer (Dube et al., 2020). Activities along the coastline vary from one coastal area to the other. Of note are the significant economic spinoffs from coastal tourism activities such as beach tourism and a plethora of other adventure activities such as windsurfing, cruise tours, shark cage diving, and other water sports and recreational activities.

These activities ensure that coastal areas are attractive to many coastal habitats and inland populations, which take annual breaks from these people for leisure and business. Regardless of the central role played by coastal areas, there is growing concern over the adverse impacts of extreme weather attributed to climate change that has increased in various coastal areas worldwide. Coastal areas such as Spain (Losada et al., 2019), Bangladesh (Uddin et al., 2019), China (Zhang et al., 2019), Hong Kong (Zhou et al., 2023) and elsewhere across the African coastline, there are fears that climate change will prove catastrophic to coastal areas disrupting socio and economic activities. This raises the need for proper coastal management and mapping of some of the most vulnerable areas (Toimil et al., 2020).

As carbon emissions rise and temperatures rise due to anthropogenic activities, there are fears that this will trigger further extreme weather events (Dube et al., 2023). Sea level rise and coastal erosion pose a significant challenge for coastal areas globally, regionally and locally. Evidence shows that an increase in temperature will trigger an increase in sea level rise and even more pronounced coastal erosion (Wang et al., 2022). Sea level rise is one of the biggest threats to coastal communities, threatening to inundate and submerge some coastal properties and beaches worldwide.

Vousdoukas et al. (2022) argue that a rise in sea levels is a threat to heritage sites on the African coastline. Apart from heritage, there is concern that sea level rise and coastal erosion threaten beaches and, by proxy, beach tourism in several geographic areas (Mgadle et al., 2022). The beach areas also witnessed the destruction of mangroves (Xie et al., 2022; Singh et al., 2022), which act as a buffer and protect the coastline from severe sea surges and erosion, further threatening people and property along coastal areas. Such surges are becoming more pronounced due to the increased intensity of coastal storms (Calafat et al., 2022). Khojasteh et al. (2022) noted that this change in tidal activity would adversely affect estuaries. Rising sea levels also pose an additional challenge of raising the risk of coastal flooding in many coastal

* Corresponding author

communities (Gaisie and Cobbinah, 2023). The increased intensity of tropical cyclones with climate change is also causing havoc in areas prone to cyclone storm tracks which compound climate change impacts (Dube et al., 2021). There are suggestions that earlier projections have understated the extent and impact of sea level rise in many areas (Mendelsohn et al., 2022). Evidence reveals variations in understanding the extent of sea level rise in different parts of the world (Walker et al., 2022). Khojasteh et al. (2022) argue that there are vast knowledge gaps regarding how sea level rise and tidal energy will affect estuaries. In South Africa, national parks have several estuaries with vast knowledge gaps.

This study, therefore, seeks to examine the impact of sea level and other extreme weather events on coastal national parks. Secondly, the study will examine future potential trends and what can be done to ameliorate the adverse effects of climate change on coastal national parks in South Africa that South African National Parks manage.

MATERIALS AND METHODS

The study will explore all the coastal national parks managed by South African National Parks. The national parks with a coastline include Addo Elephant National Park, various Garden Route National Park sections, Agulhas, Table Mountain, West Coast and Namaqua National Parks. The park lies on the Indian Ocean and the Atlantic Ocean.

The study uses primary, secondary and archival data from authoritative sources, with both qualitative and quantitative research being adopted to fulfil the study's aims and objectives. Primary data comprised mainly of field observations and interviews that were conducted by the research team between 2020 and 2022. During the fieldwork, interviews were conducted with 45 national park employees who fall within various categories and ranks. Among others, interviews were conducted with climate change scientists from SANParks, conservationists, section and senior section rangers, park managers, tourism managers and other key informants who constitute SANParks park management at the selected national parks. Among other things, interviews aimed to understand current historical patterns of ocean behaviour concerning observed tidal activity and the impact of oceanic activities such as sea surges during their working life in the park. Specific questions were asked to park scientists to understand the impact of sea level rise on coastal parks and their impacts on tourism and tourism infrastructure and the envisaged future under a changing climate. Interviews were conducted at the selected national park; participation was through snowballing and voluntary through informed consent.

During field observations, the researchers sought to make meaning of the availed data by visiting identified sea level rise and coastal erosion hotspots to ascertain the conditions and understand the possible causes of vulnerability and current remedial action being undertaken to deal with the challenge of sea level rise during field observations high-resolution images of the hotspots were taken. Notes were made on what was observed.

The study also uses archival data and modelled data from various sources. Permanent sea level markers were used to obtain current sea level rates for areas closest to the selected national parks. The NASA Seal Level Projection Tool was developed for the IPCC 6th Assessment Report (AR6). The tools allow the decision-makers to visualise what could happen under various carbon emissions scenarios to Sea Level Rise worldwide. In this study, the emissions pathways used are SSP2-4.5 and SSP3-7.0. Under the SSP3-7.0, carbon emissions are anticipated to continue to increase and roughly double by the end of the century, i.e. in 2100. Most scientists believe that this is the most plausible high-emissions pathway. The study also uses SSP2-4.5 scenarios with intermediate emissions, with carbon emissions expected to remain at current levels until the middle of the century. These are more accurate scenarios of what will likely happen.

The Climate Central Mapping tool was used to identify areas that are at risk areas of coastal flooding. CoastalDEM® v2.1 was used. The data is relatively reliable and can be used to denote areas at risk of flooding as the data is based on sea level rise and annual floods. Data analysis followed the qualitative and quantitative data analysis protocols. Interview data were transcribed using Amberscript, which saved time spent on transcription. Post transcription, the data was read and screened for accuracy and cleaning. The second reading was done to develop themes later used in the content and thematic analysis. Major themes developed from this exercise include sea level rise, tourism infrastructure, climate change impacts, coastal erosion, coastal flooding and extreme weather events.

RESULTS AND DISCUSSIONS

The study found that national parks along the coastline, such as Addo Elephant and Garden Route, suffer the harsh realities of climate change. One of the biggest threats to these parks is rising sea levels, posing a considerable risk to tourism infrastructure, beaches, heritage and activities. The study found that various national parks had different challenges regarding climate change, with the future also looking different for different national parks related to rising sea levels. One of the parks witnessing the harsh realities of climate change is the various sections of the Garden Route National Park on the Indian Ocean side of South Africa. A combination of rising sea levels and surges is threatening various properties in Tsitsikama National Park, which are in perpetual danger from rising sea levels and surges. Evidence from interviews indicated that on several occasions, the Cattle Baron Restaurant, located near the Storms River, has been swept away by the Ocean at least twice between 2010 and 2020. The restaurant is the sole supplier of food services to park visitors. Its disturbance and closure upset tourists who visit the area. The storm surge was also blamed several times for destroying braai and picnic facilities near the camp (Figure 1). Consequently, the campsite has been flooded by gushing water from the ocean during high tide episodes. The storm surges are reportedly also threatening the chalets near the ocean. The destruction of chalets at the rest camp and the threat of sea level also undermine camping activities, threatening safety and revenue income from accommodation in the park. It was revealed that in as much as there is awareness of the risks associated with accommodation. Apart from the infrastructure, the rising sea poses a danger to the beach, a favourite for many who visit this national park.

Regardless of the risk, the park manager indicated that it was difficult to relocate the campsite given that it is one of the favourite spots that come to the park. The indications were that the park would want to upgrade that part of its accommodation facilities as they were most profitable. Sea level rise was feared to pose a risk to other heritage infrastructure and walk trails close to the ocean. Tsitsikama's walking trails are quite popular with tourists that visit the park. Concerns were also raised over the impact of flooding on Nature's Valley section of the Park. This threatens road infrastructure, the walking trails and the beach, which is being eroded. Field observations revealed that beaches were being eroded, and the ocean was chiselled into the mountains, destroying vegetation (Figure 2).

Figure 1. Some of the most vulnerable areas (Source: Google Earth Pro)

Figure 2. Evidence of coastal erosion near Nature's Valley: Tsitsikama National Park (Source: Author taken during fieldwork)

Although this might happen slowly, evidence is that the coastline is being redrawn due to increased high tides affecting the national park. One of the managers indicated that the park is maintaining and upgrading the accommodation at the Storms River Camp. They are simply responding to the clientele's needs. Another challenge that was noted from the study of the Garden Route National Park was that given the rising sea level and climate changes, estuaries' geomorphology was significantly altered, which could impact beaches on river mouths and affect aquatic life upriver streams. It emerged from interviews that river mouths were not closing and opening as expected and as regularly as they would without climate change. The increase in sea level also resulted in sand accumulating on the river mouth, blocking sea and land freshwater from the river interaction. This has caused challenges, particularly in the Wilderness section of the park. The failure of the river mouth to open naturally has created headaches for host communities and park management, often resulting in upstream flooding destroying properties.

Figure 3. Vulnerability Map of Knysna: Map from CoastalDEM v2.1 9 (areas in red denotes areas that are below annual flood level)

This phenomenon is often made worse when an extreme rainfall event coincides with high seas and an extreme rainfall event. This development often causes a tussle between the park and residents who have homes on the estuaries. The Park management is often forced to embark on a risk exercise to artificially open the river mouth, which poses a risk for park employees tasked with opening the mouth artificially using a tractor. Where this has not been done, residents with properties on the river and or coastline have often threatened the park with legal action for damages. Such weather events, therefore, create conflict between the park and its residents. The blockage of the river mouth is also believed to disturb the natural interchange between sea and freshwater, which is feared to alter the water salinity in the lakes area, an important Ramsar Site. There are fears that recent fish deaths and diseases could result from disrupting this important interaction between the ocean and the river system. This situation is not localised to the Wilderness section only. The Garden Route National Park has many flushing points that Sea Level Rise causes.

In the Knysna section of the park, on several occasions, the high tide is reported to have caused damages to the SANParks offices at Thesen Island in Knysna owing to several areas that lie below the annual flood line (Figure 3). The increased tidal activity was also to blame for the destruction of the coastal defence system at the two Islands, which was at the centre of a legal wrangle in 2021, wherein residents were demanding that the municipality and SANParks take responsibility for repairing the damaged tidal activity which was damaging sea walls in the area. Most holiday homes on Leisure Island are also threatened by rising sea levels, with visible evidence of coastal erosion (Figure 3). Consequently, many homes on the coastline have adopted some form of coastline defence system to ameliorate the rise of sea levels and coastal erosion.

Given the extent of the rise in sea level, it is unclear if the current measures are of any comfort. The high tides and extreme rainfall are blamed for causing coastal flooding in the Knysna estuary. The flooding is blamed for causing damage to the railway line that is near N2, which was a major tourist link. The flooding of Knysna is also a challenge as it threatens the sewage treatment works, which can trigger water pollution. Under the SSP3-7.0 (Table 1), Knysna is expected to witness a sea level rise of about 1 meter around 2100. This will cause significant losses to the infrastructure in Knysna, a tourist town. The Western Cape National Park is another park battling the impact of rising sea levels. This national park's soft coastline makes it vulnerable to changes in oceanic trends. The study found several beaches disappearing due to rising sea levels and increased tidal activity. Large portions of beach areas around the estuary risk being wiped off. Field observations revealed that in some areas, due to tidal activity, the beach appears during the low tide and disappears during the low tide during the day. As this happens, tourists and residents sit on the coastline gazing at the sea as the beaches disappear. Figure 4 shows the areas that are most at risk from rising sea levels at the West Coast National Park.

