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ANALYSIS OF THE STATE OF PUBLIC TRANSPORT IN ALMATY

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Abstract: Public transport today is again gaining relevance as a means of transportation in connection with the personal cars that have flooded urban spaces. The city of Almaty is no exception and since the beginning of the last decade has taken a course to organize pilot projects to create a priority for the movement of public transport. The difficulty of implementing such innovations is the public, accustomed to crossing long distances by private vehicles, and in most cases city streets are loaded from nearby agglomerations. The emergence of such a trend is directly related to the expansion of the city in breadth, i.e. from east to west, because the natural uniqueness of the urban area in the south is limited by the mountain ranges of the Trans-Ili Alatau. This paper is presented taking into account the existing initial data for the study of public transport issues through the introduction of the GTFS scientific methodology, which can give a new angle of view on the current situation with the organization of bus and trolleybus routes. This paper focuses on studying the potential of public transport in Almaty for consistent growth, because with the help of the restructuring of route networks and the creation of a priority traffic network, there is a chance to achieve an increase in capacity and an increase in the number of users. The aim of this article is to provide information about the current state of the public transport network and to discuss the potential of geographic information systems (GIS) within the urban space, which are guided by spatial analysis approaches related to the processing of General Transit Feed Specification data (GTFS), since statistical data are based on providing a complete picture of the existing transport network, and afterwards can become the basis for subsequent optimization of public transport traffic. This paper creates new perspectives for future development of public transport and restructuring of the understanding how to create public network according to necessity in Almaty city.

Key words: General Transit Feed Specification (GTFS), public transport, bus network, transit development, urban area, bus stops and routes, subway

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INTRODUCTION

Although transport research has traditionally focused on the movement of goods and people to solve mobility issues, researchers, planners, and policy-makers are increasingly interested in the integration of land use and transport systems in an effort to increase accessibility, thereby contributing to the well-being of individuals. Public transport plays a key role in providing access to opportunities, especially for vulnerable populations (Boisjoly and El-Geneidy, 2021). Accessibility is at the core of the economic and social development of cities. Investments in urban transport systems are thus paramount in achieving accessibility. Many cities are suffering from inadequate central government funding and reduction of finance, particularly in times of austerity and now in the presence of the new global pandemic (Cocconcelli and Medda, 2021).

Cities are constituted of several objects related within an urban form, which is a concept that is used to describe the physical and nonphysical characteristics of a city. Cities provide different services to fulfill citizens' needs, in which transport is demanded (Lee and Bencekri, 2021). The sheer number of vehicles carrying only one person to work every day is huge, and if you add to them trucks and delivery vans, company cars, buses and taxis that travel every day, it can lead to massive congestion (Aliyeva et al., 2019). Also, along with the above, it is possible to correlate the economic factor of the industry that depends on government subsidies that are insufficient to cover existing costs, as well as reducing investment attractiveness.

Due to the prevailing conditions, the factor of wear of public transport and the inability of bus fleets to replace diesel buses with electric ones is clearly manifested due to the high cost of the latter, which are also produced on the territory of the Republic of Kazakhstan. The cost of spare parts and fuel and lubricants over the past 20 years has led to an increase of 15-20 times, while the fare has received an increase of only 5 times, which actually leaves it impossible to modernize and update the parks. Various qualities of transit services, including travel time, frequency, and the presence of alternative paths, affect

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accessibility—how easily passengers can reach their destinations by transit (Kim and Lee, 2019). The General Transit Feed Specification (GTFS), with standard open-source data in both static and real-time formats, is being widely used in public transport planning and operation management (Wu et al., 2022). The analysis and metrics produced can support transport systems planners in major cities of low-income countries (Falchetta et al., 2021). System-wide maps of station locations, routes, fares, schedules, operating calendars, and other key information are simply not available to the public for the majority of paratransit routes around the world. Lack of data makes it hard for users to know how to navigate these systems and creates limitations for transit planners when developing transit models (Williams et al., 2015). In recent years the increasing availability of more detailed and disaggregated data has aligned with a growing concern for considering time-space constraints in accessibility to provide new methods and measures for accessibility analysis (Stępniak et al., 2019). The bus system in particular has the potential of providing transport services to larger proportions of urban commuters, hence, plays a significant role in reducing the number of vehicles on urban roads and consequently reducing traffic chaos in cities (Akintayo and Adibeli, 2022). Concern for the urban environment has raised the profile of urban design and streetscape. Recent trends in urban design and traffic engineering are reviewed and the implications for city logistics are outlined (Bell, 2021).

Questions regarding the sustainability of dispersed car dependent urban forms have led to a renewed interest in public transportation (Murray et al., 1998). Many studies have tried to quantify the impact of urban form on travel behavior by studying the influence of spatial characteristics such as density, land use mixing, and accessibility of the residential neighborhood (Van Acker, 2021). Placemaking refers to incremental and small-scale interventions in cities that aim to improve the quality, equity, and ecological sustainability of urban places (Babb, 2021). Transit-oriented development is known to be a key important policy to decrease car travel. It places public transport as the main transport mode to fulfill urban mobility travel needs. However, public transport trip necessarily starts and/or ends with an active travel trip, either walking or cycling from and to the specific origin and destination. In turn, this particularity places active accessibility as an important tool that needs to go alongside transit-oriented development to achieve the desired travel pattern (Vale, 2021). A key goal of urban transportation planning is to provide people with access to a greater number of opportunities for interaction with people and places. Measures of accessibility are gaining attention globally for use in planning, yet few studies measure accessibility in cities in low-income countries (Campbell et al., 2019). Network science offers powerful concepts and methods for studying complex systems, such as public transport networks. However, many existing studies on complex network analysis of public transport networks were primarily motivated to test network science concepts using real-life networks (Luo et al., 2019).

The city of Almaty is the center of economic activity of the Republic of Kazakhstan and annually creates a large number of new jobs, which entails the interest of residents of the country to move to a large metropolis. The current trend leads to an accelerated expansion of urban boundaries, which regularly includes nearby settlements formed in its composition, which leads to the need to increase the level of coverage by public transport. In view of the prevailing conditions, the above-mentioned growth of urban areas to the west and east is predicted, since the largest settlements with well-established basic infrastructure are located on both sides of the city (for example, the administrative center of the Karasai district of the Almaty region, the city of Kaskelen to the west and the administrative center of the Talgar district of the Almaty region, the city of Talgar). The high density of development with the lack of the necessary number of land plots, the high cost of real estate in the city, as well as the environmental situation deteriorating from year to year, force many citizens to live outside the city of Almaty, but remain tied to the city due to the presence of a large number of high-paying jobs. Traffic and traffic infrastructure related technogenic pollution of heavy metal (HM) can be: depreciation of car parts; incomplete combustion of fuel; engine oil leakage; vehicular exhaust catalysts; heavy metal additives in the fuel; depreciation of the road infrastructure and road maintenance. The amount of heavy metal in the roadside oil is influenced by road design, type of fuel use, traffic density (vehicles per day), driving speed, driving behavior, etc. (Muzychenko et al., 2017). Every day (with the exception of weekends and holidays) the city is filled with a huge traffic flow arriving from nearby suburban areas and settlements of the Almaty region. The streets of the city are not able to accept such a number of cars during rush hours, even despite the number of wide 6-lane avenues and the Eastern Bypass highway flowing from east to west into Al-Farabi Avenue and then into Sain Street, as well as from west to east into the Kuldzhinsky tract. The pendulum migration observed on a daily basis plunges city streets into a slow-moving stream of cars unable to meet the demand of residents traveling by individual transport. The determinants of transit ridership within macro-level analyses are typically categorized as either internal or external factors, where internal factors relate entirely to decisions, policies and conditions determined by the transit agency or the municipalities providing subsidies. Whilst external factors typically equate to wider economic influences affecting society at large, such as unemployment rates and gas prices, which subsequently impact gas prices in the region (Boisjoly et al., 2018).

Public transport has historically had the goal of increasing the mobility of residents, but due to the lack of priority lanes on most streets, it is forced to be in the flow with individual transport, therefore the attractiveness of this type of transport decreases, which provokes a large number of residents to look for ways to purchase more comfortable, as it seems, individual transport, because the travel time is identical. The possibility of purchasing individual transport directly depends on economic well-being, but most residents are unable to provide themselves with this type of transport and use public transport based on need. The city of Almaty in the transport infrastructure directive is closer to the rest of the regions of the Republic to innovations, which is manifested in the presence of variable forms of traffic organization in the city, which include projects for the introduction of individual lanes for public transport. The main examples are the dedicated lanes on Abay and Rayimbek Avenues, as well as the BRT project along Timiryazev Street, which has a difference in traffic along the center of the street and has an infrastructure adjusted for the set goal of increasing the comfort of movement. The selected lanes demonstrate their effectiveness, because they allow bus drivers to maintain the interval, which contributes to the transportation of more people in less time, but the main problem is the lack of a common network of dedicated lanes

connecting most of the city's districts, as well as residential areas with the business center. The concept of accessibility binds together the key components of an urban structure: people, mobility and social activities, and makes it possible to have a functional view of urban structures and processes (Järv et al., 2018). Aside from personal characteristics, aspects of land use and characteristics of the public transport system play a role in explaining mode share. Many researchers have found that even when self-selection is accounted for, density, diversity, and design of the urban milieu influence ridership (Cui et al., 2020).

Almaty city consists of 8 districts with the following population (for 1 July, 2022): Alatau (326676 people), Almaly (225298 people), Auezov (312345 people), Bostandyk (368043 people), Zhetysu (174582 people), Medeu (226948 people, Nauryzbay (171249 people) and Turksib (248713 people) (Bureau of National Statistics, 2022). For greater awareness, it is necessary to add to the above data the population density (per square kilometer, for 2022), which is equal to the districts of the city: Alatau - 3141 people per square meter, Almaly – 12244, Auezov – 13291, Bostandyk – 3702, Zhetysu – 4408, Medeu – 897, Nauryzbay – 2456 and Turksib – 3281. The above data indicate that areas with a lower density are territories with a large amount of private development, which as a consequence leads to the expected expansion of the urban area, and therefore to a decrease in transport accessibility of residents of Almaty.

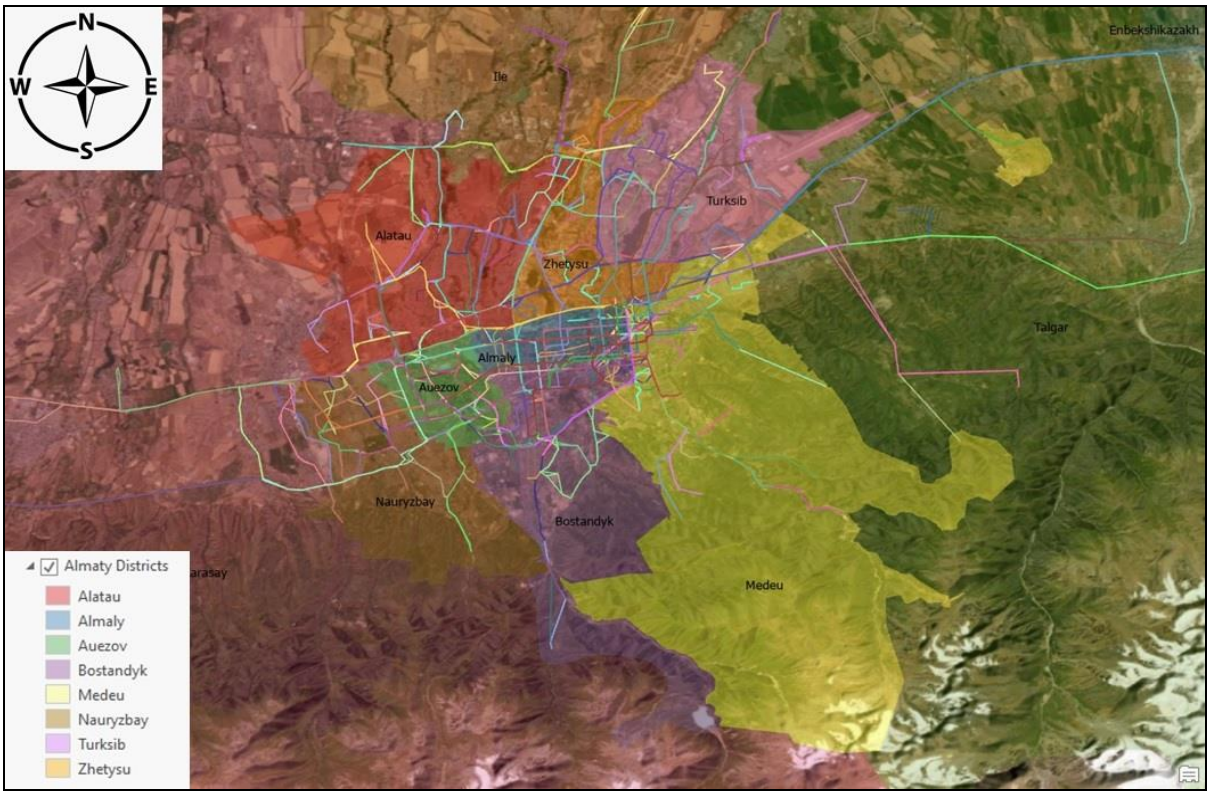

Figure 1. Bus routes of Almaty city (Source: Transport holding of Almaty - citybus.tha.kz)

The number of routes given for further analysis of the service area provided is 154 (Figure 1). The total length of routes in both directions is about 6805 kilometers (6805439 meters) per flight. Taking into account the total length of routes, on average, each route accounts for 44 kilometers, and 22 kilometers in one direction when performing one trip. On average, about 1557 buses (diesel and electric), trolleybuses, school buses and minibuses go to the line daily. The value of the average number varies depending on the number of public transport units that meet the maintenance standards, the time of day (route No. 3 is a night route), school buses (run in certain areas and have a short coverage distance) and the day of the week (there are weekend routes No. 88, No. 209, No. 210, No. 211 in the bus depot). The above-mentioned 154 routes make passengers loading and unloading at 2891 stops, which are located both within the city limits and outside it when performing suburban routes. Transit agencies and planners must adapt to changing demand and amend their transit networks and services to provide appropriate transit services. The role of public transport systems is becoming increasingly complex, and the size of areas to be served by public transport is increasing (Hama Salih and Lee, 2022). Public transit brings many social and economic benefits to our society, such as lower traffic congestion, reduced air pollution, and improved accessibility. While different people may emphasize different aspects of these benefits, the COVID-19 pandemic has shown that the most essential function of public transit is to connect low-wage earners to their jobs or potential employment opportunities (Yan et al., 2022). The purpose of the study was to analyze the current situation with public transport in Almaty on the basis of open data, which were gradually structured according to the bus and trolleybus routes available on the balance sheet of companies.

MATERIAL AND METHODS

Compact city and transit-oriented development aims of integrating public transport networks with high density mixed-use development around stations and urban centers have been prominent policies for improving urban transport sustainability in many cities around the world for several decades (Smith and Barros, 2021). The urban mobility landscape is

currently undergoing a period of major uncertainties, largely driven by a multitude of emerging technologies (Mladenović and Stead, 2021). The form of a city has a major impact on the lifestyles of its residents. As urban centers grow, careful strategies are required to ensure that the regional quality of life is not adversely affected by this growth. An important strategic consideration is transportation planning. The methods that have been applied are based on ESRI technologies and are presented in the Transit Feed (GTFS) toolset (ESRI). The primary task was to collect data from open sources (Yandex Maps (Yandex, 2004), OpenStreetMap (OpenStreetMap Foundation, 2004), 2GIS, the official Internet resource "Public Transport of Almaty" (Transport holding of Almaty - citybus.tha.kz), etc.) for subsequent classification by text files (in the format.txt) on the Visual Studio Code platform (Figure 2). Data on the route network were compiled into 4 main files – stops.txt , which contains data on stopping points indicating numbering (stop_id), latitude (stop_lat), longitude (stop_lon), stop type (location_type), type name (type_name) and stop name (stop_name); routes.txt , carrying in get information about the route paths, namely the numbering of the route (route_id) and the type of route (route_type); shapes.txt responsible for the visual representation of stops indicating the route number (shape_id), latitude (shape_pt_lat), longitude (shape_pt_lon) and the order of stopping points of each route (shape_sequence), as well as trips.txt , built on the subsequent integration of the above-mentioned files indicating the trip number (trip_id), the visual form of the trip (shape_id) and route numbers (route_id). Next stage of processing input data into a text file is capable of carrying a large array of information, which subsequently led to the proper form of interpretation and visual representation during conversion. The final stage of transferring the geographic information system of ArcGIS Pro to the working project is the use of a toolset of transit feed, namely, converting a text file from a stop (GTFS Stops to Features) and a text file with forms using tools (GTFS Shapes to Features).

The analysis carried out in this article with input data was carried out using a set of Network Analyst tools with an indication of the database of streets of Almaty available in the GIS system for visualizing the service area of stopping points of urban and suburban routes. In addition to the above, the process of enriching the input data using the Enrich tool was carried out in order to give the received data an additional information load (open data on the number of population, settlement density, purchasing power, number of households and the number of representatives of certain age categories) and to find cause-and-effect relationships affecting the complexity of organizing public transport in the city of Almaty.

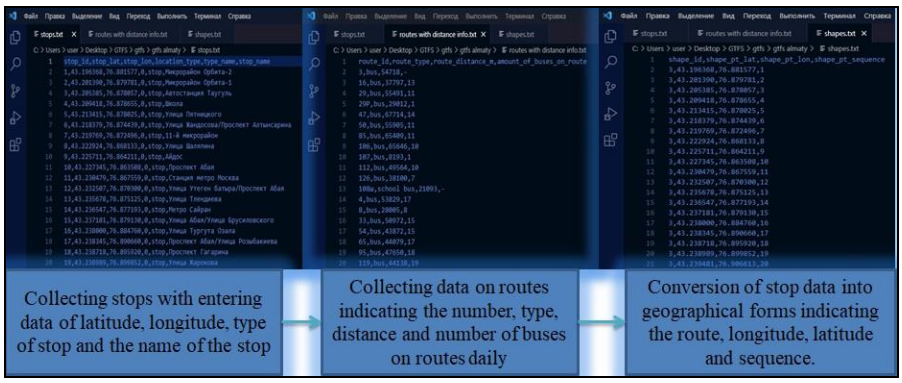

Figure 2. A flowchart of the methodology steps when collecting data on public transport (Source: Transport holding of Almaty - citybus.tha.kz)

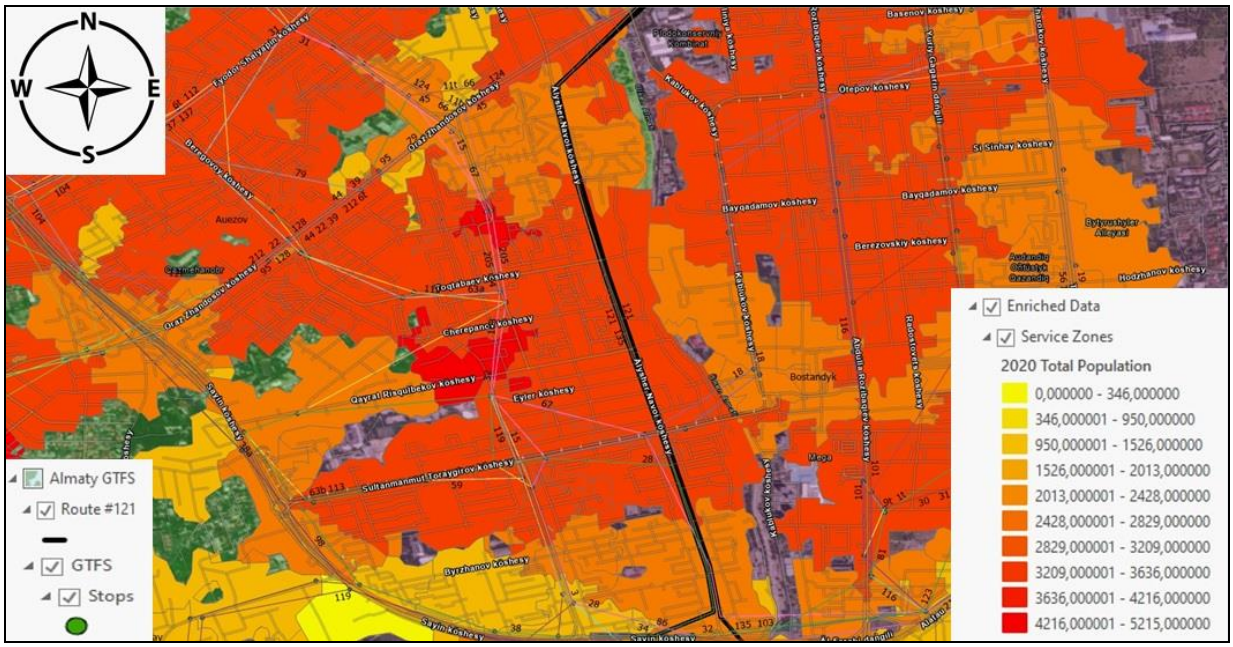

Figure 3. An example of insufficient coverage by public transport along Navoi Street in the north direction (Source: Transport holding of Almaty - citybus.tha.kz)

RESULTS AND DISCUSSION

One of the criteria for selecting the level of accessibility of public transport is a quantitative indicator of the existing infrastructure, or rather the number of routes that serve certain streets. Some streets, including streets with dedicated lanes, are

oversaturated with public transport and, based on this, the accessibility and increase in standardized intervals are deteriorating due to the fact of loading and unloading of passengers on adjacent and intersecting buses at a certain stopping point. In this scenario, there are a number of streets in the city that are served by only one route, although there is a need to increase the number associated with the number of population and outgoing density, as well as to redistribute routes for more efficient organization and expansion of coverage of city streets. The first in the list of routes that are served by only one bus route is Navoi street in the north direction from Toraygirov street to Zhandosov street at a distance of 1.85 kilometers (Figure 3).

To date, this section is served by route No. 121, which has a direction from the Orbita-2 microdistrict to the Zhuldyz-1 and Zhuldyz-2 microdistricts (in the south-east direction in one direction and in the north-west in the opposite direction). The main objective of this route is to connect the above-mentioned residential areas with the city center through Zhandosov and Satpayev streets and Dostyk avenue. Every day, the route is served by about 15 buses with an interval of 10 minutes and a total distance in both directions of 53 kilometers (53479 meters). The number of stops is 102, which indicates an average distance between stops of about 500 meters, the number of population determined by the service zone is 16357, which is an average of 3271 people per service zone, and together the service zones include residents of private arrays, Tau Samal residential complex, Nauai residential complex, Shakhristan residential complex, the Sesame residential complex and border on the densely populated Orbita-1 microdistrict. The settlement density in this area is on average 8897 people per square kilometer, which is 3.7 times higher than the average density in the Bostandyk district and exceeds the average in the Auezovsky district, equal to 8378 people per square kilometer. This segment represents residential areas and needs to increase the number of routes to improve transport accessibility, because a street with four lanes of two in each direction is not able to withstand traffic during peak hours. Next in the list is Shevchenko street in the western direction from Dostyk avenue to Seifullin street with an interval of 1.81 kilometers, served by one route No. 112. No. 112 has a direction from Gorky Park of culture and recreation to the Barlyk market. The main objective of this route is to connect two food outlets of the city – the market "Zeleniy Bazar" and the market "Barlyk" with intermediate coverage of residents of the horizontal streets Shevchenko, Satpayev and Rayimbek avenue, as well as vertical Dostyk avenue and Momyshuly street with the neighborhoods Mamyr-4, Zhetysu-3, Aksai, etc. Every day this route is served by an average of 11 buses with an interval of 15 minutes. The number of the population located in the service area is 18048 people (ESRI, 2020), which is also confirmed by the high density that is typical for the central part of the city. Additionally, it is worth noting that this route on the section of Shevchenko street from Kunaev to Mukanov goes in the same direction with traffic and subsequently has to be rebuilt from the extreme left lane to the extreme right lane. Shevchenko street has prospects for restructuring the allocated lane, which will run against the movement of the main bus flow, as it is implemented on Kabanbai Batyr street, which will be discussed further. This form of dedicated lane will allow buses to run, focusing only on adjacent bus routes without reference to the existing traffic on Shevchenko street. The solution can also be the exchange of routes of Shevchenko and Kurmangazy streets, since they are organized with one-way traffic to improve throughput.

Turgut Ozal, Brusilovsky and Tlendiev streets are parallel and on these streets it is also worth paying attention to the revision of public transport traffic patterns, since residential areas in this area are densely populated and pass through the Tastak microdistrict. Turgut Ozala Street is a two-lane road with southbound traffic. The service of this street in the segment from Rayymbek Avenue to Tole Bi Street is carried out by 6 routes (№4, №70, №85, №99, №106 and No. 120a), and after that 4 routes (No. 4, No. 65, No. 70 and No. 120a) move in the south direction, which in general, they cover the basic needs for the number of permissible routes, depending on the number of lanes. Given that the Turgut Ozala is one-way in the south direction, it makes sense to move part of the routes to parallel streets. Bus route No. 4 corresponds to the transport request of the area, because it uses one-way traffic along Turgut Ozala Street, but without a dedicated lane and, in addition, without a dedicated lane opposite to traffic, and when heading back, it moves along Brusilovsky Street with two lanes of traffic in each direction. The difficulty in ensuring transport accessibility for residents of the Tastak microdistrict along Brusilovsky Street can be the presence of only one bus route for the entire street from Satpayev Street to Rayymbek Avenue in the north direction, and there are no routes at all in the south direction, which once again encourages residents of stretched due to the presence of a large private array of territories to resort to the use of private vehicles and thereby increasing the load on this and adjacent streets. Bus No. 65 connects the bus station at the intersection of Tole bi and Yassaui streets with the Magnum supermarket near the former village of Besagash in Talgar district, now part of Medeu district. This route mainly moves along Abay and Tole bi streets, moving along Turgut Ozala Street, crossing the section from Tole bi to Abay with 3 adjacent routes, which increases the length of intervals under traffic conditions. An alternative when driving from the bus station at the intersection of Tole bi and Yassaui streets to the Magnum supermarket can be a turn along Tole bi Street not to the two-lane Turgut Ozala Street with 3 other routes (No. 4, No. 70 and No. 120a), but to Brusilovsky Street with further movement towards Abaya Street. The advantage in this case may be the absence of other routes in the south direction and providing residents in the service area of this street with a route that will subsequently follow the central street of Abai with a dedicated lane. This aspect is not as critical as the reverse movement from the Magnum supermarket, when route No. 65, moving along Abaya Street, turns onto Rozybakieva Street, where in addition to automobile traffic, there are 7 more adjacent routes (№70, №77, №81, №101, №116, №120 and no.135) in the north direction from Abaya Street to Tole bi Street. An alternative to this movement may be a turn from Abai Street on the next two streets – Brusilovsky and Tlendiev.

Turning onto Brusilovsky Street will lead to movement in the north direction and intersection only with route No. 4, and Tlendiev Street in the section from Abai Avenue to Tole Bi Street is not serviced by public transport, which again increases the demand for personal vehicles. Route No. 120a is a ring and moves along Brusilovsky Street from Rayymbek Avenue to Abai Avenue in a northerly direction, duplicating route No. 70 in this segment, going from the Kokzhiyok microdistrict to the Gorny Giant microdistrict. Perhaps one of these routes would increase the efficiency of coverage of the Tastak microdistrict if, instead of turning to Rayymbek Avenue to Turgut Ozala Street, he would make a turn to Brusilovsky

Street, because on the segment from Rayymbek Avenue to Abai Avenue, this street is not covered by any route in the south direction. There is a high probability that this change would reduce the intervals between buses, since in both cases buses No. 70 and No. 120a leave for Abai Avenue, where there is a dedicated lane for public transport. Comparing the value of these changes for each of the routes, it is worth noting that in the case of the ring route, this would increase coverage, since this route has a long length (No. 120a – 45 kilometers, and No. 70 – 24 kilometers). It is also worth taking into account the average number of buses on each of the routes – there are 13 buses on route No. 120a daily, which on average at this distance means 1 bus for 3.5 kilometers, and 10 buses go to route No. 70 daily, which on average at this distance means 1 bus for 2.4 kilometers. Three stops along Turgut Ozala Street in the interval between Tole Bi Street and Abai Avenue have a service area with a population of 12434 people, which also results in a high population density in these service sectors (9500 people per square kilometer) with a total population density of 8475 people per square kilometer in Almaly district.

Then we move on to Bukhar Zhyrau Boulevard, located in the Bostandyk district. This boulevard with a length of almost 2.243 kilometers from west to east covers a number of social facilities (Children's City Clinical Infectious Diseases Hospital, School No. 10, School No. 81, Russian Medical School, Gymnasium No. 51, Gymnasium No. 138, etc.), but it is served only by one route No. 18, following from the Orbita-3 microdistrict to the Magnum supermarket through the Almaty railway station-1. At the same time, it should be borne in mind that the route serves the boulevard only in the direction from west to east from Baizakov Street to Baitursynov Street, and in the opposite direction the route moves from Zhandosov Street along Manas Street to Timiryazev Street. Bukhar Zhyrau Boulevard has great potential in the continuation of the BRT (Bus Rapid Transit) line running along Timiryazev Street and limited to the interval from Zhandosova Street to Zheltoksan Street. Located in the middle of the boulevard and dividing it into two opposite directions, the pedestrian array is suitable for placing oversized bus stops that will not require reorientation of the entire street space. This measure is also necessary due to the presence of the Koktem microdistrict to increase the variability of movement and shorten the way to stopping points, and will also avoid transport collapse due to the planned construction of the square of the Khamit Ergaliev embankment, Satpayev and Baitursynov streets, as well as Bukhar Zhyrau Boulevard. Already piled up due to point development, this zone will increase its density upon completion of the construction of residential complexes "Riverside" and "Urban Park". According to the analysis of the available three stops of bus route No. 18 along Bukhar Zhyrau Boulevard, the number of people in the service zone is 9715 people with a population density of 8077 per square kilometer, while the average population density in the Bostandyk district is 2375 people per square kilometer. Thus, this boulevard needs to increase the number of running routes with the introduction of a dedicated lane, which in the future could be part of the BRT project operating along Timiryazev Street.

Gagarin Avenue has a length of 5.976 kilometers from south to north and has two-way traffic oriented in the north-south direction and vice versa. This avenue crosses two districts of the city of Almaty – Bostandyksky and Almalinsky and is intermittent, because in the gap between Zhandosov and Timiryazev streets there is a residential area of about 40 hectares on the way of the avenue, which makes it difficult to move along this street. The section of the avenue located above Timiryazev Street is served by 5 to 8 public transport routes (one of them trolleybus to Kozhabekov Street) to Al-Farabi Avenue with a length of 3 kilometers. The emphasis in the analysis of this avenue should be placed on the section from Zhandosova Street to Tole bi Street with a length of about 2.3 kilometers, since this section is served by only one route No. 212 in both directions with further movement towards the village of Shamalgan, Karasai district, Almaty region. The main objective of this route is to provide transport services for residents of the villages of Shamalgan, Zhandosov, Kairat, Maly Dolan, Kyrgyzauyldy and others in order to deliver them to the central streets of the city – Zhandosov Street, Abai Avenue and Tole Bi Street. However, the public bus network of this section, whose service area in the Rozybakiev-Tole bi-Zharokov-Zhandosov square is about 172 hectares, needs to increase the number of routes. The number of residents in the service area at bus stops within the boundaries of the avenue is 20052 with a density of 9526 per square kilometer, with an average density in Almaly and Bostandyk districts of 8475 and 2375 people per square kilometer, respectively. One of the options for improving transport accessibility can be a revision of the movement of route No. 22 moving along Auezov Street, which is served by an average of 5-7 routes. Route No. 22 aims to connect urban areas in the Gorky Park of Culture and Recreation with the Barlyk market. Movement towards Barlyk is carried out along Shevchenko Street to Auezov Street with further rebuilding to Zhandosov Street. An alternative is to continue following Shevchenko Street to Gagarin Avenue and further rebuilding to Zhandosov Street. This change will not greatly affect the distance of the route, but it will allow integrating Gagarin Avenue with an additional route into the public transport network. In the direction of the Gorky Park of Culture and Recreation from the Barlyk market, route No. 22 moves along Auezov Street, followed by a turn to Karasai Batyr Street. Karasai Batyr Street with a length of 3.3 kilometers from Rozybakiev Street to Masanchi Street is also served by only one public route (the above-mentioned No. 22) in the interval from Auezov Street to Mukanov Street.

In this case, an alternative is to transfer the movement of this route from traffic on Zhandosova Street to Timiryazev Street to traffic on Zhandosova Street to Gagarin Avenue with a further turn on Karasai Batyr Street. This change can increase the number of routes that serve Gagarin Avenue, and also increase the integration section of Karasai Batyr Street by two blocks than it was earlier when driving along Auezov Street to Karasai Batyr Street. Additionally, it makes sense to pay attention to route No. 101, following from the car park in the Alatau district to the Esentai Mall shopping center, following mainly along Momyshuly, Tole bi and Rozybakiev Streets. Rozybakieva Street is prone to a high level of traffic during peak hours, which is why the intervals (+ travel time) of public transport also increase. Accordingly, in order to unload traffic, there is an option to transfer the turn from Tole Bi Street not to Rozybakiev Street, but to Gagarin Street next to it, followed by rebuilding to Abai Avenue. A turn to Abai Avenue implies movement along a dedicated lane with a turn to the neighboring Zharokova Street, which from Abai Avenue to Al-Farabi Avenue is served by two routes (No. 19 and No. 113), unlike Rozybakiev Street, which from Abai Avenue to Al-Farabi Avenue is served by 5-6 routes, depending on the direction of movement (in south or north direction). The transfer of traffic from Rozybakieva Street to Gagarin Avenue with a further transition to Gagarin Street,

because in both cases route No. 101 makes entry into and exit from the Kazakhfilm microdistrict along part of Zharokov Street, which subsequently leads to movement according to the standard route through the Baganashyl and Ermensai microdistricts, the horticultural association "Resort", etc. The above option will lead to the leveling of the need to make U-turns on Zharokova Street when driving in the north direction and on Rozybakiev Street in the south direction.

There is also the potential of introducing a dedicated lane for bus routes, since the avenue is divided in both directions by a pedestrian zone similar to the one on Bukhar Zhyrau Boulevard, which was described earlier. If, in the case of an increase in the number of routes on Kabanbai Batyr Street, the attractiveness factor of the pedestrian Panfilov Street, which is a point of attraction, can be cited, then in the case of Gagarin Avenue, the Mahatma Gandhi Park, covering an area of about 8.4 hectares, can be cited. Zharokov and Rozybakiev Streets run parallel to Gagarin Avenue, which are served on a similar section from Tole Bi Street to Zhandosov Street by an average of 2 and 8 routes, respectively. The section of Zharokova Street from Tole bi Street to Shevchenko, as well as Gagarin Avenue, is served by only one route (No. 19). This route connects the Kazakhfilm microdistricts (Bostandyk district) and Nurkent (Alatau district), but the difference from the only route on Gagarin Avenue is that this route follows continuously from the beginning of the street on Tole bi to its end on Al-Farabi Avenue. The total number of routes on Zharokova Street with a length of 5.6 kilometers with the above boundaries varies from 1 to 3, which also reduces the attractiveness of bus routes in this section, increasing the demand for personal vehicles.

Then we move on to another street that is served by one route – Askarova Street, located in the Bostandyk district and served by bus route No. 119. This route connects the Sayakhat bus station and the territory above the Kargaly microdistrict, moving along the section of Askarov Street that interests us. Moving in a southerly direction along Mustafina Street, the route exits onto Sain Street and later makes a U-turn on the ring section at Toraighyrov Street for further exit to Askarov Street through the Daryn microdistrict. 9979 people live in the service area of the stopping points from the beginning of Askarov Street to the final (initial) stop of route No. 119, and the population density is 4509 people per square kilometer with the previously indicated population density in the Bostandyk district equal to 2375 people per square kilometer. The population density index exceeds the average for the district by two times, and this is despite the fact that this area is located in the foothills and is mainly built up with private houses, which significantly reduces the population density. Route No. 119 runs a distance in both directions of 44 kilometers (44138 meters) and is served by an average of 15 buses every day with an interval of 10 minutes. There is no traffic on dedicated lanes on the entire route, which increases the possibility of disruption of the intervals between buses. A potential increase in the number of routes in this zone may lead to partial unloading of Al-Farabi Avenue in the eastern direction during the morning rush hour. It is also worth adding the need to introduce Sadykov Street into the route No. 119 map. To date, he performs traffic on Askarov Street in both directions and skips Sadykov Street. A potential turn to Sadykova Street when driving from the Sayakhat bus station could save this route from traffic on Sain Street at a distance of 1.6 kilometers and provide direct traffic from Mustafina Street through the ring section on Sain Street to Sadykova Street, which will also increase mobility during the evening rush hour. When considering an alternative option related to traffic from the Kargaly microdistrict and turning onto Sadykov Street with further exit to Mustafina Street through the ring section on Saina Street, it will reduce the route by 900 meters. The inclusion of Sadykov Street may be due to the active development of this territory – the commissioning of residential complexes "President's Park" and "Nef Uptown", as well as club houses "Capital Club", "Rich" and "Embassy" is planned.

Factors that influence passenger activity at the stop level can be categorized as those related to the built environment and sociodemographic characteristics of areas adjacent to stops, and transit supply, expressed as the level of transit service offered at the stop (Cui et al., 2022). In order to quantify the bus delay changes, the biggest challenge is to correctly and timely estimate the bus arrival times at various bus stops in the network. The information of bus arrival time is currently unavailable, as the bus stations are not interconnected or monitored digitally. However, the real-time positioning of each bus across the network is available via real-time transmitted GPS (Global Positioning System) location points (Ou et al., 2022). Transit's attractiveness generally stems from the spatial extent of routes, their frequency, and fare prices. However, features such as clear signage, places to sit, shelters to provide shade and protection from inclement weather, ease in boarding and exiting vehicles (e.g. unobstructed curbs), and screens providing real-time arrival estimates are also influential (Moran, 2022). Transit service can be aligned and scheduled to allow passengers to transfer between routes that arrive together and provide the opportunity to connect. Recovery time to accommodate variable traffic levels and transit speeds can be added as needed. Routes with lower ridership can be scheduled with lower frequency of service. Portions of the same route can be served with different frequencies. A central grid of routes can branch as radial suburban routes (Etgen, 2022). Transport inequality analyses are often informed by accessibility estimates based solely on travel time impedance, ignoring other elements that might hinder access to activities, such as the monetary cost of a trip (Herszenhut et al., 2022). The 1990s were a period of creating Kazakhstani material and technical and scientific base for metro construction. Despite the minimal financing, the penetration of the distillation and escalator stations, of the approach workings to the deep-seated stations continued, and, most importantly, the experienced cadres of engineers and workers were retained. During all this time, metro was built and on 1 December 2011 the first stage of the subway with a total length of 8.6 km was put into operation. It included seven stations. After four years, in 2015 were opened two stations and the length of the subway tunnel increased by 2.74 km (Bazarbekova et al., 2018). Metro data processing was carried out in a similar way – by creating points with coordinates with further conversion of points into shapes indicating the sequence. Upon completion of the transfer process, it became necessary to demonstrate the availability of metro stations, taking into account the impedance factor, since the service area differs from the buffer zone in that it is aimed at demonstrating accessibility, taking into account standard restrictions on the way to metro stations. The subsequent development of bus routes in the future should correlate with another type of transportation – the city subway. The year 2022 was marked by the opening of two new metro stations in the Auezovsky district – "Bauyrzhan Momyshuly" and "Saryarka" (Figure 4).