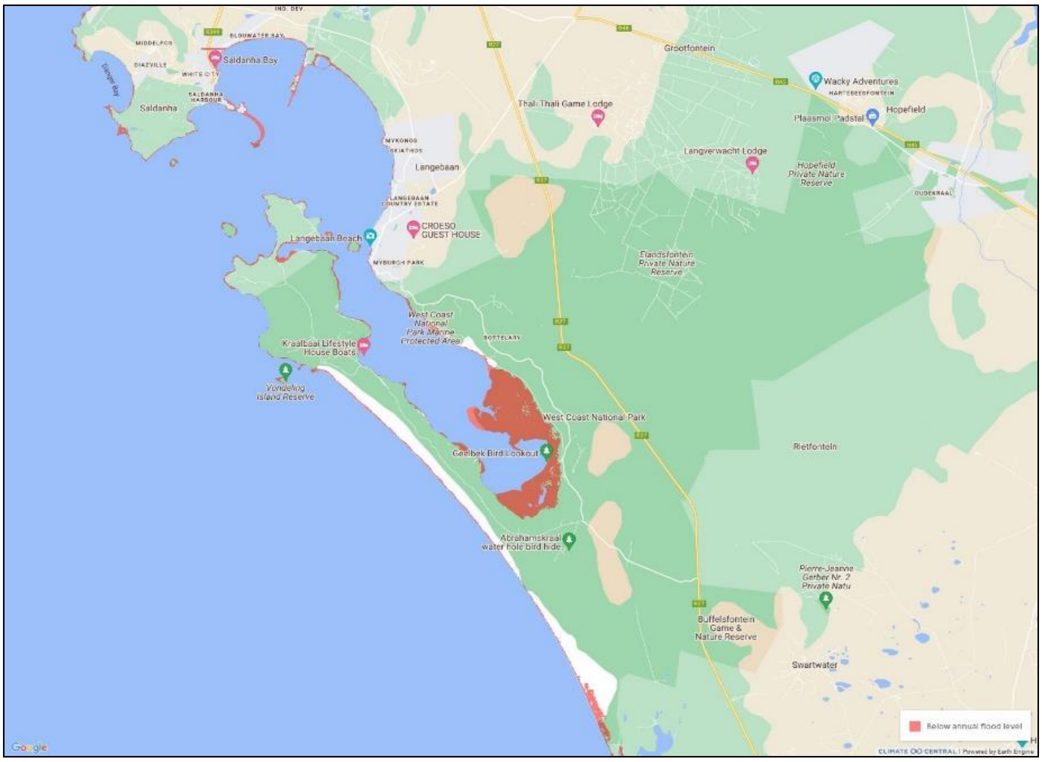


Figure 4. Most vulnerable areas to sea level rise and coastal flooding at West Coast National Park (areas in red denote areas that are below annual flood level)

Field observations revealed that given the soft coastline, which is largely composed of sandy soils, segments of the lagoon suffered due to wave action and water action, resulting in large chunks of the earth being eroded as the water advanced into the park. Due to rising sea levels, some of the infrastructure installed to cater for beachgoers now lies inside the estuary (ocean flow). Some of the infrastructure to take people to the beach is collapsing as the foundation erodes and falls into the estuary (Figure 5). This causes the park to incur losses in the form of repair costs. Nevertheless, some areas' ecosystem services and recreational value are lost as they become unusable for their original purposes. This can result in some areas being over-subscribed by the number of recreational makers and other visitors. Given that the other main beach is experiencing the same challenges, it will frustrate many tourists. The park also has a long history and heritage, given the level and extent of erosion. Some of the archaeological artefacts are at high risk of being eroded.

Figure 5. Inundated beach, collapsing walkways and large chunks of eroded earth at the West Coast National Park

Part of the park is a marine protected area. Some fear that rising sea levels could have an adverse impact on bird habitats on that island, which is an important bird site. A combination of rising sea levels and pollution from Saldana Bay, which is used as a harbour by mining and manufacturing companies, threatens many recreational activities in the estuary, including fishing. Changes in seawater temperature were also blamed for changes in the size and quantity of fish in the estuaries by some employees, which can adversely affect recreational fishing activities in the park.

The Future of Sea Level Rise in Coastal National Parks in South Africa

The study found that many national parks will suffer the adverse effects of the ever-increasing sea level rise. The study showed that the park that will experience the highest sea level rise is the Garden Route if one considers the projected sea level rise at Knysna. Under the SSP3-7.0, Knysna is expected to rise about 1 m sea level by 2100. This will likely compound the challenge of sea level rise experienced in the three sections of the park, particularly those areas with a soft coastline. According to projections, the other area of concern is the Sea Point section (Cape Point) of Table Mountain National Park. The rate of increase will result in the area also witnessing a 1m sea level rise around 2100.

Field observations and interviews revealed that some beaches quickly disappeared in and around the Cape Peninsula. A small beach, Dias Beach, is one of the most Southern beaches near the Cape of Good Hope. A time series of Google Earth Images between July 2005 and July 2020 shows that the beach has lost 60m of its width to the advancing ocean. Most areas that had sand are now covered in water due to the rise of the sea level. The advancing ocean has also submerged another beach that is in that area. The Platboom Beach in the Cape Peninsula had a width size of 240m in July 2004. In July 2018, according to Google Images, the beach was only left with a 30m width beach size due to the sea level. This development is a huge upset to tourism and recreation in the area. The evidence of the rise of sea level is equally evident at the Slangkop Light House. The Southerly side of the Light House exhibits evidence of significant levels of coastal erosion, with part of the fence footing eroded significantly. During the fieldwork, Southwestern parts of the fence were hanging in the air, and there were efforts to put concrete and other rocks from the ocean to defend the coastline from further damage. The footing of the light, which is touted as one of the strongest in the country, is under threat from erosion (Figure 6).

Figure 6. Sections of Slangkop Lighthouse being eroded by ocean wave action

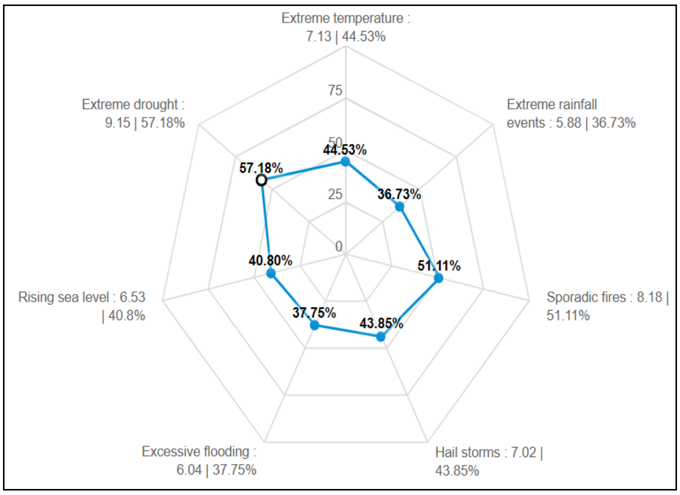


Figure 7. Most significant extreme weather event in South African National Parks

With regard to Table Mountain National Park, there are fears that the combined effects of storms, storm surges, and coastal erosion will worsen the loss of heritage in that park. Table Mountain has much heritage that can be easily lost to erosion. Other tourism operations have been disrupted on the Sofia Cape Town railway line has been in the past buried in the sand from the advancing ocean as it runs along the coastline, which has disrupted tourists' movement. This is a testament to the challenges that are to be experienced due to sea level rise.

Most national parks will witness a 1m sea level rise post-2150 (Table 1), which could also affect even those parks with a lot of infrastructure on the coast, such as Namaqua National Park in Northern Cape. Data from Port Norloth shows that the area will experience a 0.5m sea level rise around 2090 before shooting to 1m around 2150. It is unimaginable that the Namaqua Coastal area, which has 8 camp areas and braai facilities, will be affected by such rising sea levels. Some camps that could be affected by such an increase are Delwerskamp Campsite, Skilpad Rest Camp, Bamboes Camp, Namaqua Flowers Beach Camp, Groen River, Kwass, Skuinsklip, Boulder Baai, Skuinsbaai Noord, Koringkorrel Baai, among others.

Table 1. Projected Sea level along the Southern and western coastline of South Africa

	Sea Level Scenario for Kysna		**Sea Level Scenario for Port Elizabeth**		**Sea Level Scenario for Cape Town Granger Bay**		**Sea Level Scenario for Simon's Bay**		**Sea level Scenario for Port Norloth**	
	SSP2-4.5	**SSP3-7.0**	**SSP2-4.5**	**SSP3-7.0**	**SSP2-4.5**	**SSP3-7.0**	**SSP2-4.5**	**SSP3-7.0**	**SSP2-4.5**	**SSP3-7.0**
Total 2030	0.12 (0.09–0.15)	0.11 (0.09–0.14)	0.10 (0.07–0.14)	0.10 (0.07–0.13)	0.09 (0.06–0.13)	0.09 (0.06–0.12)	0.11 (0.08–0.14)	0.11 (0.08–0.14)	0.10 (0.07–0.14)	0.10 (0.08–0.13)
Total 2050	0.24 (0.20–0.31)	0.26 (0.21–0.32)	0.22 (0.17–0.29)	0.23 (0.18–0.30)	0.20 (0.15–0.27)	0.21 (0.16–0.28)	0.23 (0.18–0.30)	0.25 (0.20–0.32)	0.23 (0.17–0.30)	0.24 (0.19–0.31)
Total 2090	0.55 (0.43–0.74)	0.64 (0.52–0.84)	0.50 (0.37–0.70)	0.59 (0.46–0.79)	0.48 (0.35–0.67)	0.56 (0.43–0.76)	0.54 (0.41–0.73)	0.63 (0.50–0.82)	0.52 (0.39–0.71)	0.61 (0.48–0.81)
Total 2100	0.64 (0.49–0.87)	0.77 (0.62–1.01)	0.58 (0.42–0.82)	0.72 (0.55–0.97)	0.55 (0.40–0.78)	0.68 (0.52–0.92)	0.63 (0.47–0.85)	0.75 (0.59–1.00)	0.60 (0.45–0.83)	0.73 (0.57–0.97)
Total 2150	1.07 (0.77–1.50)	1.35 (1.01–1.81)	0.99 (0.67–1.42)	1.27 (0.91–1.75)	0.94 (0.63–1.37)	1.21 (0.86–1.68)	1.05 (0.74–1.48)	1.32 (0.97–1.79)	1.01 (0.70–1.44)	1.28 (0.94–1.75)
Rate 2040-2060	6.7 (5.0–9.0)	7.5 (5.9–9.8)	6.1 (4.3–8.4)	7.0 (5.3–9.2)	5.8 (4.1–8.1)	6.6 (4.9–8.8)	6.5 (4.9–8.8)	7.3 (5.7–9.6)	6.4 (4.8–8.8)	7.1 (5.4–9.4)
Rate 2080-2100	8.8 (5.9–12.7)	11.7 (8.4–16.2)	8.2 (5.2–12.2)	11.2 (7.6–16.0)	7.8 (4.9–11.8)	10.6 (7.3–15.1)	8.6 (5.8–12.6)	11.4 (8.0–15.8)	8.2 (5.4–12.2)	11.0 (7.8–15.4)

An Employee Perspective of sea level rise

The staff survey conducted amongst 244 employees across the 19 national parks showed that sea level rise remains a relatively underrated risk within South African National Parks (Figure 7). The study found that rising sea levels are ranked after extreme drought, fire, temperature and hailstorms but ahead of flooding, which is significant in that in as much as the number of parks that are on the coastline is relatively low, there is recognition of the threat posed by sea level rise. Sea level rise is also a slow-onset event that requires careful attention to master its impact in many ways.

That recognition of the threat posed by rising sea levels is a significant indicator of the need for action to deal with rising sea levels on South Africa's coastline. On another question, employees were requested to articulate the impact of sea level rise on national parks in South African national parks. Figure 8 shows that one of the biggest threats from a tourism perspective of sea level rise is that it instils fear in tourists and park employees alike. This is particularly true when considering the impacts of high tides along the coast with vast amounts of water moving onshore.

This can be an intimidating and catastrophic event. The study also finds that there is an acknowledgement of the adverse effect of rising sea levels on infrastructure such as roads, accommodation-fencing, and other critical infrastructure in the park, as already seen from interview data, field observations, and other sources in this study.

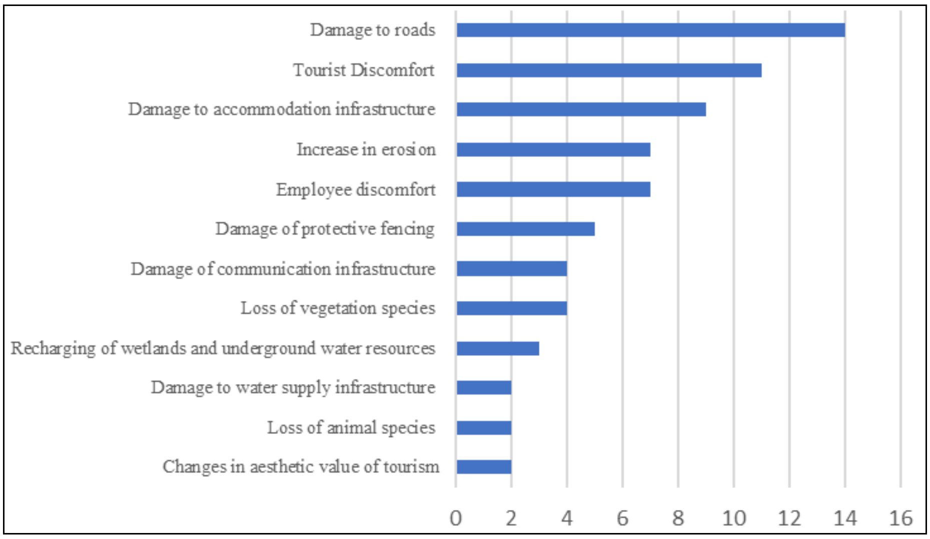


Figure 8. An employee perspective on the impacts of sea level rise on national parks

Mean 6.529, Confidence Interval @ 95% [5.541 - 7.517] n = 70.0, Standard Deviation 4.218, Standard Error 0.504. The employees also raise a critical issue of vegetation species loss; this could be a consequence of salt seawater intrusion and other challenges noted in the study, such as the disruption of fresh and seawater interaction, which could change the chemical composition of water and other habitats which resides in estuaries with adverse impacts on such ecosystems.

DISCUSSION

The study confirmed earlier findings that the coastline faces coastal squeeze due to climate change (Lithgow et al., 2019; Wen and Hughes, 2022) caused by increased anthropogenic activities that release carbon emissions into the atmosphere. The studies show a strong link between observed and anticipated carbon emissions and increased sea levels, as earlier observed by previous scholars (Lu et al., 2022). The resultant warm poses an existential threat to various economic activities, including tourism. Rising sea levels and other extreme coastal weather events, such as coastal storms, amplify the rising sea levels and often manifest in increased damage and costs from erosion and coastal flooding (Mgadle et al., 2022; Dube et al., 2021). The evidence seems to suggest that in as much as sea level rise poses a threat to tourism infrastructure and activities (Gbedemah, 2023; Dube et al., 2023), there is very little evidence to suggest that SANParks actively seeks the adoption of adaptation measures to deal with sea level rise. There doesn't seem to be urgency in dealing with this challenge, which can lead to maladaptation on the part of South African National Parks. This poses an even bigger threat to the parks' sustainability in high-risk coastal areas.

If left unchecked, there is a real risk that could result in casualties from future climate change and sea level-related events. The lack of coastal defence in some of the most vulnerable areas is a cause of concern. Two issues emerge: either SANParks does not have the technical and or financial capacity to deal with the climate change challenge from the sea level rising perspective, or it has chosen to turn a blind eye to this challenge or decided to adopt a wait-and-see attitude, which could prove disastrous as the challenge grows. Threats of legal liability are worrying, and SANParks has to take concrete steps to address this matter holistically. There is a need to closely ensure that all the coastal parks have adequate and reliable insurance to deal with the often sudden and high-impact extreme weather events that are increasing in coastal areas.

Given that sea level rise is likely to become a growing disaster concern, SANParks needs to train its personnel in dealing with risks associated with sea level rise and put in place disaster management mechanisms that will arise from sea level rise. This will call for understanding and installation of early disaster warning technology to equip parks and their employees on eventualities that may emerge from the anticipated rapid increase in sea level rise post-2021. There is always a need to assist the employees in managing the psychological trauma often ushered by extreme weather events from rising sea levels, given the fear factor raised in the study by many employees, which is equally a concern for tourists.

The SANParks organisation has to work and mobilise resources to put proper coastal management defence mechanisms in place as we advance as part of the adaptation building and climate change resilience strategy. This will assist SANParks in the medium to long term. Such efforts must be scientifically sound and evidence-based. There is a chance of utilising ecosystem adaptation-based strategies where this is feasible, which can assist in saving the ultimate cost of adaptation.

CONCLUSION

The study found that several coastal national parks are at risk of climate change-imposed rising sea levels. The park of the highest concern with regard to rising sea levels is the Garden Route National Park, where various sections are experiencing challenges due to rising sea levels. The challenges range from the destruction of key infrastructure such as roads, accommodation, and office space to the erosion of beaches and the disruption of natural estuary opening and closing cycles, which have implications for estuary ecosystems in the affected areas.

Sea levels also complicated the situation and increased the chances and occurrence of coastal flooding in several areas. Coastal flooding often causes havoc, resulting in a blame game, and some players are taking South African National for legal action due to climate backlash and coastal squeeze caused by sea level rise. Climate change has raised conflict in some coastal national parks due to loss and damage that results from the same in national parks and host communities that reside near or around national parks, which is a matter of concern. The study also found that coastal areas with a soft coastline are most at risk as they seem to be experiencing severe erosion above the global coastal erosion rates.

Future climate change scenarios indicate that rising sea levels will compound current sea level challenges, trigger unimaginable situations and property damage and loss, and adversely alter beach and coastal tourism. There is, therefore, a need to ramp up efforts to build resilience for coastal tourism in coastal national parks. This requires a substantial financial investment on the part of the government. A de-risked approach might be appropriate for other parks in the future.

Author Contributions: Conceptualization, K.D and D.C.; methodology, K.D and D.C.; software, K.D and D.C.; validation, K.D and D.C.; formal analysis, K.D and D.C.; investigation, K.D and D.C.; data curation, K.D and D.C.; writing - original draft preparation, K.D and D.C.; writing - review and editing, K.D and D.C.; visualization, K.D and D.C.; supervision, K.D and D.C.; project administration, K.D and D.C. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgements: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Agoubi, B. (2021). A review: saltwater intrusion in North Africa's coastal areas—current state and future challenges. *Environmental Science and Pollution Research, 28*, 17029-17043. https://doi.org/10.1007/s11356-021-12741-z

Calafat, F.M., Wahl, T., Tadesse, M.G., & Sparrow, S.N. (2022). Trends in Europe storm surge extremes match the rate of sea-level rise. *Nature, 7903*(603), 841-845. https://doi.org/10.1038/s41586-022-04426-5

Dube, K., Chapungu, L., & Fitchett, J. (2021). Meteorological and Climatic Aspects of Cyclone Idai and Kenneth. In D. K. Nhamo G. (Ed.), *Cyclones in Southern Africa Sustainable Development Goals Series.* (pp. 19-36). Springer, Cham. https://doi:10.1007/978-3-030-74262-1_2

Dube, K., Nhamo, G., & Chikodzi, D. (2021). Rising sea level and its implications on coastal tourism development in Cape Town, South Africa. *Journal of Outdoor Recreation and Tourism, 33*, 100346. https://doi:10.1016/j.jort.2020.100346

Dube, K., Nhamo, G., & Mearns, K. (2020). &Beyond's Response to the Twin Challenges of Pollution and Climate Change in the Context of SDGs. In G. Nhamo, G. Odularu, & V. Mjimba (Eds.), *Scaling up SDGs Implementation. Sustainable Development Goals Series.* (pp. 87-98). Springer, Cham . https://doi.org/10.1007/978-3-030-33216-7_6

Dube, K., Nhamo, G., Kilungu, H., Hambira, W.L., El-Masry, E.A., Chikodzi, D., & Molua, E.L. (2023). Tourism and climate change in Africa: informing sector responses. *Journal of Sustainable Tourism*, 1-21. https://doi:10.1080/09669582.2023.2193355

Gaisie, E., & Cobbinah, P.B. (2023). Planning for context-based climate adaptation: Flood management inquiry in Accra. *Environmental Science & Policy, 141*, 97-108. https://doi.org/10.1016/j.envsci.2023.01.002

Gbedemah, S.F. (2023). Eruditing from indigenous adaptation strategies for resilient and sustainable coastal erosion management in southeastern Ghana. *Discover Sustainability, 4*(1), 12. https://doi.org/10.1007/s43621-023-00123-z

Khojasteh, D., Lewis, M., Tavakoli, S., Farzadkhoo, M., Felder, S., Iglesias, G., & Glamore, W. (2022). Sea level rise will change estuarine tidal energy: A review. *Renewable and Sustainable Energy Reviews, 156*, 111855. https://doi.org/10.1016/j.rser.2021.111855

Lithgow, D., Martínez, M.L., Gallego-Fernández, J.B., Silva, R., & Ramírez-Vargas, D.L. (2019). Exploring the co-occurrence between coastal squeeze and coastal tourism in a changing climate and its consequences. *Tourism Management, 74*, 43-54. https://doi.org/10 .1016/j.tourman.2019.02.005