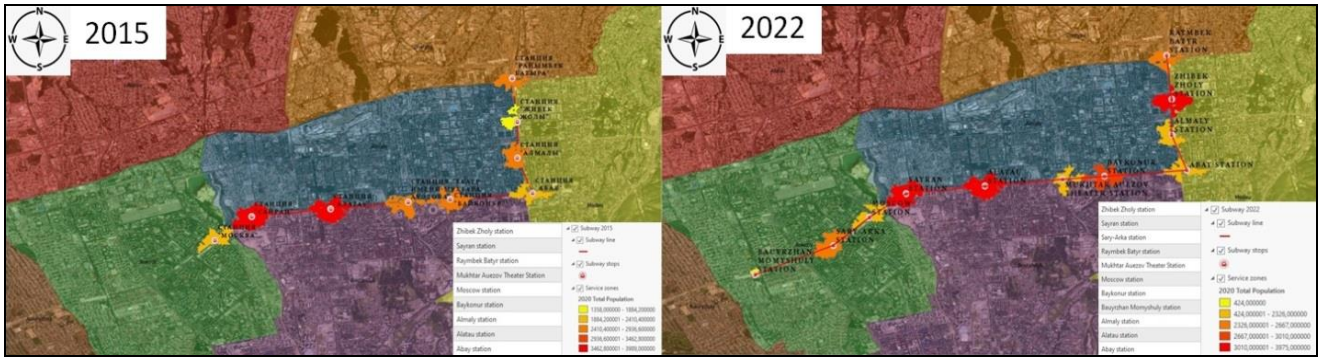

Figure 4. Comparison of the coverage areas of the city metro after the commissioning of new stations (Municipal State Enterprise "Metro")

The listed stations will be a continuation of the only branch line, which previously consisted of 9 stations, mainly located along Abai Avenue. The new stations of the Almaty metro are no exception and are located along the same avenue of Abai. A further directive for the development of the city metro is aimed at joining the Nauryzbay district to the existing metro line with a final stop in the area of the Altyn Orda and Barlyk markets on the border with the Karasay district of Almaty region, which will increase passenger traffic by providing an alternative to individual transport to residents of the above areas. Metro systems are part of the urban rail network that provide commuter services as part of the transit network in metropolitan areas. Metro systems are expensive infrastructure projects that require both capital investment and local capacity. Metro systems are characterized by rail-based vehicle technology, with scheduled services and fixed stations (underground, ground level and elevated infrastructure) (Vergel-Tovar, 2022). The metro as such is an expensive project and is implemented over a long time period, which does not always satisfy city residents. Thus, with the development of a network of urban routes, it makes sense to cooperate with representatives of the city metro, which in the short term reduces the need for it, because the issue of revising the movement of bus routes or the organization of dedicated lanes is not so capacious in technical terms, and more importantly does not require significant financial injections. Public transit ridership forecasts have long played a role in understanding the potential success of a policy or investment, but their limitations have led researchers and practitioners to identify other performance analysis approaches. Accessibility, or the ease of reaching opportunities, has become very popular and widely used for this purpose. But commonly used accessibility measures also embody weaknesses that are seldom acknowledged; these limit their utility for truly understanding the benefits of transit investments (Karner, 2022).

CONCLUSION

It is worth concluding the study with the conviction that a phased restructuring of bus and trolleybus routes is necessary with an increase in coverage area according to statistical indicators characterizing the number of population and settlement density according to service zones. Service zones formed on the basis of GTFS data are able to illustrate the ratio of residents of Almaty with the existing public transport network. The issue of creating a network of lines with dedicated lanes for the subsequent connection of all 8 districts of the city of Almaty, as well as bordering settlements of the Almaty region, needs more detailed elaboration and public discussions with representatives of the transport sector. The city of Almaty tends to consistently expand with the inclusion of border populated areas in the city boundaries, which automatically leads to an increase in the distances between various urban objects of economic activity of the city, but on the other hand there are technologies that are actively being introduced into the urban environment.

These technologies are able to reorganize the streets of Almaty in spite of the automobile lobby, and what is even more important – to lead the residents of the city to switch to public transport and means of micromobility. Summing up all the results of the existing transport network based on GTFS data, it is necessary to single out the above-described problematic streets in a separate row, since the restructuring of traffic along these streets will increase capacity, as well as increase the load on the existing dedicated lanes, which can be the starting point for a consistent increase in BRT lanes in Almaty. Summarizing the above, this study aims to increase interest in the introduction of scientific methods to improve the provision of public transport services, because this industry is still not attractive to investors and is subsidized by the state and local budgets. This study revealed the main characteristics of the existing public transport network and subsequent studies will also be aimed at analyzing the changes being made with a comparison of service zones, which will demonstrate the change in quantitative and qualitative indicators of the provision of public transport services in Almaty.

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ASSESSMENT OF THE TOURISM SECTOR IN A HUNGARIAN SPA TOWN: A CASE-STUDY OF HAJDÚSZOBOSZLÓ

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Abstract: Health tourism is defined as a tourism product of strategic importance in Hungary and spa towns are among the most visited destinations in the country. The aims of the present research are to explore the characteristics of the tourism sector in the spa town of Hajdúszoboszló, and to identify the trends having shaped its tourism in the previous decade. Time-series analysis of secondary tourism data as well as a questionnaire survey among visitors were conducted to assess the market position of the spa town. The results imply that both the well-balanced ratio of domestic and international guests and the diversity of international source markets were favourable for the town. In the future, the more efficient diversification of tourism products, the improvement of the MICE sector, and the development of gastronomic, cultural and sport tourism products are recommended.

Key words: spa town, destination management, Eastern Hungary, pandemic, sustainability

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INTRODUCTION

Hajdúszoboszló is a well-known spa town on the Great Plains, which has been among the most visited tourism destinations in Hungary for years according to the number of tourists and tourist nights. The town is located on the Northern Great Plain, in Hajdú-Bihar County, about 20 km from Debrecen, the second biggest city of the country. Although its population hardly exceeds 24,000 (Népesség, 2020), it has more to offer in many ways than other Hungarian towns of this scale. The main reason for this is the thermal spa and the well-developed tourism sector. The economy of the town is primarily based on tourism and the related sectors including retail, hospitality and other services. The major aim of our research was to explore the major characteristics of the tourism sector in the spa town of Hajdúszoboszló, with special emphasis on the supply and demand side of the tourism market. Furthermore, we aim to identify the key source markets and investigate the adequacy of the target market segmentation in the last ten years until the onset of the pandemic.

In order to get a deeper understanding of the demand side, a questionnaire survey was also conducted to assess guests' satisfaction with Hajdúszoboszló's tourism supply in the second year of the pandemic. This last aspect is of decisive importance considering that signs of overtourism were observed in the town before the pandemic, which may also affect tourists' satistfaction. In a previous study we concluded that the local residents already perceived the negative effects of the large number of tourists visiting the town (Szőllős-Tóth and Vargáné Csobán, 2021). However, empirical research

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concerning tourists' opinions has not been conducted before. Finally, we also seek to contribute to the literature dealing with tourism perspectives in Hungarian spa towns, and to provide practical guidance to local decision makers and service providers regarding the identification of target markets and the development of tourist attractions.

The significance of health tourism

Healthy lifestyle, physical, intellectual and mental wellbeing, and health-conscious living became important trends in the last 20 years, which greatly contributed to the rapid development of health tourism (Hall, 2003). Demographic changes, such as an aging society in the Western world and increasing life expectancy have resulted in an increased interest in health tourism services that may help people remain healthy and maintain a good quality of life (Cooper, 2009). The ever-faster pace of life is a serious source of stress, which may lead to mental and physical diseases. In order to prevent or manage these, many people decide to spend a few days, weeks or even months away from their homes. The philosophy of individualism in the Western world also fuels people's will to devote time to wellbeing (Voigt, 2014).

"Health tourists" are primarily motivated by the wish to improve or maintain their health, to manage or prevent diseases, and to engage in physical and mental recreational activities (Rátz, 2001). Accordingly, health tourism is usually divided into two sub-segments: medical tourism and wellness tourism (Smith and Puczkó, 2010). Medical tourism refers to visiting a health resort or a treatment facility away from home with the aim to recover. It includes clinical and surgical tourism that may involve medical operations as well. Wellness tourists seek to maintain their health and prevent illnesses by spending time in a relaxing or entertaining environment. Medical wellness refers to a combination of wellness services and medical treatments (Ruszinkó and Donka, 2019).

Health tourism destinations are locations that are chosen by people whose motivation is to improve their health and/or well-being (Tuominen et al., 2017). The development of medical tourism is often considered a priority in towns with natural conditions such as thermal water, healing mud or healing climate. On the other hand, the global climate change is not a major factor affecting indoor spas (Hoyk and Palkovics, 2022). It is worth noting that the natural environment itself may have positive therapeutic effects (Deery et al., 2014; Dryglas and Salamaga, 2018). Healthy environment in the countryside may offer an excellent opportunity to practice health-conscious lifestyle and to engage in recreational activities. However, the availability of such natural resources is not a prerequisite for the development of wellness services, as a purpose-built, well-functioning infrastructure may be sufficient for developing wellness tourism.

Due to the presence of unique natural therapeutic features, high-quality and constantly improving infrastructure, as well as its rich cultural traditions, health tourism has outstanding potential in Hungary. Since the early 2000s, Hungary has made tremendous efforts to develop spas and tourist accommodation, relying on government and EU development funds (Michalkó et al., 2011). The *National Tourism Development Strategy 2030 – Tourism 2.0* defines health tourism as a tourism product of strategic importance both in the domestic and the international market (NTS 2030 – Turizmus 2.0, 2021). Tourism development also has a great potential in the improvement of cross-border cooperations (Bujdosó et al., 2011; Dávid et al., 2011). The importance of health tourism development is also underpinned by its economic and social benefits. Health tourists are typically high spenders, as they make use of more and more exclusive services than other travellers. Also, demand in this segment is distributed more evenly over time, which implies that service providers have to experience seasonality to a lesser extent (Rátz, 2001; Laczkó, 2015). Seasonality is defined as one of the most important factors influencing tourist ativities in spa towns (Stupariu and Morar, 2018). As for wellness tourism, it attracts not only senior tourists but also members of the Generation X and Y. In Hungary Generation Y are the most enthusiastic about wellness services, as well as physical and mental recreation, and they are the ones who are more open to a health-conscious lifestyle, as well (Ivancsóné Horváth and Printz-Markó, 2017). This may have important implications for the future marketing strategy of Hajdúszoboszló, as it may serves as a guidance for defining new target markets.

At the same time, the constantly changing economic, social and technological environment poses new challenges for decision makers involved in destination management (Egri and Kőszegi, 2020). In particular, the anticipation and monitoring of changes in demand is a difficult and complex task. The commitment of local decision makers to the principles and practices of sustainable development is very important, because the decisions they make may affect the tourism sector, too (Bauerné Gáthy and Vargáné Csobán, 2009). Sensitive natural environments, which often characterize spa towns require careful planning and long-term monitoring of tourism's impacts (Dávid et al., 2008, Dávid et al., 2012). Endangerment of the natural environment, e.g. certain species of flora due to the lack of adequate management of the resources was detected in the area of a thermal spa (Ilieș et al., 2015). Diversified services have appeared in areas related to mass tourism as well, therefore competition has increased on the health tourism market (Csapó and Törőcsik, 2020).

Even less well-known destinations offer a wide range of recreational physical activities to their residents and tourists alike (Vargáné Csobán and Serra, 2014). The promotion of a health-conscious attitude and health tourism services may open up new markets (Printz-Markó et al., 2017). In particular, information on wellness services and health tourism should be more actively disseminated among young people, which may have an impact on their travel decisions (Ivancsóné Horváth and Printz-Markó, 2018). Marketing tools such as "influencer marketing" are well adaptable for affecting target markets (Yetimoglu and Ugurlu, 2021). Similarly to other tourism products, consumers increasingly search for unique and authentic experience in health tourism. In order to remain competitive, the supply side must meet these expectations.

The fierce competition among European spa towns makes it necessary to adopt and strengthen a market-oriented approach, get a deep understanding of the demands of customers, and apply a well-founded target market segmentation (Hallab et al., 2003). Integrated marketing can be an appropriate direction not only for service providers, but for destinations as well, as this holistic approach puts customers in the focus and strives to explore new market niches (Ugurlu, 2021). This also applies to the domestic market of health tourism, because the significant increase in capacity

has not been followed by growth in demand, and in light of the administrative measures related to the pandemic, it is not clear which new target groups may best represent the demand side for spas and spa towns in the future. Therefore, the major aim of the present study is to investigate the efficiency of the target market segmentation in the last ten years until the coronavirus pandemic as well as to identify the key source markets for the next decades.

MATERIAL AND METHODS

In the past decades, Hajdúszoboszló has become one of the most developed and top visited health tourism destinations of Hungary (Jónás-Berki et al., 2014; KSH, 2018; KSH, 2021). Our research tries to explore the touristic characteristics of the spa town of Hajdúszoboszló. To do so, we first determined the objectives of the research, we did a literature review, analyzed secondary data, built up a questionnaire to gain primary data. After finalizing the data analysis, we drew our conclusions and proposed our recommendations related to the topic (Figure 1).

In the framework of our research, we carried out secondary data analysis of time-series tourism data collected over the last ten years (Dwyer et al., 2012). We used the statistical database of the Municipality of Hajdúszoboszló, which is available at the official website of Hajdúszoboszló. Furthermore, the Tourism Destination Management (TDM) organisation of the town provided the missing data and information. In addition to secondary data analysis, we applied participant observations, and a questionnaire survey was also conducted among those guests who spent at least one night in Hajdúszoboszló in the past 5 years. The primary research was performed online, during the autumn of 2021, using social media websites operated by the TDM organisation. The primary aim of the survey was to get an insight into the tourists' opinions and assess the satisfaction level of the guests. We used descriptive statistical methods for data analysis.

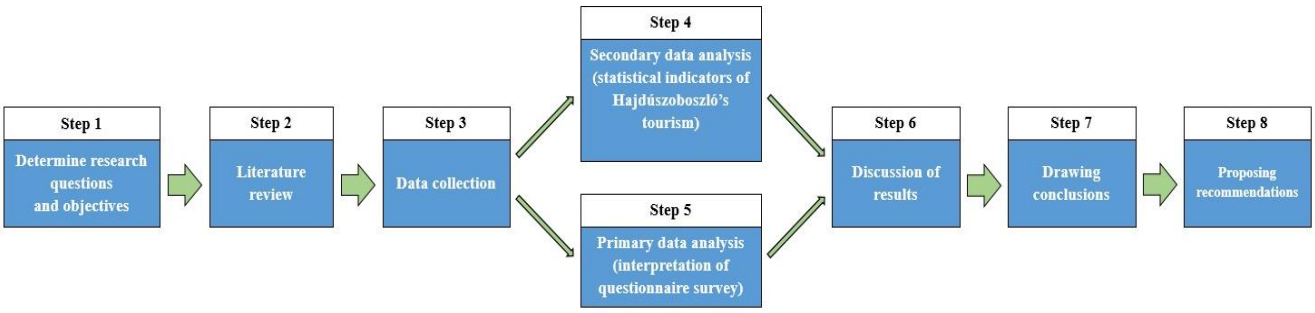

Figure 1. Methodology flowchart (Source: Authors' own compilation, 2021)

RESULTS AND DISCUSSION

The tourist attractions of Hajdúszoboszló

Hajdúszoboszló has been a certified health resort since 1958, and one of the best-known and most visited health tourism destinations in Hungary for decades. Hajdúszoboszló's major attraction is the Hungarospa spa complex, which has become famous for its thermal water. In 1925, following research carried out by geologist Ferenc Pávai Vajna, 73 °C hot water burst to the surface from a depth of 1091 m at an oil drilling site, along with natural gas. It was a discovery that converted Hajdúszoboszló into one of the major health tourism destinations in Hungary. The thermal water of Hajdúszoboszló contains hydrogen carbonate, iodine, bromine and natrium chloride, and is rich in calcium, magnesium and metaboric acid (Gömör and Oláh, 2016). Bath treatment is recommended mainly for rheumatic diseases, but the thermal water is also drinkable for therapeutic purposes. The spa offers more than 40 treatments to visitors, including massage, mud treatment, weight bath, underwater massage, underwater gymnastics, various electrotherapy and state-of-the-art soft laser treatments. The individual treatments are combined into therapeutic programmes that may last for 7, 14 or 21 days.

Four out of the 15 pools of the complex next to the indoor spa are available throughout the year, the rest operate only in the summer season. One of the most popular parts of the facility is the Mediterranean beach. With a surface area of 6,200 sqm, this is the biggest pool in Central Europe. Visitors also enjoy the slide park with its 15 slides, which opened in 2000. In 2021 "Premium Zone", the newest open-air wellness pool opened within the bath complex, which is available to the visitors for an extra charge. The facility covers 2.5 ha with a total water surface area exceeding 2,500 sqm, and a visitor capacity of 1,000 persons at any given time. The town provides a wide range of cultural attractions and programmes. There are parks and playgrounds for leisure activities in the city centre, and an open-air stage is also available with various programmes next to the spa. Small museums and exhibitions with local significance (e.g. history of the town, folk art, and fine art) also await guests. The Cultural Centre of the town offers concerts and theatrical performances on a regular basis. The culinary events like the BBQ and Beer Festival and the Biofood and Wine Festival are also worth visiting. The farmers' market is a perfect place for tourists to get an insight into regional cuisine and buy local products.

Hajdúszoboszló has a vibrant sports life with numerous athletic clubs operating in the town. Tourists can engage in various sports activities, including tennis, football, jogging on a tartan running track, swimming in the indoor swimming pool of the town or working out at the open-air gym. Most of the hotels in the town have conference rooms, which ensure appropriate infrastructural background for business tourism. Professional organisations in the fields of medicine, education and other areas of life often choose the town as the venue for their conventions, as they can use the spa and wellness services as incentives for their members and guests. In addition, a multi-functional event centre is being built in the town, which may lay the foundations for MICE tourism in Hajdúszoboszló. In order to be successful on the tourism

market, Hajdúszoboszló has to make sure that its accommodation establishments, both in terms of types and the services offered, meet visitors' demands and are in line with the brand of the town. Following a period of slight decline, the number of accommodation establishments in Hajdúszoboszló has grown again in the last ten years. However, it is mainly the quality of the accommodation offer that has changed. Renovations and extensions have been implemented at many places relying on private investments and government grants. The capacity of the commercial accommodation establishments based on data published by the Municipality of Hajdúszoboszló is shown in Figure 2.

The number of hotels has significantly grown in the town. Some of them offer complex health tourism service packages. The number of guesthouses has also risen in the past decades: 27 units operated in the town in 2019 and in 2020. The number of rooms in guesthouses has also grown over the years. In 2020 308 rooms with 726 beds were available in the town. The category of youth hostels includes 2 units, and there are 2 campsites in the town. On 31 December 2020, there were 76 accommodation service providers, 3,267 rooms and 7,471 beds in the town. Currently, private accommodation establishments offer the highest number of beds, followed by hotels (Municipality of Hajdúszoboszló – Hajdúszoboszló Administrative Website, 2021). As for the accommodation offer of the town, further improvements can be expected, because a large number of establishments have been supported in the framework of the Kisfaludy Accommodation Development Programme, which provides financial resources to commercial accommodation establishments, hotels, guesthouses, private establishments and other accommodation establishments for service development and capacity enhancement, and also supports the creation of new establishments.

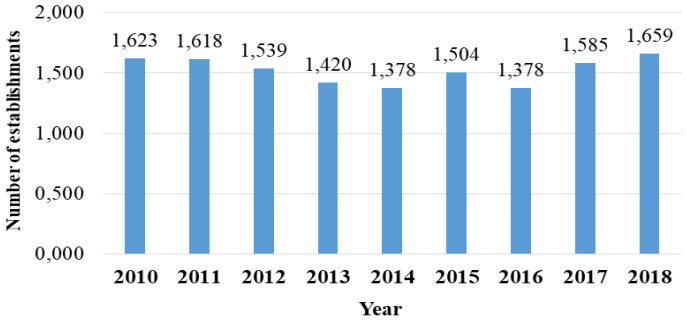

Figure 2. Total number of accommodation establishments in Hajdúszoboszló (pieces) (Source: Own compilation based on data from the Municipality of Hajdúszoboszló, 2021. https://www.hajduszoboszlo.eu/hszob/)

Arrivals and tourist nights in Hajdúszoboszló between 2010 and 2020

Statistical data clearly shows that Hajdúszoboszló is predominantly visited by domestic tourists. In 2019, the last year before the pandemic, the numbers of domestic and international tourism nights were close to 800,000 and over 555,000, respectively, with commercial accommodation establishments and other facilities offering overnight stay for business purposes (typically private tourism accommodation). The number of tourism nights has steadily grown in the past ten years, despite a small setback in the early 2010s, which was mainly caused by the credit crisis that hit the Hungarian economy and society hard, and was consolidated only from 2015. In the following years the number of tourism nights grew continuously up until the emergence of the pandemic (Table 1).

Table 1. Number of tourism nights in Hajdúszoboszló (thousand nights)
(Source: Own compilation based on data from the Municipality of Hajdúszoboszló, 2021 https://www.hajduszoboszlo.eu/hszob/)

	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Domestic tourism nights	721	630	606	632	638	695	748	751	789	799	550
International tourism nights	338	344	373	382	425	435	478	515	538	555	146
Total	**1,058**	**974**	**979**	**1,014**	**1,064**	**1,130**	**1,225**	**1,266**	**1,327**	**1,355**	**697**

The number of guests also showed a rising trend until the onset of the pandemic. The figures reflect that by the end of the 2010s the numbers of domestic and inbound tourists in the town had grown by 60,000 and 70,000, respectively, compared to data recorded at the beginning of the decade. It means that over ten years the number of visitors in Hajdúszoboszló grew by about 50% (Municipality of Hajdúszoboszló – Hajdúszoboszló Administrative Website, 2021).

Due to the restrictive measures introduced because of the pandemic, the data recorded in 2020 does not reflect the usual performance of Hajdúszoboszló's tourism. Compared to 2019, the number of inbound and domestic tourism nights fell by 73.6% and 31.1%, respectively. The number of guests also fell drastically in 2020 compared to the previous year by 73.2% and 30.9% in the case of inbound and domestic tourists, respectively (Table 2).

Table 2. Number of guests in Hajdúszoboszló
(Source: Own compilation based on data from the Municipality of Hajdúszoboszló, 2021 https://www.hajduszoboszlo.eu/hszob/)

	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Domestic guests	199,802	180,591	178,109	191,601	198,608	217,545	238,945	248,472	263,320	264,058	182,298
International guests	80,102	87,958	91,735	94,779	106,733	112,343	123,587	135,643	141,591	148,532	39,694
Total	279,904	268,549	269,844	286,380	305,341	329,888	362,532	384,115	404,911	412,590	221,992
Total annual change	-0.94%	-4.06%	0.48%	6.13%	6.62%	8.04%	9.90%	5.95%	5.41%	1.90%	-46.20%

In the last decade, the number of nights spent in Hajdúszoboszló by Polish tourists grew steadily, which is largely explained by the traditionally good relationship of the town with Poland. The role of Romania as a source market has also become stronger with a constantly growing number of tourism nights, apart from a slight drop in 2013. The number of nights spent in the town by tourists from Russia, Ukraine and other countries with visa requirements (e.g., Moldavia)

also shows an upward trend. Data recorded in the years prior to the pandemic (2018, 2019) is especially remarkable: the number of nights spent by Ukrainian tourists grew by 29.08% from 2017 to 2018, and by 44.73% from 2018 to 2019.

The number of nights spent by Russian tourists also grew dynamically since 2017, resulting in close to 25,000 nights spent in Hajdúszoboszló in 2019 (Table 3). The significance of Germany as a source market has been decreasing in Hajdúszoboszló for years, which is reflected in the number of the nights spent in the town by German tourists and in their number as well. The number of nights spent by German tourists fell from 92,962 in 2010 to 42,763 in 2019 (Table 3). The number of German guests has also been nearly halved in the last ten years. However, the average time spent in the town by German tourists is still the highest compared to other nations' figures (Figure 3).

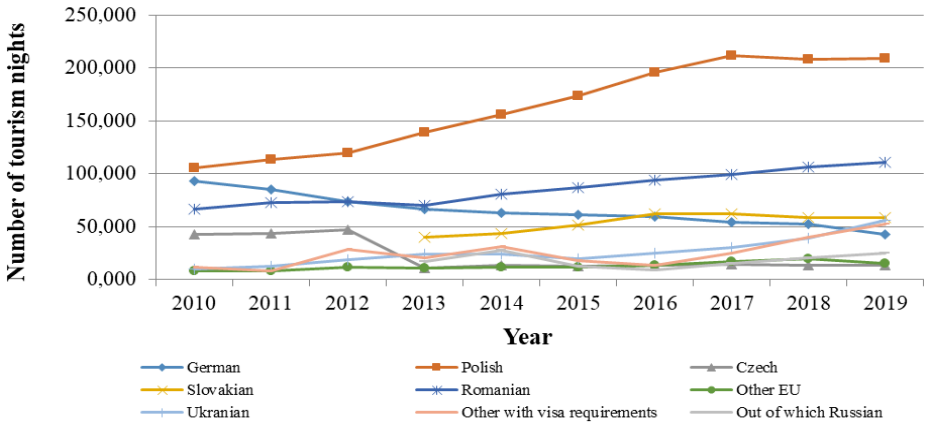

Figure 3. Change in the number of tourism nights in Hajdúszoboszló by nationality
(Source: Own compilation based on data from the Municipality of Hajdúszoboszló, 2021 https://www.hajduszoboszlo.eu/hszob/)

Table 3. Number of tourism nights in Hajdúszoboszló by nationality
(Source: Own compilation based on data from the Municipality of Hajdúszoboszló, 2021 https://www.hajduszoboszlo.eu/hszob/)

Nationality	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
German	92,962	84,910	73,287	66,238	63,401	61,049	59,683	54,229	52,715	42,763	8,061
Polish	105,460	113,509	119,688	139,402	156,384	173,751	195,855	212,192	208,230	209,178	54,544
Czech	42,817	43,597	46,789	11,012	13,169	12,606	13,486	14,286	13,736	13,208	3,385
Slovakian				40,259	44,056	51,475	62,533	62,426	58,601	58,526	21,918
Romanian	66,433	73,119	73,870	70,043	81,209	87,329	94,268	99,725	106,421	110,583	27,089
Other EU	8,004	8,502	11,989	10,549	11,820	11,484	13,908	17,011	19,519	15,254	3,174
Ukrainian	10,008	12,757	19,067	24,149	23,883	19,709	24,863	30,119	38,878	56,267	16,826
Other, subject to visa requirements	11,921	8,006	28,200	20,529	31,428	17,911	13,357	25,192	39,863	52,072	11,260
Of which Russian				17,303	27,312	13,099	9,035	14,941	20,737	24,890	4,994
From 2013, in the Other EU category data for Austria, Belgium, the Netherlands, the UK, Italy and Sweden is available.											
From 2018, the Other with visa requirements category includes Moldova											

Table 4. Number of international guests in Hajdúszoboszló by nationality
(Source: Own compilation based on data from the Municipality of Hajdúszoboszló, 2021 https://www.hajduszoboszlo.eu/hszob/)

Nationality	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
German	8,431	7,675	6,960	6,133	5,745	5,592	5,813	5,433	5,523	4,559	1 120
Polish	27,905	31,829	31,383	36,081	41,019	44,584	49,570	54,118	53,415	53,980	14 064
Czech	13,143	14,015	14,918	2,528	2,920	2,831	2,846	3,194	3,155	2,864	865
Slovakian				13,278	15,390	18,105	21,095	21,908	20,502	20,671	7 647
Romanian	24,342	26,687	26,699	24,207	28,139	30,243	32,630	35,418	37,912	38,962	9 347
Other EU	2,305	2,390	3,356	3,383	3,700	3,533	4,032	4,786	5,215	4,626	955
Ukrainian	2,203	3,870	4,839	5,987	5,708	4,405	5,309	6,631	9,455	13,374	3 593
Other, subject to visa requirements	1,773	1,492	3,580	3,197	4,083	3,050	2,292	4,155	6,414	8,408	2 101
Out of which Russian				2,344	3,041	1,782	1,330	2,027	3,296	3,923	950
From 2013, in the Other EU category data for Austria, Belgium, the Netherlands, the UK, Italy and Sweden is available.											
From 2018, the Other with visa requirements category includes Moldova											

In terms of the number of guests, the major source markets of Hajdúszoboszló are Poland, Romania and Slovakia, followed by the Ukraine, other countries with visa requirements, and Germany (Table 4). The pandemic situation proved the benefits of maintaining a diverse portfolio of the source markets, which may reduce the risks related to negative changes in the individual markets. Based on data from the last decade, the fall in the number of German guests seems unstoppable. It is common knowledge that in the off-season period Hajdúszoboszló is mostly visited by senior guests, who wish to spend some quality time and get various treatments at the spa town. Regarding German travellers, Hajdúszoboszló has to compete with spa towns located in West-Hungary, which also offer reasonably priced, high-quality services, and are closer to German-speaking countries. In general, Hungarian spa towns have not been able to reach younger generations and families in the German source market. By contrast, the number of Polish guests rose steeply in the years before the onset of the pandemic. They typically arrive with their families in the high season and are often engaged in various activities, including organised trips to Hortobágy, Lake Tisza or Debrecen, besides enjoying the spa facilities of the town. The number of visitors from Slovakia also dynamically grew until 2020. They like to spend their family holidays in Hajdúszoboszló and enjoy the

unique range of spa services. The number of Romanian guests nearly doubled in the last ten years, and we can assume that the single obstacle to achieving that was the pandemic. Due to the proximity of the source market, Romanian tourists often arrive only for a few days or for a long weekend, sometimes multiple times a year. In addition to private tourism accommodation, they also like hotels that offer wellness services. The number of Ukrainian tourists grew from 2203 in 2010 to 13,374 in 2019, which can be considered the best year for tourism before the emergence of the pandemic (Table 5).

Table 5. Change in the number of guests in Hajdúszoboszló (%) compared to previous years by nationality
(Source: Own compilation based on data from the Municipality of Hajdúszoboszló, 2021 https://www.hajduszoboszlo.eu/hszob/)

Nationality	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
German	8,431	7,675	6,960	6,133	5,745	5,592	5,813	5,433	5,523	4,559	1,120
Change	-6.01%	-8.97%	-9.32%	-11.88%	-6.33%	-2.66%	3.95%	-6.54%	1.66%	-17.45%	-75.43%
Polish	27,905	31,829	31,383	36,081	41,019	44,584	49,570	54,118	53,415	53,980	14,064
Change	-9.89%	14.06%	-1.40%	14.97%	13.69%	8.69%	11.18%	9.17%	-1.30%	1.06%	-73.95%
Czech	13,143	14,015	14,918	2,528	2,920	2,831	2,846	3,194	3,155	2,864	865
Change					15.51%	-3.05%	0.53%	12.23%	-1.22%	-9.22%	-69.80%
Slovakian				13,278	15,390	18,105	21,095	21,908	20,502	20,671	7,647
Change		6.63%	6.44%		15.91%	17.64%	16.51%	3.85%	-6.42%	0.82%	-63.01%
Romanian	24,342	26,687	26,699	24,207	28,139	30,243	32,630	35,418	37,912	38,962	9,347
Change	-11.63%	9.63%	0.04%	-9.33%	16.24%	7.48%	7.89%	8.54%	7.04%	2.77%	-76.01%
Other EU	2,305	2,390	3,356	3,383	3,700	3,533	4,032	4,786	5,215	4,626	955
Change	-0.69%	3.69%	40.42%	0.80%	9.37%	-4.51%	14.12%	18.70%	8.96%	-11.29%	-79.36%
Ukrainian	2,203	3,870	4,839	5,987	5,708	4,405	5,309	6,631	9,455	13,374	3,593
Change	-3.80%	75.67%	25.04%	23.72%	-4.66%	-22.83%	20.52%	24.90%	42.59%	41.45%	-73.13%
Other, subject to visa requirements	1,773	1,492	3,580	3,197	4,083	3,050	2,292	4,155	6,414	8,408	2,101
Change	-10.81%	-15.85%	134.00%	-10.70%	27.71%	-25.30%	-24.85%	81.28%	54.37%	31.09%	-75.01%
Out of which Russian				2,344	3,041	1,782	1,330	2,027	3,296	3,923	950
Change					29.74%	-41.40%	-25.36%	52.41%	62.60%	19.02%	-75.78%

Length of stay in Hajdúszoboszló

Data from the last ten years shows that, similarly to other destinations, the average length of stay decreased in Hajdúszoboszló both in terms of domestic and inbound tourism (Table 6). This unfavourable development reflects a global trend, namely that tourists spend shorter periods at destinations, but are more likely to travel several times a year. German tourists typically visit the town as health tourists to get various treatments and, accordingly, stay longer, while tourists from the neighbouring countries usually spend less time in Hajdúszoboszló (Table 6).

Table 6. Average length of stay in Hajdúszoboszló (nights)
(Source: Own compilation based on data from the Municipality of Hajdúszoboszló, 2021 https://www.hajduszoboszlo.eu/hszob/)

	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Length of stay – domestic	3.61	3.49	3.40	3.30	3.21	3.19	3.13	3.02	3.00	3.00	3.02
Length of stay – international	4.21	3.92	4.06	4.03	3.99	3.87	3.87	3.80	3.80	3.78	3.68
Change – domestic	-5.05%	-3.32%	-2.58%	-2.94%	-2.73%	-0.62%	-1.88%	-3.51%	-0.66%	0.00%	0.67%
Change – international	4.78%	-6.89%	3.57%	-0.74%	-0.99%	-3.01%	0.00%	-1.81%	0.00%	-0.53%	-2.65%

Examination of tourism demand based on the questionnaire survey

In order to gain a better understanding of the demand side of the tourism market, primary research was conducted in 2021. Due to the pandemic, an online questionnaire was used, participation was anonymous and voluntary.

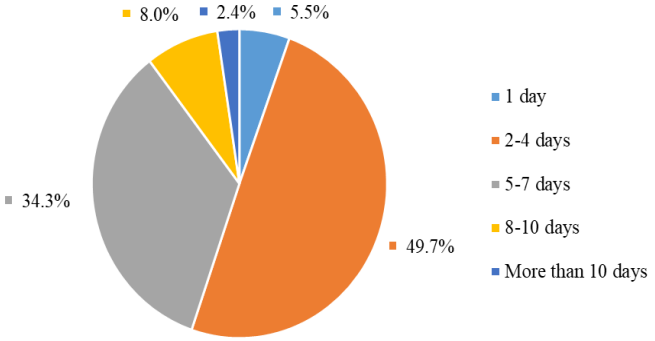

Figure 4. Respondents' length of stay in Hajdúszoboszló (N=286) (Source: Own research, 2021)

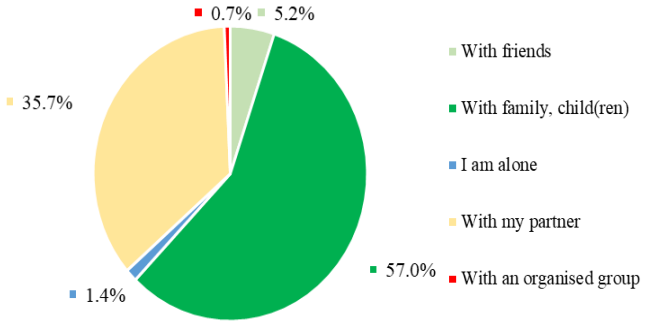

Figure 5. Responses to the question: "Who did you come with to Hajdúszoboszló?" (N=286) (Source: Own research, 2021)

The target group of respondents consist of those who spent at least one night in Hajdúszoboszló over the previous 5 years, which resulted in a sample of 286 respondents. The average age of respondents was 46.6 years with 7% under 30, 19.5% between 30 and 39, 35% between 40 and 49, 33% between 50 and 59, and 5.5% over 60 years of age. The youngest participant was 19, and the oldest respondent was 76 years old.

The proportions of female and male respondents were 91.8% and 8.2%, respectively. Most of the participants were Hungarian citizens, but the sample also included 1 Hungarian-Romanian, 4 Romanian, 1 Slovakian and 1 German national. Regarding spa services, 71.1% of the respondents used the thermal bath mainly. The wellness section and the aquapark were also popular (70.2%). 14.8% usually took beauty treatment and massage, while 9.5% took medical treatments, diagnostic and related services. Only 2.3% indicated that they never used any of the services in the list.

Nearly half of the respondents (49.7%) stayed for 2 - 4 days in Hajdúszoboszló, and 34% spent 5 - 7 days in the town (Figure 4). The majority of respondents came to Hajdúszoboszló with their spouse and children (57%) or with their partners (35.7%) (Figure 5). Most of the respondents (37.8%) stayed at private tourism facilities, while 26.2% stayed at 4-star hotels. Many chose a 3-star hotel (17.8%) or a guesthouse (10.5). Some respondents stayed at a local acquaintance's place (4.2%), and a small proportion (2.8%) chose a campsite. Only 0.7% stayed in their own properties (Figure 6).

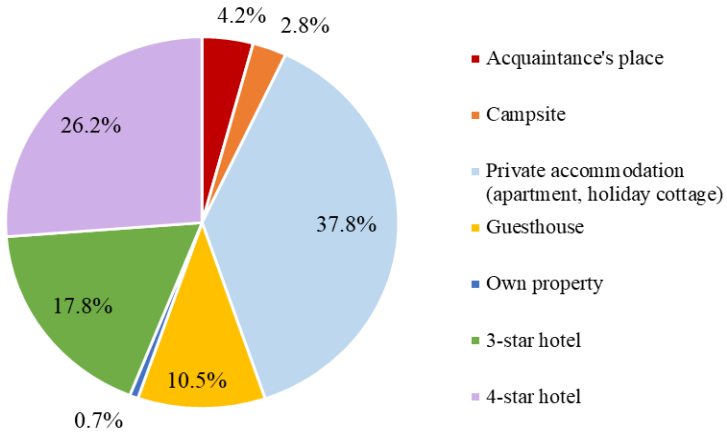

Figure 6. Most often used types of accommodation in Hajdúszoboszló (N=286) (Source: Own research, 2021)

We defined 24 aspects for the respondents to evaluate on a 1-5 scale (5 = Excellent, 4 = Good, 3 = Average, acceptable, 2 = Barely acceptable, 1 = Below standard, not acceptable). Table 7 shows the results for each aspect based on the averages of points given by respondents.

Table 7. Respondents' level of satisfaction with the tourism supply of Hajdúszoboszló (Source: Own research, 2021)

Aspect	Average
Thermal water quality	4.81
Spa quality	4.79
Spa town atmosphere	4.66
Neat public areas	4.65
Hospitality	4.65
Accessibility of town	4.58
Tidiness of town	4.57
Restaurants, bars	4.52
Quality of new developments	4.52
Public safety	4.50
Natural environment	4.50
Quality of events, festivals	4.48
Entertainment and leisure facilities	4.38
Shopping facilities	4.38
Infrastructure (e.g., road quality)	4.21
Quality and diversity of souvenirs	4.20
Price level of products and services	4.18
Number of tourists in the town	4.09
Sport facilities	4.05
Composition of tourists	3.99
Tidiness	3.99
Noise	3.92
Traffic	3.73
Crowdedness	3.64

The table below shows that the guests who participated in the survey were very satisfied with the available services and the terms and conditions of accommodation. The quality of thermal water and the spa received exceptionally high scores, which may be the result of the development projects implemented in recent years. They were followed by the spa town atmosphere, neat public areas, and the hospitality of locals in the ranking, all of them with high scores. The open questions provided respondents with an opportunity to elaborate on why they liked Hajdúszoboszló. Many answers reflected a high level of satisfaction with the town, the spa complex, and the programme offer: "We love it! Beautiful town and spa, nice walks in the evenings", "I love the atmosphere of the shopping area", „Nice people" and „Superb events". The results also reveal that noise, traffic and crowd were the most annoying factors for the guests. However, it is interesting too, that the demand for rapidly developing rural tourism products was not reported by visitors (Lakner et al., 2018; Palkovics and Kőszegi, 2021; Hoyk et al., 2022). These issues need to be addressed by the local planners (Table 7).

CONCLUSIONS AND RECOMMENDATIONS

The pandemic highlighted the extreme vulnerability of the tourism industry. Never before had global tourism experienced a setback of this scale, and this makes the analysis of demand for individual destinations very important, as the results may help the identification of potential target markets and new demand segments.

The results of Hajdúszoboszló's tourism industry confirm that efforts should be made to reach a diverse range of source markets, in addition to attracting domestic visitors. We can also conclude that the town's offer covers all stages of the family life cycle (young single individuals, young married couples, single parents with kids, parents with kids, older married couples, older single individuals etc.). The family-friendly establishment of the town and the spa complex, as well as the range of services create ideal conditions for targeting primarily families with kids, including multi-generation families. The services that are important for the target group, including the lido, the aquapark, the thermal pools, wellness and therapeutic treatments, are already in place. However, families also expect and appreciate a varied and colourful range of services that is refreshed and extended from time to time.