Losada, I.J., Toimil, A., Munoz, A., Garcia-Fletcher, A.P., & Diaz-Simal, P. (2019). A planning strategy for the adaptation of coastal areas to climate change: The Spanish case. *Ocean & Coastal Management, 182*, 104983. https://doi.org/10.1016/j.ocecoaman.2019.104983

Lu, Z., Mahalik, M.K., Mahalik, H., & Zhao, R. (2022). The moderating effects of democracy and technology adoption on the relationship between trade liberalisation and carbon emissions. *Technological Forecasting and Social Change, 180*, 121712. https://doi.org/10.1016/j.techfore.2022.121712

Mendelsohn, R., Fairbank, A., & Rajaoberison, A. (2022). The Economics of Storm Gates. *Coastal Management, 50*(3), 237-250. https://doi.org/10.1080/08920753.2022.2037387

Mgadle, A., Dube, K., & Lekaota, L. (2022). Conservation and Sustainability of Coastal City Tourism In the Advent of Seal Level Rise in Durban, South Africa. *Tourism in Marine Environments, 17*(3), 179-196. https://doi.org/10.3727/154427322X16599399156575

Singh, M., Schwendenmann, L., Wang, G., Adame, M.F., & Mandlate, L.J. (2022). Changes in mangrove carbon stocks and exposure to sea level rise (SLR) under future climate scenarios. *Sustainability, 7*(14), 3873. https://doi.org/10.3390/su14073873

Toimil, A., Losada, I.J., Nicholls, R.J., Dalrymple, R.A., & Stive, M.J. (2020). Addressing the challenges of climate change risks and adaptation in coastal areas: A review. *Coastal Engineering, 156*, 103611. https://doi.org/10.1016/j.coastaleng.2019.103611

Toimil, A., Losada, I.J., Nicholls, R.J., Dalrymple, R.A., & Stive, M.J. (2020). Addressing the challenges of climate change risks and adaptation in coastal areas: A review. *Coastal Engineering, 156*, 103611. https://doi.org/10.1016/j.coastaleng.2019.103611

Uddin, M.N., Islam, A.S., Bala, S.K., Islam, G.T., Adhikary, S., Saha, D., & Akter, R. (2019). Mapping of climate vulnerability of the coastal region of Bangladesh using principal component analysis. *Applied geography, 102*, 47-57. https://doi.org/10.1016/j.apgeog.2018.12.011

Vousdoukas, M.I., Clarke, J., Ranasinghe, R., Reimann, L., Khalaf, N., Duong, T.M., & Simpson, N.P. (2022). African heritage sites threatened as sea-level rise accelerates. *Nature Climate Change, 12*(3), 256-262.

Walker, J.S., Kopp, R.E., Little, C.M., & Horton, B.P. (2022). Timing of emergence of modern rates of sea-level rise by 1863. *Nature communications, 13*(1), 966. https://doi.org/10.1038/s41558-022-01280-1

Wang, Y., Sarkar, A., Hasan, A.K., Tian, Y., Wu, Q., Hossain, M., & Wei, F. (2022). The evaluation of temporal and spatial trends of global warming and extreme ocean surface temperatures: a case study of Canada. *ISPRS International Journal of Geo-Information, 11*(1), 21. https://doi.org/10.3390/ijgi11010021

Wen, L., & Hughes, M.G. (2022). Coastal wetland responses to sea level rise: the losers and winners based on hydro-geomorphological settings. *Remote Sensing, 14*(8), 1888. https://doi.org/10.3390/rs14081888

Xie, D., Schwarz, C., Kleinhans, M.G., Zhou, Z., & van Maanen, B. (2022). Implications of Coastal Conditions and Sea-Level Rise on Mangrove Vulnerability: A Bio-Morphodynamic Modeling Study. *Journal of Geophysical Research: Earth Surface, 127*(3), e2021JF. https://doi.org/10.1029/2021JF006301

Zhang, Y., Wang, Y., Chen, Y., Liang, F., & Liu, H. (2019). Assessment of future flash flood inundations in coastal regions under climate change scenarios—A case study of Hadahe River basin in northeastern China. *Science of the Total Environment, 693*, 133. https://doi.org/10.1016/j.scitotenv.2019.07.356

Zhou, B., Zeng, H., Zhao, L., & Han, Z. (2023). Climate Change and Climate Risks in the Guangdong-Hong Kong-Macau Greater Bay Area. In G. Zhuang, Q. Chao, G. Hu, & J. Pan (Eds.), *Annual Report on Actions to Address Climate Change (2019) Climate Risk Prevention* (pp. 173-193). Singapore : Springer Nature . https://doi.org/10.1007/978-981-19-7738-1_12

Article history: Received: 17.09.2023 Revised: 23.10.2023 Accepted: 20.11.2023 Available online: 28.12.2023

GeoJournal of Tourism and Geosites
ISSN 2065-1198, E-ISSN 2065-0817

Year XVI, vol. 50, no. 4, 2023, p.1581-1589
DOI 10.30892/gtg.50437-1155

INEQUITY ANALYSIS IN THE LOW AND HIGH COMPLEXITY PUBLIC SERVICES SUPPLY IN RELATION TO BEDS AVAILABILITY IN MANIZALES - VILLAMARÍA CONURBATION

Diana Carolina LEAL*
Universidad Nacional de Colombia, Sede Manizales, Facultad de Ingeniería y Arquitectura, Departamento de Ingeniería Civil, Grupo de Investigación en Movilidad Sostenible, Manizales, Caldas, Colombia, e-mail: dclealp@unal.edu.co

Diego ESCOBAR
Universidad Nacional de Colombia, Sede Manizales, Facultad de Ingeniería y Arquitectura, Departamento de Ingeniería Civil, Grupo de Investigación en Movilidad Sostenible, Manizales, Caldas, Colombia, e-mail: daescobarga@unal.edu.co

Carlos MONCADA
Universidad Nacional de Colombia, Sede Bogotá, Facultad de Ingeniería, Departamento de Ingeniería Civil y Agrícola, Programa de Investigación en Tránsito y Transporte - PIT, Bogotá, Colombia, e-mail: camoncadaa@unal.edu.co.

Citation: Leal, D.C., Escobar, D., & Moncada, C. (2023). INEQUITY ANALYSIS IN THE LOW AND HIGH COMPLEXITY PUBLIC SERVICES SUPPLY IN RELATION TO BEDS AVAILABILITY IN MANIZALES - VILLAMARÍA CONURBATION. *GeoJournal of Tourism and Geosites*, 50(4), 1581–1589. https://doi.org/10.30892/gtg.50437-1155

Abstract: This research aims to determine the current conditions of geographical accessibility to and from healthcare centres in Manizales and Villamaría conurbation through the Enhanced two- step floating catchment area (E2SFCA) method, supported by geographic tools and socioeconomic assessments. The main result is that the average number of beds per 1000 inhabitants in low complexity systems is below the average defined for Colombia and Latin America, thus requiring greater attention in implementing beds to reach the required accessibility levels. These valuations allow concluding that the accessibility of healthcare institutions requires the use of significant calculation tools, such as the E2SFCA method, which has not had great applications within the Colombian territory.

Key words: accessibility, geostatistics, mobility, E2SFCA, health

* * * * * *

INTRODUCTION

According to the Economic Commission for Latin America and the Caribbean - ECLAC (2020), Latin America is highly vulnerable due to its weak social protection and health systems and multiple levels of poverty and inequality. Due to this, strategies must continue to be sought to improve the Colombian health system, which guarantees access to health services for the population as a fundamental right and, at the same time, acts as the first resource for the defence of the population; the above in order to prevent/reduce the need for specialized care. It is essential to formulate accessibility measures that are reliable and accurate enough to identify the sectors with low health service coverage and thus allocate the necessary resources to reduce this problem to achieve this objective (Luo and Qi, 2009). Penchansky and Thomas (1981) define access to health care along five dimensions: affordability as the cost of using health care; acceptability, defined as the performance and satisfaction of health care delivery services; availability, defined as the number of points of care among which a user can choose; geographic acceptability, which is defined as the impedance of travel between providers and patients; and finally, accommodation defined as the capacity of health services. In turn, health care can be divided into two general phases: "potential", referred to as the potential for existing health care when the population coexisting in space and time requires such care, and "realized", which refers to when the service by health personnel is provided to the patient.

However, the availability of multiple healthcare service facilities leads to erratic behaviour in this care perception. Therefore, it is essential to examine together both the accessibility to these points and their availability, resulting in an assessment of spatial accessibility, as defined by Guagliardo (2004) and used in this research under the vision of "a potential measure for healthcare service provision", in search of identifying the underserved population as a first phase towards a government intervention (Luo and Qi, 2009). The study case to be analysed is the healthcare system in Manizales and Villamaría, setting as an obejctive to clarify the existence of unequal conditions in the geographical distribution of the beds available in the study area, both in the low and high complexity IPSs, determining the differences in coverage for the citizenship, as well as the approach of possible solutions in terms of implementation of services. Manizales, capital of the Caldas department, is located in the central-western zone of the Colombian territory at 2150 m.a.s.l and has an area of 442.01 km2 (Alcaldía de Manizales, 2016); Villamaría, is located in the central-southern zone of Caldas and has 461 km2 of surface (Alcaldía de Vilamaría, 2018). Figure 1 shows the location of the study area. According to DANE (2018), the urban area provides medical services to approximately 463,267 people.

The increased availability of relevant resources, such as population and transport route information, facilitates the deployment of valuable technologies for accessibility research, such as Geographic Information Systems (GIS). This

* Corresponding author

technology enables creation of spatial distribution maps of healthcare needs and uses, through which the socio-spatial impact of health policy decisions can be assessed (McLafferty, 2003). Likewise, GIS can determine the accessibility condition to and from the nodes of interest (healthcare centres), considering socio-demographic and socioeconomic data and the number of available beds. Spatial accessibility is usually defined using a method to evaluate the population distribution of the health services available in the previously defined perimeter (Pan et al., 2015).