The other main target group consists of tourists who come to Hajdúszoboszló for medical treatment, and have conditions for which local thermal water is medically recommended. They tend to stay longer, as treatment programmes usually take at least 1 week. Many of them are even prepared to stay for 2-3 weeks in order to get better. This segment basically includes middle-aged and older tourists, who have already experienced the positive effects of the local thermal water, or would like to try out physiotherapy treatments in order to prevent or treat various medical conditions. When planning

marketing activities as well as new features or services, it should be borne in mind that the senior age group is not homogenous, with a growing proportion demonstrating interest in various activities and programmes outside the spa as well.

The range of services offered by Hungarospa Hajdúszoboszló also allows us to identify the segment of young adults (18-35) living an active lifestyle as a target group. They look for unique experiences, like wellness services, and typically come to the town with their partners or friends. With a view to the more efficient sales of health tourism services, more efforts should be made to reach the middle-aged segment. In the 40-60 age group health tourism services should be promoted as services that support not only rehabilitation, but prevention as well. A sad consequence of the pandemic is the appearance of post-covid rehabilitation packages, which are available at an increasing number of destinations. As a spa town, Hajdúszoboszló is a perfect place for guests who need to recover from the long-term symptoms of the disease.

Based on segmentation according to lifestyle, we can establish that Hajdúszoboszló's tourism supply may even satisfy the expectations of the LOHAS (Lifestyles of Health and Sustainability) group. Members of the group are committed to a healthy and environmentally conscious lifestyle, have lucrative jobs, are highly educated, and appreciate premium services.

Due to the location of the town, the domestic target group of Hajdúszoboszló includes the whole population of Hungary, with special emphasis on Budapest, as well as Pest, Borsod-Abaúj-Zemplén, Heves and Szabolcs-Szatmár-Bereg counties.

Based on data on the inbound arrivals and tourism nights, we can conclude that the most important source markets of the town are Poland and Romania. Polish guests typically arrive with their families in the high season, and prefer to stay at hotels and private tourism facilities. The average length of stay of Romanian visitors is less than that of Polish guests. They often spend a weekend or two in Hajdúszoboszló in the low season, typically at a hotel. The numbers of visitors from Slovakia, Ukraine and Russia are also impressive, and the source market of Moldova has also improved a lot over the last few years. As for German guests, their relatively low number is offset by a relatively high number of nights spent and the average length of stay, compared to other nations. They typically spend some time in Hajdúszoboszló in the mid- or low season. This data confirms that efforts should be made to keep the German source market.

In 2021, due to the pandemic, Hungary opened its borders to holiday tourists only in July, which means that inbound tourism started only then in the town. Based on statistical data, we can conclude that the target market segmentation in Hajdúszoboszló was adequate, and the main directions defined should be followed in the future. The balanced ratio of domestic and inbound tourism and the diversity of international source markets are very favourable for the town; a tendency that has been confirmed during the pandemic. This diversity should be maintained in the future, as it reduces the risks related to sudden changes in the individual markets. Ongoing, and planned touristic developments allow the town to lay more emphasis on sport, cultural and business tourism in the future, to complement its traditionally successful health tourism. Data from recent years confirms the significance of creating complex tourism products, and regional cooperation of destinations in the fields of product development, marketing and sales are crucial.

The main tourist attraction of Hajdúszoboszló is HUNGAROSPA, the spa complex itself, therefore its continuous development and extension should remain a priority. Strongly related issues are the establishment and maintenance of a spa town atmosphere and image, and the improvement of infrastructure and accessibility. We consider the more efficient diversification of tourism products, the extension of the range of services in the MICE sector, and the development of gastro, cultural and sport tourism reasonable directions. One of the prerequisites of the development of tourism is local and regional cooperation, and the collaboration of local actors with the involvement of the municipality, the TDM organisation and industry associations. Efforts made to establish a "smart tourism destination" also make cooperation among entities involved in the tourism industry necessary, in addition to maintaining a strong technological infrastructure. In line with these priorities, the key objective of Hajdúszoboszló may be to increase revenue generated by tourism, improve the quality of services, and thereby to enhance guest satisfaction and the life quality of locals.

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MULTIDIMENSIONAL IMPACTS OF COVID-19 PANDEMIC ON CULTURAL HERITAGE MANAGEMENT (CHM) AND CONSERVATION PRACTICES IN NORTH-CENTRAL ETHIOPIA

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Abstract: The main aim of this study was to assess the multidimensional impacts of the COVID-19 pandemic on heritage conservation and management and the possible strategies as a way out of the corona pandemic in North-Central Ethiopia. The study was conducted by using a descriptive study design. The study found that : 60.9 % of the heritage sites in the study area were forced to close due to the sudden outbreak of the Coronavirus. And, 71.7 % of staff who worked in the conservation and custodian was not able to work during the pandemic. COVID-19 pandemic has affected by delaying heritage conservation projects works especially in Lalibel, Dessie Museum, and Mereho Palace. 63 % of the heritage collections were not monitored during Corona time. Disruption of community life in and around heritage properties was also one of the major impacts of the Coronavirus. Communication and social mobilization, fast decision making, inviting partners to participate in Corporate Social Responsibility (CSR) activities, institutional Cooperation and using social media as a platform were identified as the possible strategies for heritage conservation during and post crisis.

Key words: COVID-19, Cultural Heritage Conservation, Heritage Management, strategies

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INTRODUCTION

The crisis was heard everywhere at the moment. According to International Monetary Fund (IMF), 2020 is likely to be the worst year for the global economy due to the sudden outbreak of Corona Virus (COVID-19: CO implies Corona, VI implies Virus, D implies Disease whereas 19 indicates the year of its outbreak (2019). Since the first infections in China at the end of 2019, the Coronavirus disease (COVID-19) has continued to spread across the world. No continent has been able to escape this virus since its declaration as a pandemic by the World Health Organization (WHO) on 11 March 2020; COVID-19 has become a global emergency, given its impact on the entire world population and the economy (National Bureau of Statistics of China, 2020; WHO, 2020). The effect of COVID-19 on economies around the world has been unprecedented. While evidence of this impact is only beginning to emerge, it is clear that the economic damage has been particularly severe for Small and Growing Businesses (SGBs) in emerging markets. Just as small and growing businesses; art and craft sectors of the economy are majorly tested in their "sustainability" (Aspen Network of Development entrepreneurs, 2020; Roigé, 2021). A multitude of cultural events museums (Giannini and Bowen, 2022; Abend and Lisa, 2020; UNESCO, 2021; Network of European museum organizations, 2020; International Council of Museums, 2020), religious institutes (Future for Religious Heritage, 2020), archival centres and libraries (American Library Association, 2022; Welsh Parliament: Culture, Welsh Language and Communications Committee, 2020) and heritage sites (Douglass and Herr, 2020; Andrea, Romagnoli and Vannucci, 2021; UNESCO, 2021) were closed their doors because of the outbreak of COVID-19. According to the research conducted by Nguyen and Andres (2021); 90% of UNESCO World Heritage sites closed of partly in 2020 due to the outbreak of Corona in Europe. UNWTO calls on governments, intergovernmental organizations, civil societies and educational institutions to mobilize their resources to study the multidimensional impacts of the pandemic in different sectors and recommend implementation and policy direction. The government of Ethiopia also encourages research-based intervention on the impacts of the COVID-19 pandemic in all sectors as well as its impact on the social and cultural life of the community.

Heritages possessed a development opportunity and valuable endowments in all the world countries (ICOMOS, 2021; Harrison, 2013; Tomas and Kristina (eds.), 2018). For their sustainability heritages need integrated conservation of its collecting and management are necessary tools (Global Heritage Fund, 2020). Heritage conservation is a desire to save and to see it, and thus it is also hastening its demise and also is the process of looking after a place, building intangible legacies

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so as to retain its values and bestowed to the future generation. It includes maintenance, preservation, restoration, reconstruction, adaptation, and protection. Heritage conservation refers to identifying the historical, aesthetic, architectural, cultural, natural or scientific, social and other values of heritage properties and also maintaining and thereby increasing the value of the heritage properties (Sen et al., 2006). On the other side; heritage management is an administrative means by which the cultural and natural properties are protected from human and natural threats of damage and destruction and involves identification, interpretation, preservation, conservation of cultural and natural resources and promoting them for sustainable development (McManamon et al., 2008). All the activities of both heritage conservation and heritage management are majorly affected by the outbreak of the COVID-19 pandemic. Many heritage management and conservation practices are stopped due to the COVID-19 pandemic but the process of damage to heritage resources is not stopped **(**Federica, 2022; Guest, 2021**).** Ahmadreza and Giuseppe (2022) studied on resetting cultural heritage policy and management practice -moderating mass tourism in post-pandemic times. The study of these two authors concludes that; a new policy should be initiated based on a multi-sectorial and multi-level approach in planning practice to mitigate tourist flows in vulnerable World Heritage centre. However, this study did not touch how COVID-19 affected both world heritage sites in multidirectional areas and how these impacts reduced by what strategy still need answers. Europa Nostra (2020) has worked on to identify specific impacts of the COVID crisis on cultural heritage sites and stakeholders.

The study found that COVID-19 crisis has impacted every dimension of the cultural heritage value chain, conservation and protection, outreach, training andeducation. The study focused on European Union and its Member States, as well as towards regional and local authorities and other international organisations by overlooking the third world countries and the impact of the pandemic in all directions especially in heritage management and conservation works. Research Centre of the European Commission (2020) studied on European cultural and creative cities in COVID-19 times by focusing on jobs and the policy response. This study also did not indicate and cover the third world experience on job loss working in heritage sites. The conservation practices in Lalibela, Dessie Museum, and Mereho Palace are taken examples all the impacts were happened. However, all these concerns were not studied scientifically to forward possible strategies and recommendations on the impact of COVID-019 pandemic in the study site heritage resources. Therefore, the concern of this study is to see the impact of the COVID-19 pandemic on heritage management and conservation practice in North-Central Ethiopia.

According to International Centre for the study of the Preservation and Restoration of Cultural Property (2020), heritages are significant in providing social and post-trauma support, enabling social cohesion and building resilience of communities during times of crisis. Heritage resources are also no less significant in the UN 2030 agendas by providing a great role in economic, social and environmental knowledge to reduce the risks of any pandemic. However, with the sudden outbreak of the COVID-19 pandemic many heritage resources, management and conservation projects are at risk of possible neglect due to the economic difficulties (Wyman, 2020). Additionally, the COVID-19 pandemic complicates the caring of heritage collections in museums, archival centres, and research institutes. The wooden, metallic and texture heritage conservation practice in the time of COVID-19 very seriously affected and a major challenges for its sustainability. Many conservation works including alcoholic disinfectant, waxes and oil or other bio-based consolidation of heritage conservation did not worked in the time of COVID-19 (Walsh, 2022). More importantly Jorge (2022) indicated that; the heritage management and conservation works affected by the pandemic and its future depend on the scientific conservation models we use. Due to the COVID pandemic, the whole museum heritage has become suddenly fragile and vulnerable and the process of re-approaching of museum resources and communities, current practices and approaches needs to be considered. However, all this studies overlooked the experiences of Ethiopia and in what level of the pandemic affected the heritage management and conservation in museum, archives, on site and public libraries and the response of stakeholders on the impact (Lerario, 2021). In the case of our study area, we cannot find any study on the impacts of the COVID-19 pandemic on cultural heritage conservation and management practices. Therefore, our concern is to study the impacts of the pandemic and the ways forwards for heritage resources conservation and management by focusing on the North-central Ethiopia.

Objectives of the study

- To assess the impacts of the COVID-19 pandemic on cultural heritage management and conservation practices in the study area.
- To describe the response of different actors in cultural heritage management and conservation practices during the time of COVID-19 pandemic.
- To describe the possible heritage management and conservation strategies during and post COVID-19 pandemic era in the study area.

METHOD AND MATERIALS

Description of the study Area

The study was conducted in major cities of Dessie and Kombolecha and small towns of Lalibela and Haik in the North Central Amhara regional State, Ethiopia. In these major cities and towns a number of tourism attractions found. Dessie is a historic city rich in both cultural and natural resources (Nigatu and Tegegne, 2021). Especially during the time of Ras Michael, the city of Dessie was the site of the oldest and most historic palaces and castles. Churches were established in the city by the emperor, four in particular: Medhanialem Church (1904), St. George's Church (1902), Mariam Church (1904), and Menbere Tsehai Theological Church (1904). Among the major tourist attractions in Dessie are the principal compound, Aitefef Hall, Dessie Museum, and Wollo Cultural Centre. These historical and cultural relics in Dessie have played an important role in tourism and related development. King Michael's Palace, Aitseef Hall, and other architectural complexes

and landscapes are a timeless legacy built during the reign of King Michael Wollo Wetgre. This indicated that the longevity of our country's architecture and art is a permanent heritage of more than a century of Greek, Armenian, Arab and national sages. Aitefef compound is located at the entrance and exit of Kombolcha (Amhara National Regional State Bureau of Culture and Tourism, 2006 https://visitamhara.travel/.)

Dessie Museum is one of the museums that Ethiopia claims to have. This museum was built in 1909 by Dejazmach Yosef Birru and is said to have been built by experts from India. It is said to be a cone-shaped field at the entrance of the museum. This house served as the seat and residence of their government when Italy invaded Ethiopia in 1928. After leaving Italy, he was reportedly used by various government offices for office work. It was inaugurated in 1967 by Colonel Mengistu Hailemariam and became the first museum in the region. Prince Asfawossen's palace was built before the arrival of the Italians in Ethiopia and served as the residence of the heir apparent, Prince Asfawossen, from 1926-to 1966. The palace is located in Dessie and was built in 1922 by Asfawossen, the heir apparent of Wollo General. Lalibela World heritage site, Haik Museum, many battle fields around Haik, Haik Estifanos monastery and its treasuries, many historic houses, archival centres, church museums, public libraries and Islamic heritage centres are found in the study area, where our study conducted (South Wollo zone culture and tourism office, 2019).

Study Approach and Design

In designing research the activities are differed in terms of approach and philosophy. In the management and service research the agenda is differ in the emphasis and the stakeholders involved in the study. This study used a qualitative approach and descriptive research design. Qualitative data was helpful to obtain in-depth information about the issue under study (Creswell, 2003). The aim of this descriptive research is to discover, describe search what has happened now? What are the practices undertaken? And the extent of the problem is described. As shown in the the research approach and strategy fllow chart above in figure one above; the researchers developed a formulated research questions in guiding the study with a framed exploratory and descriprive techiniqe as aresearch strategy. By developing the strategies; the researchers gather, observe and conduct interview to undertaken the analysis and tp develop a ways-out strategy. By doining these; conclustion and possible recommendations were addressed.

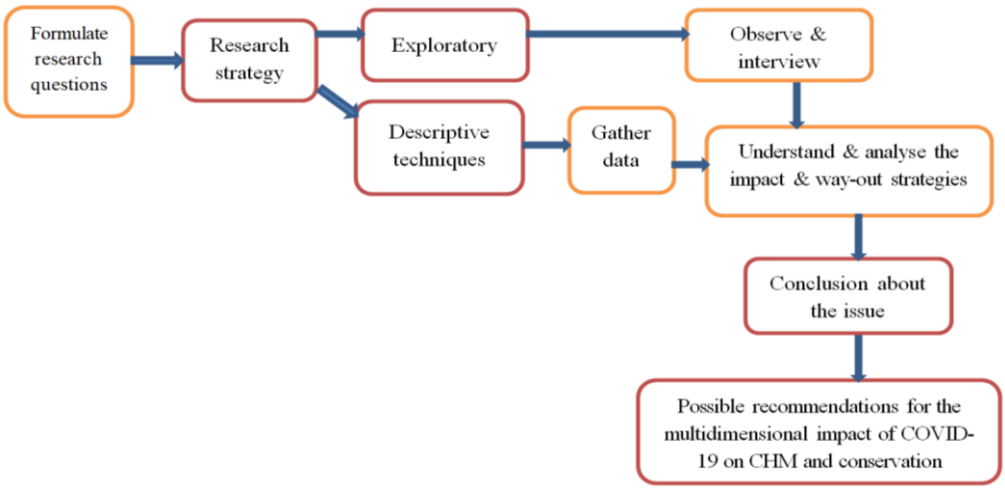

Figure 1. The research approach & strategy flow chart (Source: developed by the researchers in 2021)

Data Collection Tools

The qualitative data were collected by using qualitative questionnaires, interviews and field observation by the researchers in the heritage sites. Open-ended semi-standardized questions were prepared. These questions were mainly asked of each interviewee in a systematic and consistent order, but the interviewees were permitted (in fact expected) to probe far beyond the answers to their prepared and standardized questions. All interviews were recorded by digital voice recorder after requesting their consent and notes were taken throughout the interview.

Sampling Technique

For the qualitative questionnaire, all the tourism and culture officers, library heads, archivists on the site, storekeeper heads and experts in all areas of the tourism, culture, religious institutions, public libraries, and archival centres were asked. The samples were selected by using the purposive sampling technique. 12 interviewees were also contacted in addition to the questionnaire. The interviewees were selected from culture and tourism officers, the national authority for heritage conservation officers, destination managers, and project consultant's heritage conservators, archivists, public librarians, tourism and other related subjects experts. As shown in the table above, each sector's sample of respondents was identified. Based on this, from the South Wollo Culture and Tourism Bureau, eight respondents were selected; from the Dessie City Administration Culture and Tourism Bureau, samples were contacted; from Kombolecha City Administration Culture and Tourism Bureau, and from Lalibla Town Culture and Tourism Office, two and four respondents were selected, respectively. Lastly, from heritage sites (Dessie Museum, Mereho Palace, Nigus Mikael Palace, Haik Museum), from public libraries and archival centers, and from religious institutions; thirteen, six, and nine samples were taken, respectively.

Table 1. Purposively selected experts proportion

R/No.	Experts where from	Number of Purposively selected experts
1	South Wollo Culture and Tourism Bureau	8
2	Dessie City Administration Culture and Tourism Bureau	4
3	Kombolecha City administration Culture and Tourism Bureau	2
4	Lalibla Town Culture and Tourism office	4
5	Heritage sites (Dessie Museum Mereho Palace, Nigus Mikael palace, Haik Museum)	13
6	Public Library and Archival centers	6
7	Religious institutions	9

Data Analysis Method

After the data was collected by using different data collection strategies the data was edited and analysed to get the proper information. Most of the time qualitative data are analysed by using manual interpretation (Veal, 2011). The qualitative data of this study was analysed manually by describing immediately after its collection and simultaneously (especially translation of Amharic to the English language). During translation, the researcher was follow translated the word of the interviewees without distorting the meaning. This increase the reliability and validity of the research. The questionnaire data were analysed using simple statistical packages by applying descriptive statistics. The analysis of the research work is presented in aggregate level from the response.

Finding of the Study

Demographic Characteristics of the respondents. As shown in the above chart; the majority (71.7%) of the respondents were male while the remaining re female. 54.3 % of the respondents was found in the age range of 29-39 while very few (2.2 %) were above 62 years old. In related with the educational background of the respondents (58.7 %) were holders of bachelor degree while the remaining are secondary, primary, masters educators. According to the questionnaire result, the highest percentage (41.3%) of the respondents had a working experience in their organization 5-10 years. On the others side; 39.1% of the respondents were worked in culture and tourism office while 23.9 % and 19.6 % were worked in heritage sites and religious institutions respectively. The remaining was worker of archives, libraries and museums.

As shown in the above chart; 60.9 % of the heritage sites in the study area were forced to close due to the sudden outbreak of the Coronavirus. Only 39.1 % of the respondents affirmed the heritage sites were not closed. Not only these, but 71.7 % of the respondents also showed that; staffs who worked in the conservation and custodian workers were not able to work during the pandemic. Only a very few numbers (28.3 %) of the workers were engaged in the conservation practice during the pandemic. These were not the only impacts of the COVID-19 pandemic on the heritage resources. Based on the interview response the following major impacts of the COVID-19 pandemic on the heritage resources were summarized.