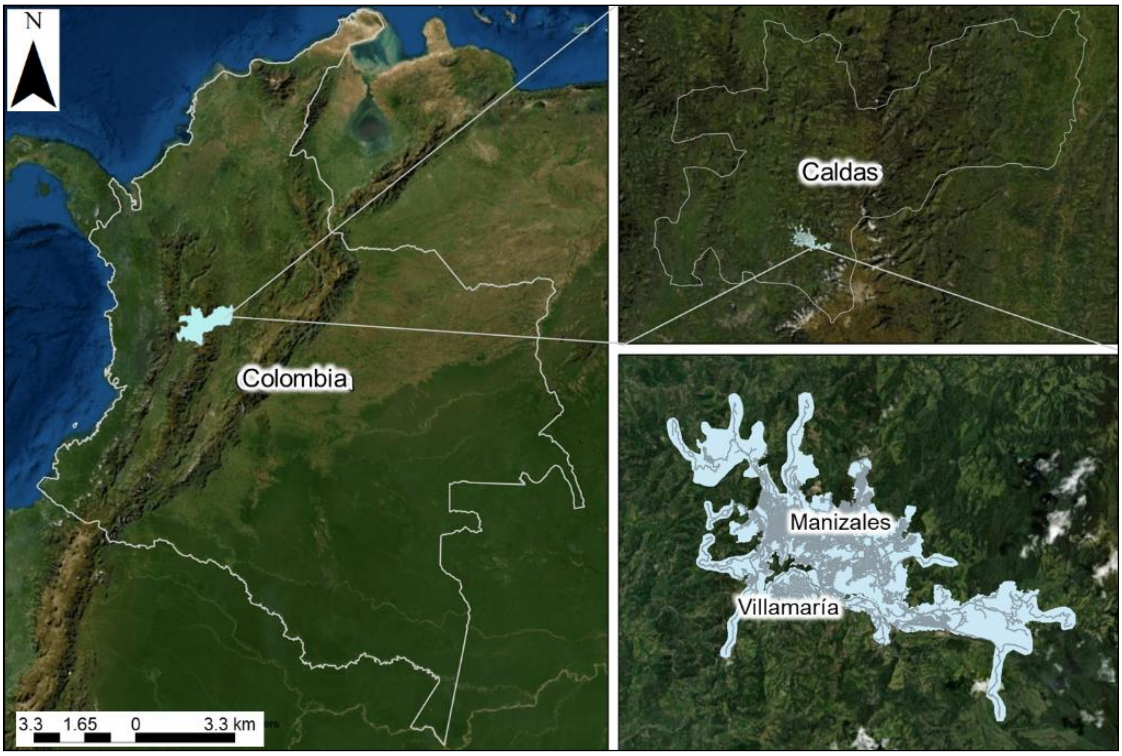


Figure 1. Location of Manizales City (Source: Self made)

There are different models for its measurement, such as gravity, regional availability, floating basin and core density (Guagliardo, 2004). However, despite the range of usable models, some of them may have very high accessibility ratings in some areas and underestimated in others, which leads to an incorrect distribution of available resources by the public administration (Luo and Qi, 2009). The Enhanced Two-Step Floating Catchment Area Method (E2SFCA) consists of dividing the areas into different sub-zones, which are attributed different values of importance according to the distance decrease f(d), adjustable according to the route (Pan et al., 2015).

Although it is known that other proposed methods share similarities with the Floating Catchment Method (2SFCA), however, E2SFCA will be used in this research, being this the most recommended floating catchment area method (Dewulf et al., 2013) and most used in the latest studies on the subject (Liu et al., 2022; Tali et al., 2023). In Colombia, applied research has been conducted in the healthcare field using the E2SFCA and 2SFCA methodologies, positively impacting the population (Escobar et al., 2020; Monsalve et al., 2016; Rojas et al., 2017), identifying important contributions in the way these methods are applied in Colombia and more in the field of health, in which little was known; facilitating the processes of localization of critical areas and expansion of services.

METHODOLOGY

The methodology used contemplates the use of 4 stages, which are shown in Figure 2 and described below.

Stage 1. Data Collection: As a first, the information required for the research, both primary and secondary, was collected, verified and filtered. This includes data on neighborhoods, population and socioeconomic condition of the conurbation area under study; likewise, the transportation network is structured, including arcs and nodes, considering the

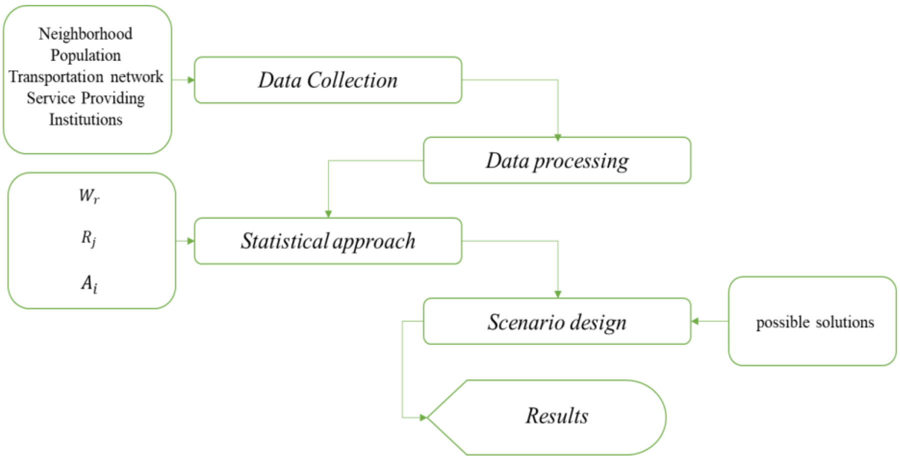


Figure 2. Methodology (Source: Self made)

physical and operational conditions of importance (speed, direction, length, slope). The Service Providing Institutions (IPS) are obtained from the base information provided by the Health Secretariat of both municipalities, which are spatially located according to the location defined by the entity. Likewise, a database is created containing information on the number of beds and the level of service of each IPS, information that is obtained by contacting each of these establishments and using the set of data provided by the Special Registry of Service Providers (REPS).

Stage 2. Data processing: Once the basic data has been collected, the sociodemographic information layer for the study area is organized, which includes neighborhoods, population and socioeconomic strata, which is understood as the subdivision into population groups considering the population's purchasing power, where stratum 1 represents the most unfavorable condition and stratum 6, the population group with the highest purchasing power. At the same time, the current condition of the transportation network is evaluated, updating and/or correcting sectors with inconsistencies through GPS applications, georeferencing the road arcs that are not in the layer and that are not yet in the ISRI application due to their recent construction or commissioning, verifying the structure according to the graph theory (Cardozo et al., 2009), evaluating the performance concerning topological conditions, as well as its physical and operational components mentioned above. The layer with the IPS geographic location is created based on the care level and the number of available beds. All the data collected is reviewed, adjusted and updated.

Stage 3. Statistical approach: As a next step, the integral accessibility calculation is performed. Its results are analyzed according to the average cost of user travel, establishing the level of coverage in the average travel time in the transport infrastructure network to the IPSs, taking as criteria the care level, the number of beds and the number of doctors available. The dataset of the Network is created to perform the integral accessibility calculation using the Network Analyst extension in ArcMap and subsequently perform the network analysis and obtain the minimum travel time vector.

Once the average travel time vector is constituted, the corresponding geographic coordinates of each node are assigned, continuing with the geostatistical model application of ordinary kriging interpolation, with linear semi-variogram as a structuring equation (Moncada et al., 2018). After this, the interpolations are reclassified into raster-type entities at 5-minute intervals, resulting in the isochronous curves of accessibility. Finally, they are associated with socioeconomic variables, resulting in the cumulative coverage percentage. Each catchment area must then be divided into sub-areas for the E2SCFA procedure application, setting a travel time threshold do, which allows the detection of areas with a shortage of healthcare employees, considering the development established by the U.S. Health Resources and Services Administration through the Health Professional Shortage Area (HPSA) tool. The threshold suggested by Lee (1991) of 30 minutes was used to determine the significant catchment area and thus be able to conclude whether the resources are near or far from the population, resulting in a sensitivity assessment with a temporal variation of between 20 and 50 minutes (Luo and Wang, 2003). After the analysis, it is concluded that 30 minutes of buffering corresponding to a 15-mile zone of influence is required to counteract the edge effect, considering the means of transport.

Work executed by Luo and Wang (2003) and Mao and Nekorchuk (2013) was conducted in the metropolitan areas of Chicago and Florida (USA), respectively. These areas have populations over 5 million, and both use a 30-minute do. To identify the increase/decrease in supply and demand, (Paez et al., 2019) use watershed methods such as SFCA and E2SFCA, employing time use data from the General Social Survey in Canada and considering the population of 720,000 and the density of the study area, the Hamilton CMA established a time threshold of 15 minutes.

Considering the above, it is decided to use the urban area of Manizales and Villamaría, which, according to DANE (2018), has a population density of 463,267 people and a travel time limit of up to 15 minutes. The W_r weights for each subzone are calculated at 5-minute intervals using an impedance function.According to Kwan (1998), three impedance functions are used for accessibility measures based on gravity: exponential function $f(d)=e^{-\beta d}$; inverse function $f(d)=e^{-\beta}$; and Gaussian function $f(d)=e(-dij^2/\beta)$, where β is defined as an impedance coefficient that measures the impact of travel costs (travel time or distance) on users' access to health services (Neutens, 2015). Of these impedance functions, Kwan (1998) asserts that the Gaussian structure (Eq. 1) better fits the standard distribution curve than the other structures. Wang (2007) points out that the exponential structure and the inverse obtain unrealistic accessibility models because they do not fit best to the standard distribution curve and show a sharp drop very close to the trip origin.

$$W_r = f\left(d_{ij}\right) = \exp\left(-\frac{d_{ij}^2}{\beta}\right) \tag{1}$$

Kwan (1998) establishes a critical value of 0.01 for the Gaussian impedance function (Eq. 1 Kwan, 1998) and, therefore, assumes this value for a driving time of 15 minutes (Wang, 2007). Clearing the impedance coefficient variable β yields a value of 34, which is substituted into the function for the other travel times, thus finding their respective weights. Individual section travel times are used as dij values for the calculation. Eq. 2 (Luo and Qi, 2009) shows the principle of the E2SFCA method, which measures the supply/demand ratio for each hospital Rj.

$$R_j = \frac{S_j}{\sum_{k\in\{d_{kj}\in D_r\}} P_k W_r} = \frac{S_j}{\sum_{k\in\{d_{kj}\in D_r\}} P_k W_1 + \sum_{k\in\{d_{kj}\in D_r\}} P_k W_2 + \sum_{k\in\{d_{kj}\in D_r\}} P_k W_3} \tag{2}$$

Where S_j is the number of hospital beds and P_k is the population in each of the travel time sub-zones (D1, D2, D3) corresponding to the 5-minute intervals in travel time, which are obtained from the transportation network. W_r is the distance weight for the rth travel time zone calculated from the Gaussian function, capturing the distance decay of access to the physician *j*. In the next step, all hospitals' demand and supply ratios for each population are summed according to their location. This is done by weighting the hospitals' location in the subareas according to Eq. 3 (Luo and Qi, 2009), which calculates the accessibility for the population of location *i* (A_i).

$$A_i = \sum_{j\in\{d_{ij}\in D_r\}} R_j W_r = \sum_{j\in\{d_{ij}\in D_1\}} R_j W_1 + \sum_{j\in\{d_{ij}\in D_2\}} R_j W_2 + \sum_{j\in\{d_{ij}\in D_3\}} R_j W_3 \qquad (3)$$

Where A_i represents the accessibility of population at location i to physicians, R_j the physician-to-population ratio at physician location j that falls within the catchment centered at population i (that is, $d_{ij} \in D_r$), and d_{ij} the travel time between i and j. Eq. 3 is applied using the ArcMap Network Analyst software tool. The origin-destination matrix is obtained, and the average travel time is measured from the block centroids in the Manizales and Villamaría conurbation to the healthcare centres. Subsequently, using the Microsoft Excel tool, the appropriate weight (W_r) is indicated according to the range where the travel time is within the defined intervals of 5 minutes in the catchment area fixed at 15 minutes. Finally, the R_{ij} calculates the weights matrix product, which is the first step result.