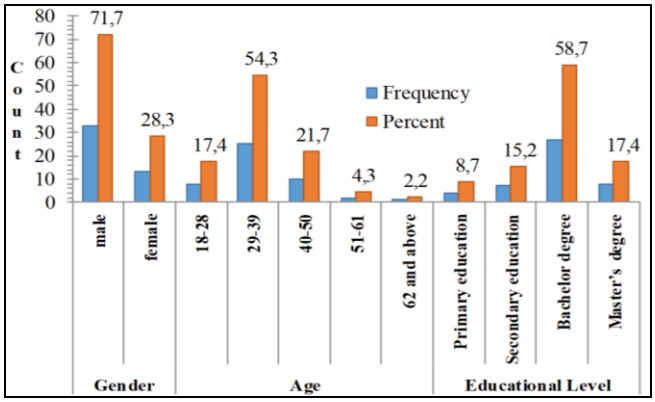

Figure2. Demographic characteristics
(Source: Researchers survey, 2022)

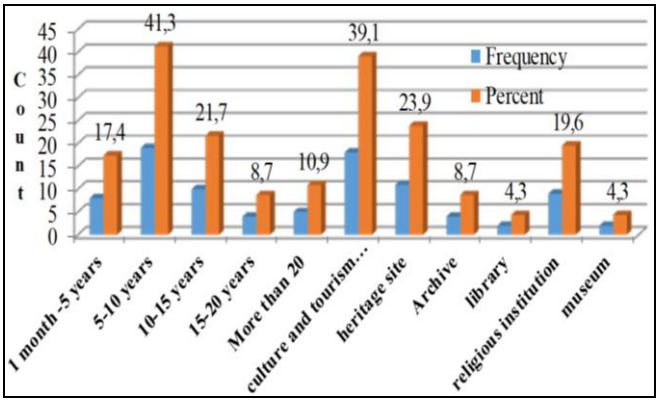

Figure 3. Experience and Working Sector of the respondents
(Source: Researchers survey, 2022)

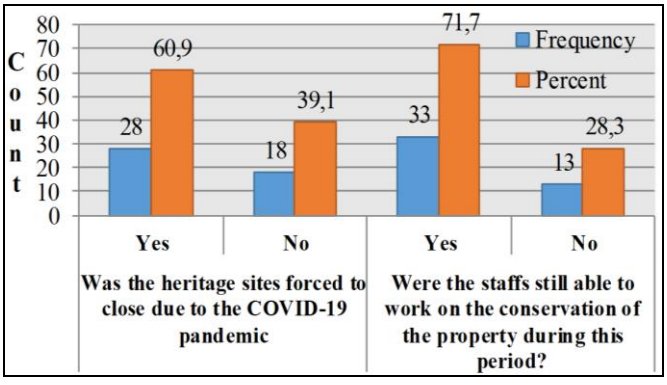

Figure 4. The Impact of COVID-19 Pandemic on Heritage Conservation (Source: Researchers survey, 2022)

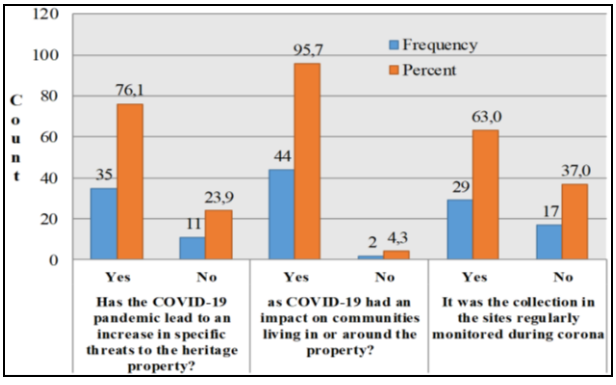

Figure 5. The impact of COVID-19 pandemic on heritage properties and local communities (Source: Researchers survey, 2022)

Heritage conservation projects were delayed

It was very common in times of crisis. Due to the outbreak of the COVID-19 pandemic heritage conservation practice in Laliebal, Dessie Museum, and Mereho Palace was delayed for almost a year. The conservation practice in Lalibela World Heritage Sites is not beginning till now. The delayed project and funds were not only problems in Ethiopia; it was a global issue. For example, Andrew White (National Lottery Fund Director) speaks about the problem 'around 1.7 million Euro projects of heritage conservation withdraw, that is also a risk in a long term and even they come back again' (Andrew, 2020).

Impacts on heritage collections in Palaces and Museums

Based on the reports people can potentially become infected with COVID-19 by touching contaminated surfaces or objects and then touching their eyes, nose or mouth. If an infected person coughs or exhales in the direction of collection objects or handles objects with contaminated hands, objects could be contaminated with the virus, and be transmitted to those who handle the objects afterwards. The risk was higher where people work in heritage interiors and use heritage furnishings or where books, records or study collections are handled frequently by multiple users, potentially in quick succession. Therefore, Heritage collections in the Dessie museum and Mereho palace were at risk because the collections were not regularly monitored and cleaned. The heritage resources in museums and palaces were not disinfected with alcoholic contents sanitizers because it is not recommended for the conservation of heritage and it may also damage the heritage collections. Hand sanitizer was not given to heritage professionals, staff and visitors in Dessie Museum and Mereho palace even though it was opened after lockdown.

Reduced maintenance and conservation

Due to the outbreak of the coronavirus conservation efforts, measures, plans and strategies were disrupted because the funds for the conservation program were used for extra public spending and many of the funders stopped the budget release for almost a year. The site managers in Lalibela and Dessie Merho palace and Dessie Museum reports concerns that the economic disruption due to corona, and the community's livelihood disturbance affect the conservation effort of the sites for a long time. Still, the conservation efforts were not practised on a full scale in the specified heritage sites of Dessie and Lalibela. One of the site managers stressed that because of the coronavirus for almost 8 months maintenance, monitoring and site management of the heritage properties were not conducted. In Lalibela (the site in danger) the conservation process, site facilities, information centre, awareness-raising and public education during church education ceased.

Lack of protection and management of heritage and increased threats

Due to reduced site revenue, a decrease of employees in the heritage sites for a long protection n of heritage resources and management practices already decreased. The FGD discussants affirmed that because of the lack of protection and management of heritage resources the increasing threats seen in different heritage sites of the study areas. Among the threats the discussants raised were; a few local community residents trying to open a new market within the compounds and neglected the heritage resources, due to the long lockdown many of the sites in Dessie Mereho palace, Dessie Museum and Lalibela plants and vegetation's were grown and worsened the threat over heritages, the staffs were unable to monitor the heritage sites, especially in Mereho palace and some illegal activities seen in the compound of the heritage sites.

Created environmental pollution around the heritage sites

During the lockdown, many of the heritage sites in the study area were covered with environmental waste.

As indicated in table two, the COVID-19 pandemic created a specific threat to the heritage properties of the sites. 76.1 % of respondents affirmed this issue in the study area specifically in Lalibela, Dessie and Haik. The major threat on the heritage sites were due to the decreasing level of visitors, the heritage conservators did not permission to got visa for their conservation work due to travel restriction especially in Lalibela world heritage site. Not only had this 63% of the respondents show that; the heritage collections in the sites included in the museums, Palaces, Archival centres and public libraries, religious heritage storehouses (Eqa bête) were not monitored during Corona time. Disruption of community life in

Table 2. Table on the impact of COVID-19 on the employment in heritage sector (Source: Researchers survey, 2022)

Questions/Items	Category	Frequency	Percent (%)
Were any permanent staff members made redundant due to the COVID-19 pandemic?	Yes	18	39.1
	No	28	60.9
If yes, percentage of Permanent staff made redundant?	Less than 10%	4	8.7
	11-20 %	2	4.3
	21-30 %	4	8.7
	31-40 %	1	2.2
	41-50 %	1	2.2
	51-60 %	2	4.3
	81-90 %	1	2.2
	Over 90 %	3	6.7
	Missing	18	39.1
Were any temporary staff members made redundant due to the COVID-19 pandemic?	Yes	24	52.2
	No	22	47.8
If yes, percentage of temporary staff made redundant?	Less than 10%	4	8.7
	11-20 %	4	8.7
	21-30 %	4	8.7
	31-40 %	2	4.3
	41-50 %	2	4.3
	51-60 %	2	4.3
	81-90 %	4	8.7
	Over 90 %	2	4.3
	Missing	24	52.2

and around heritage properties was also one of the major impacts of the Coronavirus. This was also affirmed by 95.7 % of the respondents in the study area while only 4.3 % indicated that the coronavirus has no impact on the communities living around the heritage sites. According to the interviewees in the study area communities living around the heritage sites have suffered from the effects of the COVID-19 pandemic. The problem was worsened in Lalibela where more than 90% of the community's livelihood depends on the heritages and associated tourism services. The tourism supply and value chain have already been cut. Hotels, hospitality establishments, different forms of transport and traditional bars and restaurants and vents have been impacted severely by the lockdowns and confinement measures. COVID-19 triggered tourism industry instability. Thus the risk of COVID-19 affected the social, economic, cultural, political and environmental conditions of the local communities living around who depended on the tourism industry and associated services.

According to the survey by the Lalibela town culture and tourism office the mid of 2020 because of the outbreak of the coronavirus hotel revenue in the town of Lalibela, guides the business in the town, heritage sites revenue from the entrance fee and tourism activities decreased by 85 %. The local communities who depend on the heritage properties and their associated services the livelihood option reached in miserable level. As shown in the above table; the majority (60.9%) of the permanent staffs neither was nor reduced in the study area while 39.1% were redundant from their work because of corona virus. However, very few staffs were reduced. As compared to the permanent staff, temporarily staffs were reduced because it counted as 52.2 % of heritage conservation and management workers.

Stakeholder's response on cultural heritage management and conservation practices in the time of COVID-19 pandemics

The majority of the respondents (89.1 %) in table three indicated that the international actors in the heritage conservation and management works were not responded property. 73.9 % of the regional actors were not also act actively in the heritage conservation and management works during the corona virus time. According to the interviewees; to some extent Ethiopian heritage conservation fund and Heritage conservation and management authority provide financial support in Lalibela. On the other hand 82.6 % of the regional actors were not also properly responded to the pandemic crises sin the study area. There are some response from the ministry of culture and tourism, regional tourism and culture office, site level intervention were also done in some heritage sites, museums, public libraries and archival centers in the study area.

Table 3. The Response of different actors on the impact of COVID-19 on Heritage (source: Researchers survey, 2022)

Questions/Items	Category	Frequency	Percent(%)
Do you think that the international actors respond properly for the heritage conservation practices during corona	Yes	5	10.9
	No	41	89.1
Do you think that the national actors respond properly for heritage conservation practices	Yes	12	26.1
	No	34	73.9
Do you think that the regional actors respond properly for the heritage conservation practices	Yes	8	17.4
	No	38	82.6

The Possible Heritage Management and Conservation Strategies during and post COVID-19 Pandemic Era

Communication and social mobilization strategy: the contemporary communication strategies widely used through media, the extent of heritage management and conservation practices during the pandemic engaged in dialogue. According to the interviewee social mobilization activities played a key strategy to create public awareness, partnership ad collaborators in heritage resources management and conservation during and the post-pandemic era. The social mobilization process also creates allies, partners and cooperators among NGOs, policymakers, religious groups, media, private sectors, communities and individuals in the management and conservation of heritage resources. In the case of religious heritage sites in the case of our study areas; creating social mobilization and communication channels is especially significant for heritage conservation and management during and during the post-pandemic period. According to the FGD discussants, the social mobilization program was especially significant in creating awareness among the laities about the preservation, cleaning and primary conservation practices of heritage management during the lockdown.

Strengthening project leaders: many of the heritage sites including the Lalibela World Heritage site, Dessie Mereho palace and Dessie Museum renovation process were handled by the international and national heritage conservation projects. Therefore, in order to save the heritage sites from further deterioration project leaders play a major role in the continuation of the projects. The project leaders and different national and international donors communicated simply, clearly and frequently about the heritage conservation projects before the heritage resources were totally damaged during the corona pandemic.

Fast decision making: it is a known fact that when a crisis of uncertainty happened any organization and institution is overwhelmingly paralyzed. However, in the case of heritage conservation, it is better to make a strong and fast decision making on the process of conservation of heritage at any cost because the heritage deterioration process has not stopped and the heritage resources may be totally loosed. Amhara Regional State culture, tourism and park development bureau, Ethiopian Heritage conservation Authority, and the Ministry of culture and tourism of Ethiopia take the lion's share of the decision making.

Inviting partners to Participate in Corporate Social Responsibility (CSR) activities: in times of crisis, many public and private organization employees participated in CSR activities. In the heritage conservation and management practices public servants, private sector employees, and non-governmental organization workers aggressively engaged. These stakeholders should be engaged in the CSR process through free labour in cleaning the compound of the heritage sites, monitoring and evaluating the heritage sites and contributing some amount of philanthropy for heritage

management and conservation. As one of our interviews explained that; *"Art and entertainment economy sector greatly affected ad the impact is also last long, especially in the town like Lalibela (a town covers its economy through tourism and travel-related art and entertainment sector). Our major sources of the economy are totally drained, and no events (Shady) are celebrated in the month of August 2020 and 2021. The festival contributed a lot to our economy and social networking. However, due to the coronavirus, the festival was not conducted. Therefore, in order to escape from the economic disorder, we need responsible business organizations to support us in every situation".*

Greater collaboration was seen in other sectors, especially in the health and education sector. But it should be recognized and encouraged a greater collaboration in heritage conservation and management for its sustainability.

Institutional Cooperation: it is necessary to seek national and international allies and develop cooperative networks that are very important to help each other for the conservation and management of heritage resources process in the time and post COVID-19 era. It should be mandatory work in cooperation among institutions in order to control the illicit trafficking of heritage resources. Even COVID-19 had a positive outcome on the illicit trade of easily transported heritage resources because of the global border lockdown.

However, some looters and traffickers loot and stored the heritage resources from museums and archival centres for future illegal trade activity. Therefore, it should be mandatory for the study area stakeholders (whether they are institutions or individuals) to work in cooperation to protect heritage resources during the COVID-19 time.

Use social media as a platform for heritage conservation during crisis: in recent times especially image and photo-friendly social media platforms like Facebook, Instagram and hashtags have received considerable attention in risks and crisis communication and management. Social media also provide an arena for the formation of cultural discourses in relation to the crisis. As one of our site manager interviewees affirmed that " it is very important to use social media hashtags, using endangered heritage sites as a profile picture by using caching phrases and words like 'Save Lalibela' from destruction and further deterioration". In order to save the cultural heritage resources heritage activism should be developed to facilitate a shared thematic interest among different stakeholders.

In the meantime, social media networks and platforms have a potential for digital resilience as well as digital engagement between different audiences and heritage. For the conservation and management of heritage resources, social media contributed to a connective collective memory among communities. Additionally, proper applications of heritages collection caring: preparing a destination management plan for sites, developing indicators for the future development and developing capital investment scheme for heritage conservation projects were identified as the strategic areas for heritage management and conservation practice in the aftermath of COVID-19 Pandemic.

CONCLUSION

All the activities of both heritage conservation and heritage management are majorly affected by the outbreak of the COVID-19 pandemic. Many heritage management and conservation practices are stopped or delayed due to the COVID-19 pandemic but the process of damage to heritage resources is not stopped. The concern of this study was to scrutinise the impacts of the COVID-19 pandemic on heritage management and conservation and forwards the possible recommendation to stakeholders on the issue. The study concludes that; almost 60.9 % of the heritage sites in the study area were forced to close due to the sudden outbreak of the Coronavirus. And, 71.7 % of staff who worked in the conservation and custodian were not able to work during the pandemic. COVID-19 pandemic has affected by delaying Heritage conservation projects works especially in Lalibela, Dessie Museum, and Mereho Palace. The pandemic has also had an impact on heritage collections in palaces and museums, religious institution stores and created environmental pollution around the heritage sites. 63 % of the heritage collections in the sites including the museums, palaces, archival centres and public libraries, and religious heritage storehouses (Eqa bête) were not monitored during Corona time. Disruption of community life in and around heritage properties was also one of the major impacts of the coronavirus because 95.7 % of the respondents in the study area affirmed that the local community livelihood option drained due to the COVID-19 pandemic. All the national (73.9%), regional (82.6%) and international (89.1%) actors were not properly responding to heritage conservation and management during corona. The study also concludes that; communication and social mobilization, strengthening project leaders, fast decision making, inviting partners to participate in Corporate Social Responsibility (CSR) activities, preparing a destination management plan for sites: developing indicators for the future development, institutional Cooperation and using social media as a platform were identified as the possible strategies for heritage conservation during the crisis.

Recommendations

Based on the finding of the study the following possible recommendations were forwarded.

- ✓ Firstly, the heritage owners and government offices should put the heritage conservation and custodian workers in their normal work with possible coronavirus protocol measures.
- ✓ Secondly, museums, palaces, archival centers and public libraries, religious heritage storehouses should be monitored regularly by the experts

Thirdly, all the national, regional, and international stakeholders should properly respond to heritage conservation

- ✓ and management during the corona and post corona era.
- ✓ Fourthly, communication and social mobilization, fast decision making, inviting partners to participate in Corporate Social Responsibility (CSR) activities and institutional cooperation should be developed to respond to the heritage management and conservation work during the time and post of coronavirus crisis
- ✓ Last but not the least is using Social Media as a platform as a possible strategy for heritage conservation during the crisis.

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PROSPECTS FOR THE DEVELOPMENT OF ECOTOURISM IN THE TERRITORY OF THE KATON-KARAGAI STATE NATIONAL NATURE PARK OF THE EAST KAZAKHSTAN REGION

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Abstract: National parks belong to the most significant category of specially protected natural areas in the Republic of Kazakhstan. One of the important tasks of national parks is the development of ecological tourism and education, considering the nature and cultural characteristics of the territory. Katon-Karagai State National Nature Park is the largest national park in Kazakhstan in terms of area with a rapid pace of development in the field of tourism, since the geosystems of the state nature park have a diverse landscape and many attractions. The purpose of this work is to identify the most attractive areas in terms of recreation, as well as provide recommendations and proposals for the development of ecotourism in the East Kazakhstan region using the example of the Katon-Karagay State National Nature Park. Research methods - data collection and analysis, descriptive, cartographic. The results of the study can be used to develop recommendations for rationally organizing and planning in the area of recreational and tourism industry at the regional level. Conclusions are drawn about the prospects for the development of ecotourism in the territory of the Katon-Karagai State Natural National Park.

Key words: East Kazakhstan region, Katon-Karagai State National Nature Park, geosystem, nature and recreational resources, ecotourism

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INTRODUCTION

Ecotourism is a normative estimate of well-defined and obsessed by widespread head value concerning resident livings and tribute of natural and traditional environment (Thompson et al., 2018). Ecotourism is one of the sustainable forms of tourism enabling guests to experience and comprehend the region's ecology and biodiversity (Amanda, 2021; Ulfy et al., 2021). The growing number of environmental problems attracted the attention of scientists, the public, the business sector, etc. (Tavakoli et al., 2022). In 2004, the World Tourism Organization (UNWTO) formulated the concept of sustainable tourism development, which is a continuous process that requires constant monitoring of environmental impacts and the adoption, if necessary, of appropriate preventive and / or corrective measures (Novikov, 2007; Carvache-Franco et al., 2020). The scientists involved in the research of ecotourism in Kazakhstan are: Akbar, 2021; Chashina, 2020; Ramazanova, 2020; Duzgembaeva, 2021.

Trends in the development of ecological tourism are determined by the World Tourism Organization. According to the World Tourism Organization (UNWTO), the share of ecological tourism in the structure of world tourism is approximately 10% and is included in the five main strategic directions of tourism development up to 2020 (Sergeeva, 2004).

The main idea of ecological tourism is, first of all, taking care of the natural environment, which is used for tourism. It is this use of the riches of nature, combined with the education of love for her, the assertion of the importance of protecting her, that is the hallmark of eco-tourism. The idea gets a concrete embodiment in the fact that ecological tourism is designed to (Eremina, 2007):

- constantly, systematically and purposefully cultivate the criterion of equilibrium of the nature environment around us;
- to harmonize relations between ecology, society and economy;
- to orient tourist organizations towards the preservation and enhancement of the use value of the nature environment by allocating a part of tourist income for solving related problems;
- subordinate the short-term interests of making a profit from tourism to the long-term interests of preserving nature for future generations, as well as for the further development of tourism;
- to form in tourists a sense of personal responsibility for the state of nature and its future, asserting in their minds that they belong to it as its organic part.