These are added, and finally, the accessibility A_i is obtained, with which it is possible to determine the number of beds per thousand inhabitants in the conurbation of Manizales and Villamaría, differentiated by blocks. According to the publication of the Organization for Economic Cooperation and Development, entitled "Health at a Glance: Latin America and the Caribbean 2020", data are provided on the state of health and its determinants, among which information on coverage and service in Colombia stands out with an indicator of the availability of medical resources (number of beds per 1000 inhabitants) of 1.7 (OECD and World Bank, 2020). These indicators provided by the OECD are used as a basis for this research development, considering that the result provided by the organization focuses on the demand and supply of medical resources but does not consider the existing accessibility between travel to and from health centres. Next, the areas that show spatial inequities and/or inequalities in Manizales and Villamaría urban areas are identified and related to socioeconomic class and accessibility conditions. The relationship of A_{if} with the socioeconomic stratum of each block is established. Its average value is calculated for strata 1 to 6, allowing us to identify to which stratum the areas of low accessibility belong compared to the other areas.

Stage 4. Scenario design: Possible solutions are proposed to improve the accessibility conditions of the health centres by addressing the areas previously identified as the most underserved in the current scenario and proposing the activation of the health centres owned by E.S.E. Assbasalud (state social enterprise in charge of providing primary health services) already located in the area to take advantage of the existing infrastructure and location.

RESULTS AND DISCUSSION

The calculation of population coverage is analysed by considering socio-demographic and socio-economic assessments to understand the spatial effects of hospitals in terms of their location. Figure 3 and Table 1 shows the IPS that are part of this research with their geographical coordinates and the number of available beds. In addition, these IPSs are classified according to their level of complexity, data obtained from the Special Registry of Service Providers (Registro Especial de Prestadores de Servicios - REPS). Average travel times from each neighbourhood unit (i) to each hospital facility or IPS (j) were used to calculate the total number of users within the time windows of each IPS.

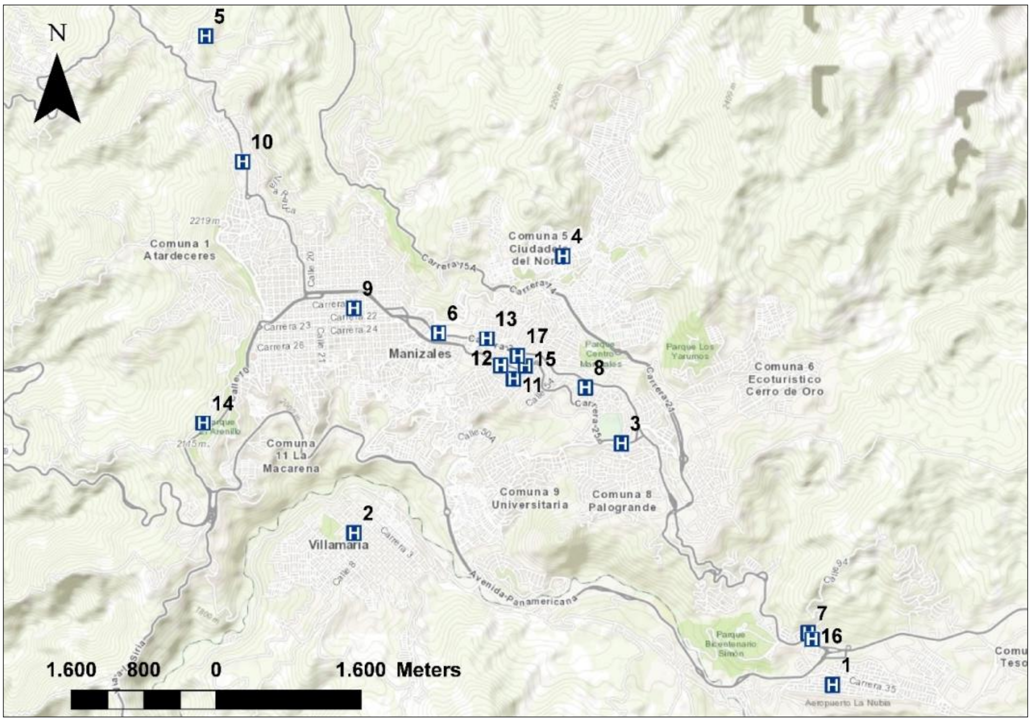


Figure 3. Location of IPS (Source: Self made)

This information estimates the ratio of health care points to population (R_j), i.e., to existing beds. Table 2 shows the number of users covered by the defined 15-minute catchment area in 5-minute intervals with the resulting R_{ij} in the current condition; then, Eq. 3 (Luo and Qi, 2009) is applied to obtain the accessibility rating A_i. Table 3 shows the accessibility values resulting from the E2SFCA method implementation in Manizales and Villamaría (study area) for the current scenario.

Table 1. Health provider institutions (IPS) in Manizales, current scenario (Source: authors) *In Colombia, the SES is an indicator associated to dwellings, which is related to the economic incomes of families. This indicator is used for subsidies allocation. There are 6 SES (1-6), where SES 1 corresponds to households with lower incomes and SES 6 to households with higher incomes.

ID	Name	Beds	Length	Latitude
Low-Complexity IPSs				
1	Clínica Assbasalud La Enea	24	-75,46728	5,03142
2	Hospital San Antonio	15	-75,51484	5,04645
3	Clínica Santa Ana	0	-75,48827	5,05532
4	Clínica Assbasalud San Cayetano	16	-75,49409	5,07384
High-Complexity IPSs				
5	Hospital General San Isidro	79	-75,52962	5,09561
6	Meintegral	46	-75,50643	5,06624
7	Oncólogos Del Occidente	110	-75,46968	5,03657
8	Clínica Su Vida Santillana	18	-75,49187	5,06084
9	Clínica Aman CMS	49	-75,51488	5,06868
10	Clínica Avidanti	262	-75,52593	5,08317
11	Instituto Medico Integrado	3	-75,49898	5,06169
12	Servicios Especiales De Salud Hospital De Caldas	164	-75,50028	5,06303
13	Clínica La Presentación	34	-75,50167	5,06568
14	Hospital Santa Sofia De Caldas	112	-75,52984	5,05732
15	Clínica Ospedale S. A	128	-75,49783	5,06299
16	Clínica CONFA Salud Sede San Marcel	79	-75,46933	5,03595
17	Hospital Infantil Universitario	71	-75,49859	5,06398

Table 2. First step, obtaining R_{ij} (Source: authors)

Name	Rij Beds	Population covered in each interval		
		5'	10'	15'
Low-complexity IPSs				
Assbasalud Clínica La Enea	4,60	4295,54	8035,57	10481,79
Hospital San Antonio	1,21	8093,31	28597,28	11910,97
Clínica Santa Ana	0,00	190,59	12696,56	33569,69
Assbasalud Clínica San Cayetano	1,98	5368,55	15854,47	57437,48
Hihgh-complexity IPSs				
Hospital General San Isidro	30,79	1748,11	5379,00	8150,98
Meintegral	10,80	394,49	17472,37	58438,76
Oncólogos Del Occidente	93,34	319,99	3864,71	17154,52
Clínica Su Vida Santillana	5,88	739,98	10536,84	42597,46
Clínica Aman CMS	8,58	1091,55	20530,18	86560,64
Clínica Avidanti	56,69	2750,14	11414,50	14870,97
Instituto Medico Integrado	1,01	1371,03	8149,50	27207,65
Servicios Especiales De Salud Hospital De Caldas	21,67	2710,94	24589,48	60196,23
Low-complexity IPSs				
Clínica La Presentación	11,70	23,32	12493,84	49252,37
Hospital Santa Sofia De Caldas	41,59	692,16	9438,44	30901,98
Clínica Ospedale S. A	50,46	18,01	10599,45	48989,16
Clínica CONFA Salud Sede San Marcel	45,35	88,33	7791,62	17689,46
Hospital Infantil Universitario	17,98	291,86	16185,81	60456,67

Table 3. Accessibility results in the current condition (Source: authors)

Beds Current Scenario					
Total average	Total Maximum Value	Low complexity average	Low complexity maximum value	High complexity average	High complexity Maximum value
3,17	116,29	0,13	3,83	3,04	115,41

Figure 4 shows the current low-complexity PHC accessibility regarding the number of beds using the E2SFCA method. Similarly, Figure 5 shows the current high complexity IPS coverage concerning the number of beds. In the current condition, an Ai accessibility rating of 3.17 beds per 1000 inhabitants is obtained. These results show a value of 0.13 for low-complexity IPSs and 3.04 for high-complexity IPSs, with an upper peak of 116.29 beds. The low-complexity IPSs are located in districts with high population density, such as Palogrande, Ciudadela del Norte, Universitaria, and Tesorito. High complexity IPSs are located along the Santander Avenue corridor, which has a higher commercial contribution and is less densely populated. The maps collected from the study area show a particular inequality regarding accessibility conditions. The Ciudadela del Norte, San José, Universitaria, Ecoturística Cerro de Oro districts, and the Municipality of Villamaría are identified as focal points.

The results show that inequality is more significant in the lower strata of the study area (strata 1, 2, and 3). In contrast, the higher strata (5 and 6) have adequate coverage concerning medical care in the case study. Based on this result, the proposal to improve this coverage focuses on improving the IPSs in lower-income areas. The suggested increase in beds is based on the Organisation for Economic Co-operation and Development's (OECD) work on health prospects in Latin America and the Caribbean, which places Colombia at an average of 1.7 beds per 1,000 inhabitants, 2.1 for Latin America and 4.7 for the organization's member countries (OECD and World Bank, 2020).