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Today, 14 national parks are in service in Kazakhstan. The newest and most recently established national parks are Tarbagatay, which came into use in 2018, and Ulitau, which came into use in 2021. It is expected that the "Merke" and "Türkistan" national parks will be put into service in the coming years. It is apparent that the national park areas in Kazakhstan are mostly concentrated in the mountainous and forested areas in the east and southeast of the country. It is noteworthy that no national parks are located in the northwestern and southwestern parts of the country (Figure 1).

Figure 1. Kazakhstan National Parks (Source: compiled by Atasoy in the ArcGIS program)

MATERIALS AND METHODS

Ecotourism is not focused on increasing tourist flows to natural areas, it allows you to preserve nature, which, accordingly, does not require the implementation of investment projects that can have a negative impact on the environment. Considering that its objects can be both nature and cultural attractions, nature and natural-anthropogenic landscapes, where traditional culture is integrated with the natural environment, the development of ecological tourism can provide not only financial support for natural areas, but also provide an opportunity to create interest in their conservation (Khrabovchenko, 2003). The information base of the research included: literature sources, fund and published materials of republican and regional departments and institutions. Research methods: data collection and analysis, descriptive, cartographic (Figure 2). Katon-Karagai State National Nature Park was established in accordance with the Decree of the Government of the Republic of Kazakhstan No. 970 dated July 17, 2001. The territory of the park is 643,477 hectares and it is the largest national park in Kazakhstan (Table 1).

Table 1. Characteristics of the Katon-Karagai State National Nature Park (Source by Zhensikbaeva, 2017)

Specially protected natural area	Katon-Karagai State National Nature Park
Year of foundation	2001
Area, thousand km^2	6434.770
Average height, m	800
Average frequency of the river system, km/km^2	0.8
Lake area in this area, %	0.6
Waterlogging, %	0.8
freezing, %	3.1
forest share, %	34
Terrain types	nival, mountain-meadow, mountain-forest, forest-meadow
status	National
type	complex
nature type	reserve
The number of species listed in the Red Book: - plants - animals	 30 12

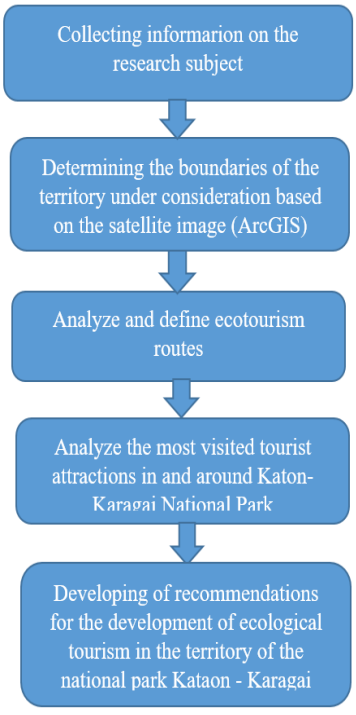

Figure 2. Research methods

The Katon-Karagai National Park has:

- UNESCO Biosphere Reserve status (2014);
- the status of the UNESCO transboundary biosphere reserve "Greater Altai" (2017).

Katon-Karagay State National Nature Park is located in the East Kazakhstan region in the Katon-Karagay district. The territory of the national park is located in the Southern Altai, which is a mountainous country with numerous ridges, often rising above 3000 meters above sea level. The Katon-Karagai State National Nature Park includes: the southern macroslopes of the Listvyaga and Katunsky ridges (the southern and eastern slopes of the Belukha node), the western part of the Ukok high-mountain plateau within Kazakhstan, the Southern Altai, Tarbagatai (Altai) and Sarymsakty (Janaleyeva, 2010) (Figure 3). The following park boundaries have been established:

• In the north and east: borders with Russia (Republic of Altai);

• In the south-east: the border of the park passes through the territory of the Katon-Karagay district;

• In the west: the border runs along the river Farpusnaya (Shurshutsu) to the village. Belkaragai (Medvedka) and Soldatovo.

• In the south: the border runs along the northern slopes of the ridges of the Southern Altai: Sarymsakty, Altai Tarbagatai, along the border of the Muz-Belskaya forest dacha of the Chingistai forestry and along the administrative border of the Katon-Karagai and Kurchum districts (Ivashchenko, 2009).

History and purpose of the Katon-Karagai National Park

The idea of creating a national park on the territory of the Katon-Karagai region was born back in the late 80s, when geological survey work was carried out here, as a result of which the Ak-Alakhinsk group of tantalum-lithium deposits was discovered. The prerequisites for the creation of a specially protected natural area here were also the fact that natural area was very well preserved in this region, which were less subjected to anthropogenic pressure. There is also a high conservation of biological diversity and genetic resources, there are habitats for rare and endangered species of plants and animals, including those listed in the Red Book of the International Union for Conservation of Nature and the Republic of Kazakhstan. High recreational potential of the territory with the presence of a large number of objects as well as the transboundary location of other specially protected natural areas of Russia, Mongolia and China are significant for nature, history and culture. All this led to the creation of a specially protected natural area in the Katon-Karagay region. The task of creating the park was greatly facilitated by the fact that the botanical and geological reserve "Rakhmanovskie Klyuchi" already existed here (Egorina et al., 2017). The need to preserve the unique nature of the region, the need to revive (on a new basis) the economy and farms of the region, solving the issues related to developing traditional folk crafts and national culture served as the basis for the creation of the Katon-Karagay National Nature Park, despite the remoteness and inaccessibility of its territory. In 2003, the Secretariat of the World Wildlife Fund (WWF) awarded the Government of the Republic of Kazakhstan with the Certificate "Gift to the Earth" for the creation of the Katon-Karagay State National Nature Park and for expanding the network of protected areas.

Figure 3. Geographical Location Katon-Karagai National Park
(Source: compiled by Turyspekova in the ArcGIS program)

Kazakhstan became the 85th in the general list of Gifts and received it first among the countries of the Central Asia. On June 12, 2014, at the 26th session of the International Coordinating Council of the UNESCO Program, the Katon-Karagay State National Nature Park was awarded the international status of the UNESCO Katon-Karagay Biosphere Reserve. The main criterion for biosphere reserves is the sustainable use of resources combined with the protection of biological diversity. In 2017, UNESCO officially approved the nomination as the Greater Altai Transboundary Biosphere Reserve. The total area of the transboundary biosphere reserve is 1,543,807 ha, including 956,890 ha in Kazakhstan and 586,920 ha in Russia (Ivashchenko, 2009).

Physical and geographical features of the Katon-Karagai State national nature park

Preservation and restoration of the unique nature of the Southern Altai, which have a special ecological, scientific, cultural and recreational value. The location of the Katon-Karagay park in the center of the giant continent of Eurasia experiences a sharply continental climate. Annual rainfall in different areas ranges from 600 to 1800 mm. whereas the maximum rainfall is in July, the minimum is in August. The main part of the territory is occupied by the basin of the Bukhtarma River, which flows within the boundaries of the park for about 200 km (with a total length of 405 km). The southern part of the reserve belongs to the basin of the Kara-Kaba River, a right-bank tributary of the Black Irtysh. On the northern slopes of the Listvyaga Ridge are the upper reaches of the Tikhaya River, a tributary of the Katun. All rivers have a typical mountain character and a peculiar flow regime. They are extremely full-flowing in the first half of

summer and almost waterless in winter (Janaleyeva, 2010). There are about 400 lakes in the park. Most of them are small, with a mirror area of up to a square kilometer. The largest lake - Bukhtarma - is located near the head of the river. Bukhtarma (2056 m a.s.l.). Its length is 5.3 km, its width is 1.1 km, and its maximum depth is 22 m. The Big Rakhmanovskoye Lake is located very close by. Its area is two times smaller, but the depth reaches 30 m.

For many years, the Rakhmanovskie Klyuchi sanatorium has been operating here on the basis of thermal radon sources - an invaluable nature health resort for people suffering from diseases of the musculoskeletal system. Three more large lakes - Yazovoe (3x0.7 km), Chernovoe (4x0.6 km) and Maralye (3.5x1 km) - are located on the Listvyaga ridge. The waters of these lakes abound with fish. The ide and grayling are especially numerous. One third of the park's area (267,202 ha) is occupied by forest landscapes dominated by relic formations. Taiga forests of larch, cedar, fir and Siberian spruce in Altai grow in extreme conditions of existence (http://br.katonkaragai.kz/, 11.04.2022).

Flora of the National Park

The floristic composition of the national park is rich, which is represented by a significant number of higher vascular plants (more than 2000 species), mosses, lichens and fungi. Among herbaceous plants there are many relict ones: *Anemonoides altaica, Atragene sibirica, Astragálus glycyphýllos Poa altaica Trin.*

Of particular value are rare species that need protection, and some of these species (more than 30 species) are on the verge of extinction and are listed in the Red Book of the Republic of Kazakhstan *Macropodium, Rheum altaicum Losinsk, Erythrōnium sibīricum, Tulipa heteropetala, Cypripedium macranthos and Sibiraea altaiensis, Hupérzia selágo, Leontice altaica, Paeonia tenuifolia, Rhodíola rósea, Daphne altaica* (Aralbayev, 2004).

The main asset of the national park is the forests that encircle the mountains with a green necklace, softening and regulating the climate; they perform a soil-protective and water-regulating role, preserving the steep slopes of the gray mountains from erosion, which are the sources of numerous rivers flowing into the formidable Bukhtarma. Forests here are slightly changed by economic activity and have low losses from forest fires (Artemov, 2009).

Mountain forests are common at an altitude of 1000 to 3200 m above sea level. They provide shelter and food for animals and birds. These are evergreen cedar, spruce and fir, as well as larch, which sheds its needles for the winter, and with the advent of spring is covered with delicate juvenile needles. Of the deciduous trees, these are white-trunk birch, poplar, aspen, trembling in the wind, and many types of various willows that are found in the floodplain of mountain rivers and streams, occupying wetlands. Shrub flora includes more than 50 species: raspberries, currants, wild roses, meadowsweet, shrub willows, dwarf dwarf, etc. Up-to-date accounting data for the coverage of areas of a particular tree category:

- coniferous species – 144 040 ha;
- softwood – 48 867 ha;
- shrubs – 67 477 ha;

The total area covered with forest is 260 384 ha (Danilov, 2005).

Fauna of the National Park

The fauna of the National Park is also rich and includes 68 species of mammals, 277 species of birds, 3 species of amphibians, 6 species of reptiles, 9 species of bone fish and more than 10 thousand invertebrates, which include beetles, butterflies, dragonflies, arachnids. The faunistic richness of practically important species is evidenced by the presence in the National Park of 5 species of only ungulates - deer, elk, roe deer, musk deer, mountain goat. In the forest you can meet brown bear, sable, common wolf and fox. The most numerous group of mammals are rodents: marmots, squirrels, chipmunks, mice and voles. Capercaillie, hazel grouse, nutcracker inhabit this area (Bekenov et al., 2002)

In the park there are various species of animals and birds listed in the Red Book of Kazakhstan: snow leopard, argali, stone marten and Ikonnikov's night bat, hawk-nosed scoter, peregrine falcon, saker falcon, osprey, golden eagle, imperial eagle, Eastern imperial eagle, owl, gray crane, demoiselle crane, Altai snowcock, taimen, two types of mollusks - monachoides aculeata and gastrocopta Teeli, etc. In the National Park, from the first days of its organization, work has been carried out on the inventory of flora and fauna, the study of the number and biology of vertebrates, and complex biotechnical measures are being carried out (Baydavletov, 1995).

RESULTS DISCUSSIONS

Nature attractions of the Katon-Karagay State National Nature Park

The main objects of ecotourism and recreation of the East Kazakhstan region are located within the Katon-Karagai region. On the territory of the Katon-Karagai State National Park there are a number of unique nature, archaeological, historical and cultural attractions. Some of them have or claim international status. In particular, the highest mountain of the Altai-Sayan mountainous country is Belukha (4506m); the largest in Altai, Kokkol waterfall (56 m), as well as other waterfalls: Yazevoy and Arasan; thermal springs Rakhmanovskie Klyuchi; the abandoned high-mountain mine Kokkol; unique Berel archaeological sites and others (Figure 4) (Egorina et al., 2017).

Mount Belukha is a geological object of the nature reserve fund. It is located in the south-west of the Altai province, district III, Listvyazhny district, the sources of the river Belaya Berel, located in Katon-Karagai district of the East Kazakhstan region. The highest peak of Altai and Siberia (4506 m) - Mt. Belukha is located in the north of the national park, on the border of Kazakhstan and Russia. The slopes of its two-headed peaks are covered with eternal snows and glaciers. The Belaya Berel and Katun rivers originate from the Belukha glaciers.

The Rakhmanovskie mineral springs are located in the amazingly beautiful basin of the Rakhmanovskoye Lake (area - 1.14 sq. km), on its northeastern shore, on the right side of the river valley, Arasan. According to historical data, there were the ruins of a Buddhist shrine on the site of the Rakhmanov springs. At 80-100m from the shore of the lake there is a small elevated rocky platform (100x150m), on which the buildings of the Rakhmanovskie Klyuchi sanatorium are located. Thermal springs flow from under the northern side of the site from cracks at the contact of granites with slates in the direction from east to west and almost all along the same line with a total length of about 80 m. Rakhmanovskie springs are typical representatives of siliceous waters of hydrocarbonate-calcium composition, established in a number of districts of the East Kazakhstan region. The spring water has a temperature of 34^0 to 43^0 C. In addition to silicic acid, the water contains free carbon dioxide (up to 0.03 g/l) and radon (10–35 eman). Spectral analysis revealed traces of lead, iron, copper, molybdenum, boron and silver (Egorina and Loginovskaya, 2016). Rakhmanov springs are widely known both in Kazakhstan and abroad due to the balneological sanatorium "Rakhmanovskie Klyuchi", which has been operating for a long time on their basis. The sanatorium is located on the territory of the Katon-Karagay botanical and mineralogical reserve and the Katon-Karagay State National Nature Park. The one-time capacity of the sanatorium is 80 beds, the profile is balneo-therapeutic (Zhensikbayeva and Saparov, 2017). A stop for 1-2 days in a sanatorium is included in the programs of many horseback, mountaineering, rafting and other routes.

The Arasan waterfall is one of the largest in the east of Kazakhstan. This natural formation is of aesthetic value and cognitive interest. The Arasan waterfall is formed by the Arasan river flowing from the Rakhmanovsky lake. This is a two-stage cascade of five and six meters in height. After passing through the Small Arasan Lake (1734 m above sea level), the river acquires a rapid character and rapidly rushes among shale rocks and huge boulders. 6 km below the resort village of Rakhmanovskie Klyuchi, approximately on a 300-meter section, the elevation difference reaches 200 m. Here, water flows along the steep wall of the Berel trough, falls from a height of about 1600 m above sea level into the Belaya Berel valley in two wide stepped cascades (Medeu, 2010).

The Yazovaya waterfall is located 2 km below the exit of the Yazovaya River from the lake of the same name, 10 km northwest of Yazovka village. The waterfall is formed by the Yazovaya River, the right tributary of the Belaya Berel. After leaving Lake Yazovoe, it flows through a wide valley inclined to the south, the flat surface of the bottom of which is only sometimes disturbed by low moraine hills. The valley is covered with colorful floodplain grass-forb meadows and shrubs. Its right side, almost from the very lake, is densely covered with cedar-larch forest, and near the waterfall, the forest rises to the very channel from the left bank of the river. The landscape of the site is very picturesque. A noisy, swift waterfall, majestic larches and cedars towering above it, a kind of river gorge give a special charm. Yazovoi is one of the small but very expressive waterfalls in the north-east of the region and represents aesthetic value as an object of cognitive and ecological tourism. It is quite accessible for inspection, as it is located in close proximity to the road Yazovka - Yazovoe Lake (on the way of many excursion routes).

Lake Yazevoe (Karakol) - Alpine lake Yazevoe is light and still with its calmness. From here you have a magnificent view of Belukha, which in clear weather is reflected in the lake. It is located on the main route to Belukha, the upper reaches of the Katun, to the Kokkol waterfall and the Kokkol mine. Its size is relatively small: 1.0x0.4 km. The bowl of the lake is surrounded by a ring of coniferous forest, leaving in the mountains, passing to the tops in alpine meadows. The lake is famous for good fishing, as its name suggests, which translated from Russian means ide. There are quite a lot of deer and bears in its vicinity. This is the only lake in the region where ides are found. It is located 12 km north of Karaairyk village.

The Rakhmanovsky waterfall is located 1.8 km southeast of the resort village Rakhmanovsky Klyuchi, has a height of 50 m. The waterfall forms an unnamed stream located on the slope of the right side of the Rakhmanovsky Lake basin. This stream originates from a small alpine (2265 m) moraine lake and flows into Rakhmanovskoye Lake. The stream flows in a deeply incised hollow that separates two nameless mountains with absolute elevations of 2400 and 2280m, respectively. The hollows are covered with dense larch forest, reaching here the upper limit of its distribution. Treeless areas are occupied by the vegetation of alpine meadows and riverbed phytocenoses. In the middle course of the stream, at the very beginning of the cascades, dense rocks come to the surface in the form of rocky remnants. The Rakhmanovsky waterfall is one of the remarkable nature objects of the location of the Rakhmanovsky Klyuchi sanatorium and the botanical and geological reserve of the same name (Krykbaeva, 2008).

Rakhmanovskoye Lake - Located in a narrow and deep depression, processed by water and a glacier, about 9 km from the source of the river. Arasan at 1760 m.a.s.l. It occupies a small U - shaped valley and extends from the southeast to the northwest. The length of the coastline is 5.6 km, the volume of the water mass is 20 million cubic meters. The shores are closed, composed of biotite granites, mostly covered with loose clay deposits and turf. The lake is flowing. The transparency of the water is 6 m. The temperature of the surface layers is 16, the bottom is 4.6 degrees.

The Kokkol waterfall is one of the highest in Altai (47 m). In the extreme north-east of the region, it is the most attractive (along with the massif of Mount Belukha) among the objects of educational and ecological tourism. The waterfall is located in the lower reaches of the river. Big Kokkol (left tributary of the Belaya Berel), 23 km northeast of the resort village Rakhmanovskie Klyuchi. The form of river valleys in the highlands of the north-east of the region was

subjected to varying degrees of influence on them by ancient glaciation. Therefore, the upper reaches of the valleys are usually typical troughs with steep walls. In such areas, small rivers and streams flow in hanging valleys, falling from the walls of the troughs in cascades and waterfalls. In similar conditions, the largest of the East Kazakhstan waterfalls, Kokkol, was formed, located in the northern part of the Rakhmanovskie Klyuchi reserve, about 15 km southeast of Belukha Mountain. The waterfall is formed by a small mountain river Big Kokkol, which flows from the lake of the same name and flows into the river White Berel. At the confluence with Belaya Berelya, the bed of the Kokkol River approaches a sharp ledge about 80 m high and with a steepness of about 60–70°.

A water stream over 10 m wide rushes down from the wall of the Berel trough with a deafening roar, heard far away. Approximately in the middle, the stream is cut by a narrow rocky ridge, going from top to bottom and dividing it into two unequal parts: a wider right and a less significant left. At the foot of the waterfall, water has carved a wide niche in the rocks with walls polished by centuries of work. When falling from a great height, fine water dust is formed, which ionizes the air in the valley. On sunny days, rising above the waterfall, it is painted with all the colors of the rainbow. Below the waterfall, the channel of the Big Kokkol is littered with huge boulders and boulders that form rapids. In this part, the flow forms several small (1–2 m) cascades (Krykbaeva and Chelyshev, 2006).