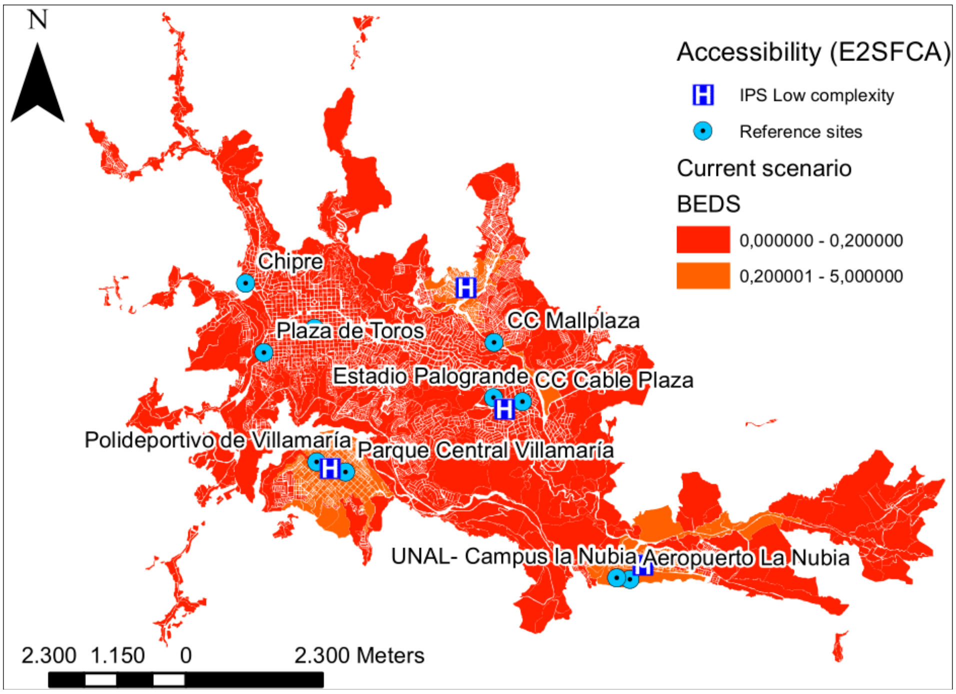


Figure 4. Accessibility assessment in low-complexity IPSs in current condition (Source: authors)

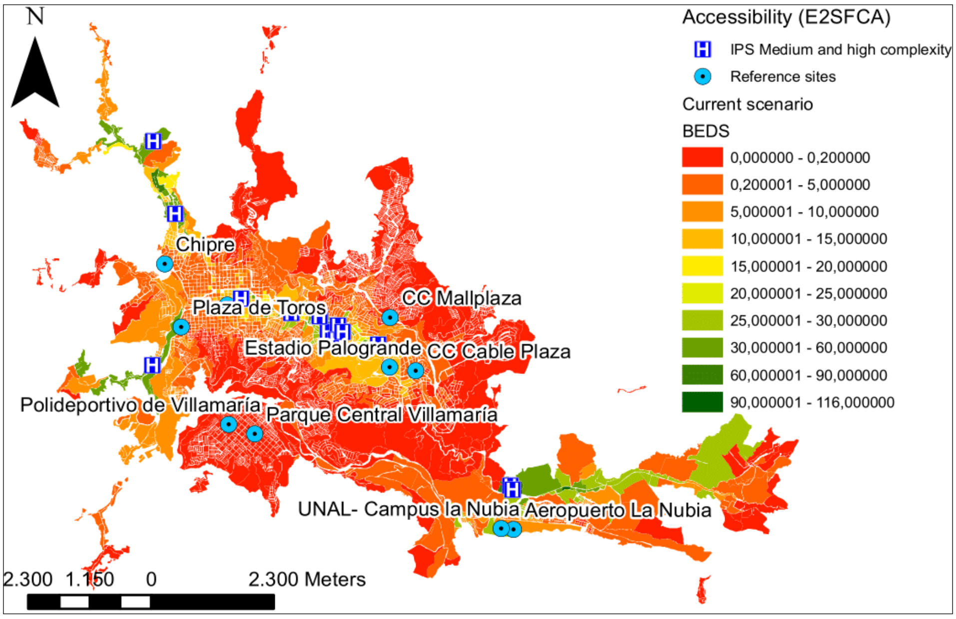


Figure 5. Accessibility assessment in high-complexity IPSs in the current condition (Source: authors)

Although the study area has an overall average of 3.17 beds per 1,000 inhabitants, higher than in Latin America, low-complexity PHRs have an average value of 0.13, well below the Colombian average. Therefore, improvements in the proposed scenario aim to intervene and increase the availability of beds in this type of service, allowing better accessibility for users and improving the competitiveness of the urban area compared to national-level actions. The number of beds continues to increase in the low-complexity IPSs of Santa Ana, Clínica Aman, and San Antonio, given the former's proximity to underserved areas, also increasing the level of service of Clínica San Cayetano to high complexity. It is proposed to reactivate the Assbasalud centres in the neighbourhoods of La Asunción, Minitas, Aranjuez, Fátima, and the pilot centre (of high complexity). This results in an 18% increase in beds, from 1210 to 1433 units. Table 4 shows the number of beds for this future scenario.

The gradient is estimated for low complexity Figure 6 and high complexity Figure 7 to compare current and future accessibility results calculated with the E2SFCA method. According to Figure 6, the percentage of savings in La Estación, Palogrande, Universitaria, and Ecoturismo Cerro de Oro districts is higher than 1000%. In these districts, the care centers in the neighbourhoods of La Asunción, Minitas, Aranjuez, and Fátima belonging to Assbasalud were activated with a low level of service. The savings gradient for high-complexity IPSs significantly impacts Ecoturística Cerro de Oro, San José, and Ciudadela del Norte's districts by improving the pilot centre and San Cayetano's service conditions, placing them as high-complexity IPSs. Figure 8 shows a graphical display of the relationship between the accessibility index, as reported by the E2SFCA A_{if} method, and socio-economic class regarding beds. Consequently, level 1 and level 4 represent entirely different situations, with the former (level 1) being the least accessible and the latter (level 4) the most accessible, giving similar results for high and low complexity. Low-complexity IPSs are primarily located in disadvantaged socio-economic levels. Thanks to this and the improvement proposal in this study, it is possible to achieve an improvement of 0.4 in the accessibility index for level 3, followed by an increase of 0.09 for level 2 in the future condition. For high complexity IPSs, which achieve the most significant improvement in level 2 with an improvement of 0.55, followed by level 3 with 0.33.

Table 4. Health care institutions (IPS) in Manizales, future scenario (Source: authors)

ID	Name	Beds	Length	Latitude
Low-complexity IPSs				
1	Assbasalud Clínica La Enea	24	-75,46728	5,03143
2	Hospital San Antonio	30	-75,51484	5,04645
3	Clínica Santa Ana	3	-75,48828	5,05533
4	Assbasalud Clínica San Cayetano	0	-75,49409	5,07384
Additions				
5	Assbasalud Fátima	20	-75,49835	5,05304
6	Assbasalud La Asunción	20	-75,49425	5,06876
7	Assbasalud Minitas	20	-75,47716	5,06442
8	Assbasalud Aranjuez	30	-75,50032	5,04252
Low-complexity IPSs				
9	Hospital General San Isidro	79	-75,52962	5,09561
10	Meintegral	46	-75,50643	5,06625
11	Oncólogos Del Occidente	110	-75,46969	5,03658
12	Clínica Su Vida Santillana	18	-75,49187	5,06084
13	Clínica Aman CMS	60	-75,51489	5,06869
14	Clínica Avidanti	262	-75,52594	5,08318
15	Instituto Medico Integrado	3	-75,49899	5,0617
16	Servicios Especiales De Salud Hospital De Caldas	164	-75,50028	5,06303
17	Clínica La Presentación	34	-75,50168	5,06569
18	Hospital Santa Sofia De Caldas	112	-75,52985	5,05732
19	Clínica Ospedale S. A	128	-75,49783	5,06299
20	Clínica CONFA Salud Sede San Marcel	79	-75,46934	5,03596
21	Sede Hospital Infantil Universitario	71	-75,49859	5,06398
Additions				
22	Assbasalud clinica san cayetano	60	-75,49399	5,07386
23	Assbasalud centro piloto	60	-75,51434	5,07188

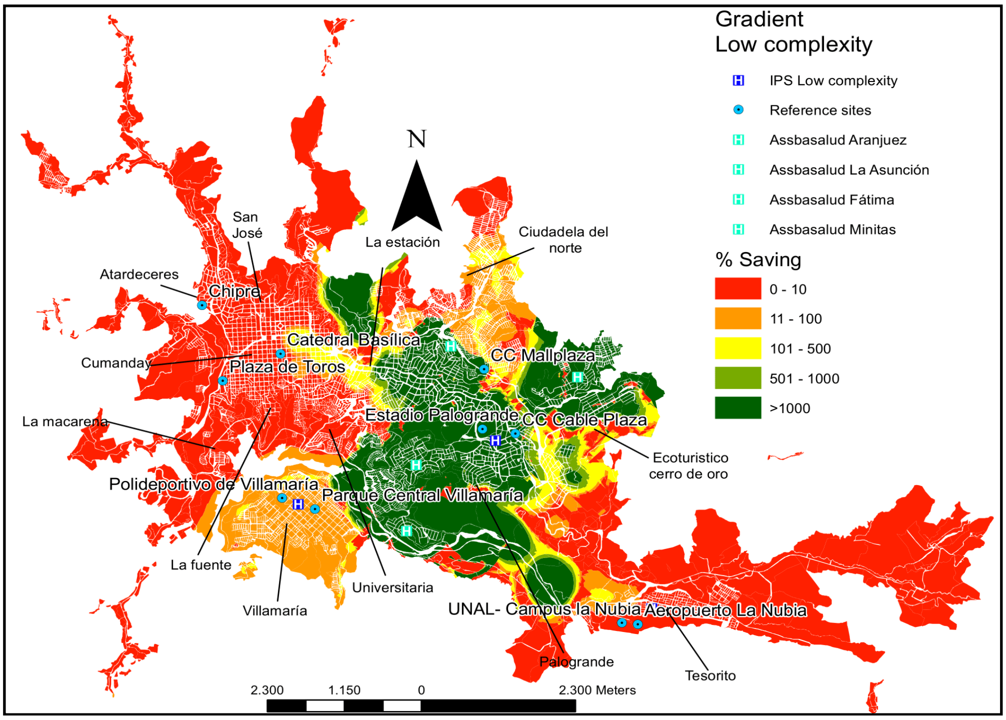


Figure 6. Savings gradient for low-complexity IPS beds (Source: authors)

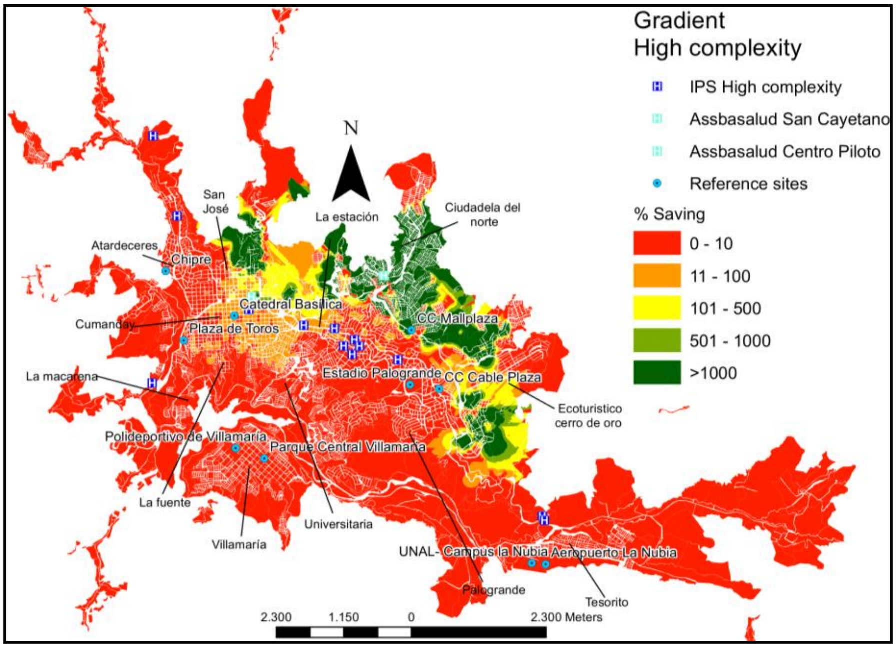


Figure 7. Savings gradient for high-complexity IPS beds (Source: authors)

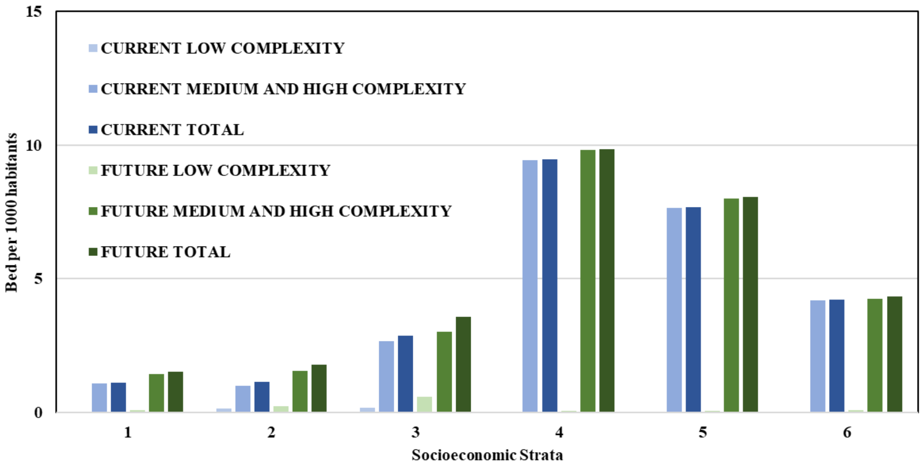


Figure 8. Stratification vs. Average number of beds per 1000 population (Current - Future) (Source: authors)

CONCLUSIONS

Based on this research work, the following conclusions can be drawn: 1) the E2SFCA method has been little applied in Colombia and Latin America concerning health issues. Although accessibility studies have been conducted for essential facilities for the population, such as healthcare centres, they have only been carried out considering geographical accessibility. This leads to a significant change, as the number of beds available in individual healthcare centres must be considered. 2) In Manizales and Villamaría urban areas, there is a significant gap between socio-economic classes concerning access to healthcare centres, with the middle and upper classes having the best care and the lower classes having the least. Activating the Assbasalud care centres proposed in this work will achieve better access to these services for the lower classes. However, it is still considered insufficient to achieve parity between classes. 3) This research will uncover areas where efforts and public funds should be directed to reduce the current inequities and inequalities regarding healthcare facility accessibility in the field of study. This points to the fact that the proposed methodology would provide a valuable tool for urban planning and equitable facilities development.

Author Contributions: Conceptualization, D.C.L. and D.E.; methodology, D.C.L. and C.M.; software, D.E. and D.C.L.; validation, D.E. and C.M.; formal analysis, D.C.L. and C.M.; investigation, D.C.L. and D.E.; data curation, D.C.L. and C.M.; writing - original draft preparation, D.E. and D.C.L.; writing - review and editing, C.M.; visualization, D.C.L; supervision, C.M.; project administration, D.E. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgments: The authors wished to thank the Research Group on Sustainable Mobility (GIMS) of the Universidad Nacional de Colombia, Manizales; the Engineering and Architecture Departments of the Universidad Nacional de Colombia, Manizales, for their support in the call for proposals Strengthening research, creation or innovation linked to training at the Universidad Nacional de Colombia 2020-2021, which approved the geographical accessibility assessment of Caldas, Risaralda, and Quindío departments: Geospatial Equity Approach by Level of Attention (code 51205).

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

Alcaldía de Manizales. (2016). Plan de Desarrollo Municipal 2016-2019 [*Development Plan of the city 2016-2019]* (in Spanish). https://www.manizales.gov.co/RecursosAlcaldia/201605021636516132.pdf

Alcaldía de Villamaría. (2018). Página principal. Geografía. *[Main Page. Geography]* (in Spanish). https://www.villamaria-caldas.gov.co/

Cardozo, O.D., Gómez, E.L., & Parras, M.A. (2009). Teoría de Grafos y Sistemas de Información Geográfica aplicados al Transporte Público de Pasajeros en Resistencia (Argentina) [*Graph Theory and Geographic Information Systems applied to Public Passenger Transport in Resistencia (Argentina)*]. Revista Transporte y Territorio, 1, 89–111, (in Spanish). https://doi.org/10.34096/rtt.i1.223

Comisión Económica para América Latina y el Caribe – CEPAL. (2020). Salud y economía: una convergencia necesaria para enfrentar el COVID-19 y retomar la senda hacia el desarrollo sostenible en América Latina y el Caribe *[Health and economy: a necessary convergence to face COVID-19 and resume the path towards sustainable development in Latin America and the Caribbean]* (in Spanish). https://www.cepal.org/es/publicaciones/45840-salud-economia-convergencia-necesaria-enfrentar-covid-19-retomar-la-senda

Departamento Administrativo Nacional de Estadística – DANE. (2018). Censo Nacional de Población y Vivienda [*National Population and Housing Census*] (in Spanish). https://www.dane.gov.co/index.php/estadisticas-por-tema/demografia-y-poblacion/censo-nacional-de-poblacion-y-vivenda-2018

Dewulf, B., Neutens, T., De Weerdt, Y., & Van de Weghe, N. (2013). Accessibility to primary care physicians in Belgium: An assessment of policies awarding financial assistance in shortage areas. *BMC Family Practice*, 14(122). https://doi.org/10.1186/1471-2296-14-122

Escobar, D.A., Cardona, S., & Ruiz, S. (2020). Planning of expansion of ICU hospital care in times of Covid-19 using the E2SFCA Model. *Revista Espacios*, 41(42), 19–38. https://doi.org/10.48082/espacios-a20v41n42p03

Guagliardo, M.F. (2004). Spatial accessibility of primary care: Concepts, methods and challenges. *International Journal of Health Geographics*, 3, 1–13. https://doi.org/10.1186/1476-072X-3-3

Kwan, M. (2010). Space-Time and Integral Measures of Individual Accessibility: A Comparative Analysis Using a Point-based Framework. *Geographical Analysis*, 30(3), 191–216. https://doi.org/10.1111/j.1538-4632.1998.tb00396.x

Lee, R.C. (1991). Current Approaches to Shortage Area Designation. *Journal of Rural Health*, 7(4), 437–450. https://pubmed.ncbi.nlm.nih.gov/10116034/

Liu, L., Lyu, H., Zhao, Y., & Zhou, D. (2022). An Improved Two-Step Floating Catchment Area (2SFCA) Method for Measuring Spatial Accessibility to Elderly Care Facilities in Xi'an, China. *Int. J. Environ. Res. Public Health,* 19(18), 11465. https://doi.org/10.3390/ijerph191811465

Luo, W., & Qi, Y. (2009). An enhanced two-step floating catchment area (E2SFCA) method for measuring spatial accessibility to primary care physicians. *Health and Place*, 15(4), 1100–1107. https://doi.org/10.1016/j.healthplace.2009.06.002

Luo, W., & Wang, F. (2003). Measures of Spatial Accessibility to Health Care in a GIS Environment: Synthesis and a Case Study in the Chicago Region. *Environment and Planning B: Planning and Design*, 30(6), 865–884. https://doi.org/10.1068/b29120

Mao, L., & Nekorchuk, D. (2013). Measuring spatial accessibility to healthcare for populations with multiple transportation modes. *Health and Place*, 24, 115–122. https://doi.org/10.1016/j.healthplace.2013.08.008

McLafferty, S.L. (2003). GIS and health care. *Annual Review of Public Health*, 24, 25–42. https://doi.org/10.1146/annurev.publhealth.24.012902.141012

Moncada, C.A., Cardona, S., & Escobar, D. (2018). Saving Travel Time as an Urban Planning Instrument. Case Study : Manizales, Colombia. *Modern Applied Science*, 12(6), 44–57. https://doi.org/10.5539/mas.v12n6p44

Monsalve, S., Rucinque, D.S., Polo, L., & Polo, G. (2016). Evaluación de la Accesibilidad Espacial a los Puestos de la Campaña de Vacunación Antirrábica en Bogotá, Colombia. *[Evaluation of Spatial Accessibility to the Rabies Vaccination Campaign Posts in Bogotá, Colombia]*. (in Spanish). Biomedica, 36(3), 447–453. http://dx.doi.org/10.7705/biomedica.v36i3.3074

Neutens, T. (2015). Accessibility, equity and health care: Review and research directions for transport geographers. *Journal of Transport Geography*, 43, 14–27. https://doi.org/10.1016/j.jtrangeo.2014.12.006

OECD, & World Bank. (2020). Panorama de la Salud: Latinoamérica y el Caribe 2020 *[Health Panorama: Latin America and The Caribbean 2020]* (in Spanish). OECD Publishing, París, France. https://www.oecd-ilibrary.org/sites/740f9640-es/index.html?itemId=/content/publication/740f9640-es

Paez, A., Higgins, C.D., & Vivona, S.F. (2019). Demand and level of service inflation in Floating Catchment Area (FCA) methods. *PLoS ONE*, 14(6). https://doi.org/10.1371/journal.pone.0218773

Pan, J., Liu, H., Wang, X., Xie, H., & Delamater, P.L. (2015). Assessing the Spatial Accessibility of Hospital Care in Sichuan Province, China. *Geospatial Health*, 10(2). https://doi.org/10.4081/gh.2015.384

Penchansky, R., & Thomas, J.W. (1981). The concept of access: Definition and relationship to consumer satisfaction. *Medical Care*, 19(2), 127–140. https://doi.org/10.1097/00005650-198102000-00001

Rojas, D., & Caicedo, B. (2017). Accesibilidad geográfica al cuidado obstétrico y neonatal y su efecto en la mortalidad neonatal temprana en Colombia 2012-2014 *[Geographical Accessibility to Obstetric and Neonatal Care and its Effect on Early Neonatal Mortality in Colombia 2012-2014]* Med Unab, 20(1), 7–18. (in Spanish). https://doi.org/10.29375/01237047.2670

Tali, J., Nazir, M., & Shafiq, M. (2022). Enhanced Two-Step Floating Catchment Area (E2SFCA) Method for Measuring Spatial Accessibility to Primary Healthcare in HD Kote, Mysore (India). *Towards Sustainable Natural Resources.* https://doi.org/10.1007/978-3-031-06443-2_14

Wang, L. (2007). Immigration, ethnicity, and accessibility to culturally diverse family physicians. *Health and Place*, 13(3), 656–671. https://doi.org/10.1016/j.healthplace.2006.10.001

Article history: Received: 08.08.2023 Revised: 24.10.2023 Accepted: 28.11.2023 Available online: 28.12.2023

GeoJournal of Tourism and Geosites

Year XVI, no. 4, vol. 50, 2023

ISSN 2065-1198
E-ISSN 2065-0817