A) The highest mountain of the Altai-Sayan mountainous country - Belukha (4506 m)

B) Rakhmanovskie mineral springs

C) Rakhmanovskoye Lake

D) Waterfall Yazovaya

Figure 4. Ecotourism attractions of the Katon-Karagay State National Nature Park (Source: Turyspekova, 2022)

Historical and cultural sights of the Katon-Karagay State National Nature Park

The Katon-Karagai State National Nature Park has the necessary resources for the development of domestic and inbound tourism. Unique natural resources and the original culture of the nomadic people has a huge untapped potential for the development of tourism in the international and regional markets. The tourism potential of recreational resources and historical and cultural heritage allows the region to harmoniously integrate into the international tourism market and achieve intensive development of tourism in the country. This will ensure a steady growth in employment and incomes of the population, stimulation of the development of industries related to tourism and an increase in the inflow of investments into the national economy. The key components of the nature and recreational potential of the Katon-Karagay State National Nature Park are favorable climatic conditions for resort treatment and picturesque combinations

of relief, lakes, their seasonal comfort for any kind of tourist and recreational activities. In addition to nature, it is rich in historical and cultural monuments located on the Great Silk Road, which are of worldwide importance.

The organization of transit tours on the Great Silk Road is especially relevant, as this will give Kazakhstan the opportunity to enter the zone of interest of such countries as Japan, Malaysia, China, Korea, as well as European states. To give uniqueness to the already existing tourism potential of the park, it is suggested to develop, first of all, ecological, cultural, educational, ski tourism, which in the long term will provide a comprehensive tourist product that is competitive in the Kazakhstani and international markets. The creation of such a product is based on favorable climatic conditions, the availability of water resources, balneological resources, a rich landscape and recreational potential, as well as an original historical and cultural heritage, the presence of unique museum complexes of international importance.

Austrian road connects the village of Terekty (formerly the village of Alekseevka), the village of Urunkhaika (Lake Markakol), the Burkhat pass, the Bukhtarma river valley. With a length of almost one and a half hundred kilometers, the Austrian road is known for its beauty. Starting in the steppe (desert-steppe) part of the region in the village of Terekty, it goes almost strictly to the north through the Marble Pass, composed of white and gray marbled limestones, from here a panoramic view of the grand dunes of the Kyzylkum sands, located on the Chinese side, opens up, past the unique Markakol Lake, through the valley of the mountain river Kara-Kaba, to the Burkhat pass (2098 m), from which a view of the Katunsky ridge and the valley of the Bukhtarma river opens.

The road has its name, Austrian, which is not official, due to the fact that it was built in the period from 1914 to 1916 by Austrian (Czech) prisoners of the First World War. The Austrian road has historical value as a kind of monument, which, like a necklace, includes "precious stones" - unique nature monuments: Marble Pass, Lake Markakol, Alataysky and Burkhat passes, valleys of the Kara-Kaba and Bukhtarma rivers.

Northern Branch of the Great Silk Road (Golden Branch)

The Northern Golden Branch of the Great Silk Road is an ancient caravan route connecting the Central Asian Regions of Mongolia and China with the Irtysh region, and, following further west and south to the most significant markets of antiquity. To date, this direction has remained within the Katon-Karagay State National Nature Park.

Within the national park, this path is a very picturesque area. Especially within the village of Arshaty - the Ukok pass. Here the road runs along the river. Bukhtarma, which in these places has a stormy, mountainous character. The left side of the valley is steep and densely covered with coniferous forest, above which the snowy peaks of the Southern Altai ridge rise, reaching almost 3800 m above sea level. The right side of the valley is composed of low mountains with sparse coniferous forests and meadows. Above the confluence of the river appear Chindagatuy alpine larch forest, passing on the Ukok plateau into alpine steppes and tundra. It is no less picturesque within the Ukok plateau.

Along the road there are a large number of ancient graves of various ages and origins. This Northern Branch of the Great Silk Road is rightfully called the Golden Branch. The gold and bronze of Altai, the gold of the Scythians and Arimaspians went along it to the East and West. A large number of archaeological finds of world significance were made in the Russian part, in particular, the famous Pazyryk excavations (in the Russian part of the route) and Berel excavations in the Kazakhstan part. Historical analysis and decoding of the Northern Branch of the Great Silk Road are still waiting for their researchers, but now we can say with confidence that it is of great cultural, historical, nature and aesthetic value of world significance (Harms et al., 2016).

Burial ground Berel has about 70 burial mounds with rocky mounds of various sizes. Unique finds of the nomadic elite of the Scythian-Saka time (IV century BC) were found in them, preserved, thanks to the phenomenon of permafrost. The mummified remains of people and horses, decorated in the best traditions of the animal style, are highly artistic examples of ancient art. A large number of items and decorations were found here, wooden tablets with drawings, felt cloth, the remains of horses with harness, a burial room with a large number of different items. Many items were originally covered with gilding or gold plates. On the horses were found decorations in the form of gilded long horns. The finds, including organic material, have been preserved in excellent condition due to the location of the barrow in the permafrost zone. Location: near the village of Berel, the valley of the Bukhtarma river, at the confluence of the Sakhatushka river and the Bukhtarma river (Gorbunov et al., 2005).

The Kokkol mine is a historical and geological monument, an open-air museum of excellent preservation, the now inactive molybdenum-tungsten high-mountain mine of the times of the Great Patriotic War in the upper reaches of the Big Kokkol river. The abandoned mine Kokkol is a unique monument of mining. It was founded in 1938 at the Kokkol pass (3000 m above sea level) (Egorina and Loginovskaya, 2016). Tourist and recreational activities in the Katon-Karagay State National Nature Park are ecological, health-improving, game, business, educational, scientific, cultural-historical, skiing (climbing). Local residents are actively involved in the process of tourism development. Projects have been developed and are being successfully implemented to expand and develop the structure of the tourist areas. Today in the Katon-Karagai State National Nature Park tours are organized along 14 routes. The list of active tourist routes is presented in (Table 2).

The Katon-Karagai State National Nature Park offers therapeutic and recreational activities with antler products, medicinal plants and beekeeping products. The period of cutting and preserving deer antlers is especially important from June to September. For many years, the Altai Territory of Kazakhstan has been especially popular with tourists from different countries for its antler baths and antler medicines. Experience has shown that even a small amount of it has a

beneficial effect on the human body, restoring strength (Table 3). The maximum physical performance of the Katon-Karagay State National Nature Park is 150 people per day. The largest number of guests is 173 people per day (Sharipzhanova, 2020).

The most visited tourist attractions in and around Katon-Karagai National Park are:

Geomorphological tourist attractions: Belukha town, Ukok mountain plateau, Dzhagyrtau town, Khrustalnaya town, Berkutaul town, Listvyaga ridge, Katun ridge;

● Hydrographic tourist attractions: the River Bukhtarma, the River Tikhaya, the River Katun, the River Black Berel, the River Kara-kaba, the River Ak-Kaba, the River Big Kokkol; lakes Bolshoye Rakhmanovskoye, Yazevoye, Chernovoe, Maralye; Rakhmanovskie mineral springs; waterfalls Arasan, Yazovoi, Rakhmanovsky, Kokkol, Black Berel;

● Anthropical (the existence of human life) tourist attractions and recreation areas: Austrian road, Northern Branch of the Great Silk Road (Golden Branch), Berel burial ground, Kokkol mine;

● Major faith centers: Katon-Karagay Mosque, Intercession Church;

● Museums: house museum "Oralkhan Bokeya" in Chingistai village, Ulken Naryn Museum of Local History.

● Major sanatorium centers: Health-improving complex "Nurbulak", sanatorium-recreation center "Valley of the Kings", sanatorium "Rakhmanovskie Klyuchi", "Altai A'Rai" guest house and ecotourism center, "Qaton Qaragai Resort & SPA", "Upper Katun", "Zhazaba", "Zhanat", "Maraldy", "Deer Park", "Akkaiyn", "Bayan", "Belovodye", "Abzal".

Table 2. Active tourist routes within the Katon-Karagay State National Nature Park (Source by Turyspekova, 2022)

№	Type of tourist route	Route name
1	Educational trail	"Rakhmanovkye Kluchi"
2	Tourist excursion route	"Tashhoky"
3	Tourist excursion route	"Forest Roads"
4	Tourist excursion route	"Irek"
5	Tourist excursion route	Berkutaul
6	Recreational and educational trail	"White Berel"
7	Tourist excursion route	"Altai paths"
8	Educational tour	"To the Berel barrows"
9	Educational trail	"To the lake Bulandykol".
10	Educational trail	"Maral paths"
11	Tourist - excursion route	"Ozernyi"
12	Educational and educational excursion	"To the Pacific Lake"
13	Scientific - educational route	"In the native land"
14	Tourist excursion route	"Sarymsakty"

Table 3. Guest houses and antler clinics of the Katon-Karagai State National Nature Park (Source by Turyspekova, 2022)

№	Guest houses	Pantolic hospitals
1	Therapeutic complex "Nurbulak"	"Upper Katun"
2	Sanatorium-Recreation Center "Valley of the Kings"	"Jazaba"
3	Sanatorium "Rakhmanovsky keys"	"Zhanat"
4	Altai A'Rai" guest house and ecotourism center	"Maraldy"
5	Qaton Qaragai Resort & SPA	"Deer Park"
6	Guest complex "Lake Yazevoe"	"Akkayin"
7	Guest house on the basis of farm "Samay"	"Accordion"
8	Guest house "Shakarim"	"Belovodye"
9	Guest house "At Mikhalycha"	
10	Guest House "Sad"	
11	Guest house "Kaindy"	
12	Guest House "Zaimka Klimova"	

Since 2003, a regional eco-tourist gathering "Zhasyl Alan" has been held in the park for schoolchildren.

Goals and objectives of the eco-tourist gathering "Zhasyl Alan":

• promotion of a healthy lifestyle among the students of the East Kazakhstan region;
• promotion of healthy lifestyles;
• teaching the rules of behavior in the nature;
• provision of first aid to victims in field conditions; tourism skills training;
• formation of interest and respect for one's own culture and the culture of other people;
• exchange of national traditions, respect for the environment.

The preparation and holding of the environmental tourism meeting "Zhasyl Alan" is carried out in the village of Katon-Karagay by the department of environmental education and tourism of the Katon-Karagay National Park. And since 2003, the Katon-Karagai State National Nature Park has been actively participating in the international environmental action "March of Parks". The purpose of this action is to attract the attention of the population, the public, public authorities, the media, entrepreneurs to the problems of specially protected natural areas and provide them with real practical assistance, environmental education of the population. The March of Parks annually hosts 13 rural districts and akimats of the Katon-Karagay district, the Ust-Koksinsky district of the Altai Republic of the Russian Federation, the department of education, physical culture and sports of the Katon-Karagay district, 42 schools of the Katon-Karagay and Altai districts, schools of the regional center - the city of Ust -Kamenogorsk, 2 kindergartens of the Katon-Karagai region; KSU "East Kazakhstan Regional Children's Village", Ust-Kamenogorsk, etc. Since 2008, the action "March of Parks" has been held at the international level in conjunction with the Federal State Budgetary Institution "Katunsky State Nature Biosphere Reserve".

As part of the March of Parks, various cultural events and environmental campaigns "Earth Day", "Forest Day", "Water Day", "Bird Day", etc. are held, as well as the International Festival "Land of the Snow Leopard", aimed at formation of positive public opinion in relation to protected areas. In 2019, 18,625 people took part in the action. In 2019, in the competition for the best environmental action "March of Parks" among protected areas, the Katon-Karagai State National Park was awarded the 3rd place (http://br.katonkaragai.kz/, 06/17/2022) .

CONCLUSION

The UNESCO program includes the Katon-Karagai National Park (Kazakhstan) and the Katunsky Reserve (Republic of Altai) in the prestigious international network of Kazakh-Russian border biosphere reserves called "the Great Altai". International experts noted the close cooperation between scientists from Kazakhstan and Russia in the preparation of the Great Altai nomination, which became the first transboundary reserve in Asia. Creation of such transboundary specially

protected natural areas will allow optimizing protection and organizing effective monitoring of rare animals and nature processes (Oyungerel and Savenkova, 2004; Vinokurov et al., 2006). To date, the East Kazakhstan region is characterized by: high rates of economic development, investment opportunities, favorable geopolitical and geographical position, transport accessibility, entertainment industry, favorable nature and climatic conditions, rich historical and cultural heritage, centuries-old traditions of hospitality, the presence of educational institutions that prepare professional staff in the tourism industry. Compared to other national parks of Kazakhstan, the Katon-Karagay National Park has the following important advantages (Duzgembaeva, 2021; Chlachula, 2019; Egorina and Loginovskaya, 2016):

• the territory of the national park is a part of the Altai-Sayan Ecoregion. This is the largest national park in Kazakhstan;

• a rich diversity of flora and fauna species is concentrated here and species listed in the Red Book of Kazakhstan have been preserved;

• forests, which are the main asset of the park, occupy 41% of the territory and are consist mainly of coniferous species;

• many objects of historical and cultural heritage are located on the territory of the Katon-Karagai National Park and in its buffer zone.

Ecotourism contributes sustainably to development in terms of social, economic and environmental aspects. Beautiful nature, high tourist activity and the presence of recreational facilities have identified the Katon-Karagay State National Nature as a potential place for ecotourism.In the East Kazakhstan region, ecotourism can help in protecting nature, increasing employment rates and socio-economic development. Conditions for the development of ecological tourism in the Katon-Karagay State National Nature Park should include:

- development of ecological tourism in order to solve environmental and social problems of the tourism industry in the East Kazakhstan region;
- development of a science-based national strategy;
- providing support to local authorities of all public and private structures interested in the development of ecological tourism;
- creation of a geographical information system for future generations in order to streamline the rational use and preservation of unique nature as well as cultural and historical objects.

The sustainable development of ecological tourism in the Katon-Karagay State National Nature Park of the East Kazakhstan region shall solve the following challenges:

1) worn down accommodation facilities, i.e. hotels, boarding houses, houses and recreation centers, as well as health resorts;

2) currently the quality of accommodation places and their provision for tourists do not meet international standards;

3) lack of means and opportunities to control the passage of the route in remote areas and reliable mobile communications to provide emergency assistance in emergency cases;

4) the problem of developing cross-border routes in the Katon-Karagai region (the duration of the procedure for issuing a pass to the border zone);

5) the problem of the ecological state of recreational areas (anthropogenic load, violation of beach areas).

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HOTEL INDUSTRY POST COVID-19: CRITICAL PRACTICE ON HOTEL RESILIENCE

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Abstract: Numerous studies have investigated how multi-capital establishes hotel resilience, but only some have evaluated the essential element that becomes a hotel management priority. This article aims to examine the direct effect of multi-capital on hotel resilience and explore critical factors that need to be improved in building hotel resilience post-COVID-19. 91 managers of three- and four-star hotels participated in this study. A questionnaire was used to collect the data, which was then analyzed using Structural Equation Modeling (SEM-PLS) to examine the effect between variables and further processed with Importance-Performance Map Analysis (IPMA). Tnterviews were done to refine the findings. The study demontrates that human capital is crucial in a hotel's resilience to rebound from the COVID-19 pandemic. The findings indicate that hotel management should prioritize developing their adaptive capacity, particularly concerning the commitment of employees to fight. Moreover, hotels need an improved income source, marketing strategy and emphasis on life safety. This research contributes to the hotel industry's strategy by applying a multi-capital approach to support the hospitality industry during the global health crisis.

Key words: Hotel Industry, Multi-Capital, Business Resilience, COVID-19, Crisis

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INTRODUCTION

COVID-19 gives us guidance on how to make the hotel business more stable. The pandemic raises an urgency for businesses to acquire such resilience (Zhu et al., 2020). Organizational resilience is a new idea in disaster management. In this way, resilience (Holling, 1973) has been used in different fields to measure how systems deal with stress, adapt to change, and get lives back on track after a disturbance (Bhamra et al., 2011; Dahles and Susilowati, 2015). In tourism, Orchiston et al. (2016) studied organizational resilience. It is defined as "an organization's overall situational awareness, management of vulnerabilities, and ability to adapt in a complex, changing, and interconnected environment" (McManus et al., 2008). Without a doubt, the hotel business has made a big enough difference in the growth of the tourism industry to be considered not only a place for tourists to stay and a source of jobs (Brown et al., 2021) but also the best place for both tourists and locals to spend a staycation. The pandemic tsunami has significantly impacted Bandung, one of the most popular domestic tourist destinations. According to the chairman of the West Java hotel and restaurant association (PHRI), at least 560 hotels were closed during the emergency period from March to June 2020. Based on the reports, the occupancy rate of star hotels reached its lowest point with an average of up to 10.77% in April 2020 (BPS, 2020). The tourism industry and hotel industry is slowly growing with the vaccination program and the relaxation of government policies.

However, the tourism industry will not return as quickly as it did before COVID-19. Some of the hotels in Bandung are open with few outlets since the businesses are still analyzing the post-COVID-19 economic trends. They are still struggling with their resources amid a protracted crisis and a stagnant economy. Previous studies have analyzed strategies for the hotel to survive during the outbreak. The research conduct by Jiang and Wen (2020) examined the impact of COVID-19 on marketing operations and hotel management. A study by Hao et al., (2020) gives a disaster management anti-pandemic framework, and Lau (2020) discovered new technologies used by hotels in China. Bartalome et al., (2022) analyzed the effect of a CSR strategy on rural hotel resilience and performance. The research results help hotel managers develop good CSR strategies that will help them get through the crisis cycle and stay in business for the long term. However, this study examined only rural lodgings, therefore it cannot be extended to other types of accommodations.

Some studies have employed multi capital as a framework for strengthening resilience under crisis scenarios (Brown et al., 2018; Mayunga, 2007; Sydnor-Bousso et al., 2011; Biggs et al., 2012). The literature emphasizes the necessity for

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resources to support resilience. Furthermore it is argued with the flexiblility, diversity, and slack resources can help to support resilience (Linnenluecke, 2017; Pereira and Da Silva, 2015). The capital approach is a collection of resources that may be used to buy or develop other assets (Brown et al., 2018). Multi capitals comprise not just financial, monetary, and physical assets but also intangibles such as human capability, trust, leadership, and relationships with external parties (Brown et al., 2018; Ervina and Agoes, 2022). Multi-capital assists the industry in acquiring a better understanding of why a business fails and what elements may have a substantial impact (Sydnor Bousso et al., 2011). In general, this approach is examined in the context of natural disasters, but there is still a great deal of research on health disasters such as COVID-19.

Mayunga (2007) investigated implementing a multi-capital strategy in the context of a community's catastrophic resilience. Then, Brown et al., (2018) expanded the capital framework by incorporating cultural capital as a distinguishing factor in the hotel industry's resilience formulation. It is assumed that all capital predictors have the same interest. It is unclear which priority recommendations for multi-capital practices will be the most beneficial in inevitable disaster and crisis contexts. Ivkov et al., (2019) utilize a capital strategy to study hotel resilience in a natural disaster. The study found there a correlation between knowledge acquired, managerial experience, and the organization's size concerning hotel resilience when natural disasters strike. However, those studies did not investigate the relationship between capital and hotel resilience, which predictor plays the most suitable function. During the COVID-19 Pandemic, the multi-capital study was used to determine how committed a company was to its corporate social responsibility (CSR) policies (Filimonau et al., 2020). The researchers noted that the multi-capital to the hotel business is interconnected. According to (Filimonau and De Coteau, 2020), there is overlap between many types of capital, such as cultural capital, which may overlap with social capital, and organizational capital, in which employees build social networks. Therefore, the four (4) key capital approaches used in the context of COVID-19 (human, social, economic, and physical). However, the study also reveals that only some multi-capital significantly affected the hotel's resilience during the pandemic. Previously, researchers argued that multi-capital was a key part of making hotels more resilient. So, there needs to be more consistency in how multi-capital and resilience work together.

Moreover, developing resiliency during a crisis is complicated for some reasons, including government policy and the nature of disasters. Melián-Alzola et al. (2020) evaluate hotel resilience based on changes and strategies and their effects on hotel performance in up-scale hotels. According to Melián-Alzola et al. (2020), large hotels have greater resources and capabilities to deal with change. However, a larger research sample is needed to look at other predictors of resilience, especially in three-star hotels. Beninger and Francis (2022) synthesize multi-capital in business resilience development using the unique integrated capital framework (ICF). However, while the study focuses on how the external company's emphasis on the community contributes to the internal business's resilience, it must also examine what the company must do to improve its performance, particularly in the tourism industry. In various research utilizing the multi-capital idea in the context of hotel resilience, the value, significance, and performance of the multi-capital concept have yet to be reviewed significantly. The majority of previous research has concentrated on natural disasters. Even though the pandemic has lasted for over two years, there are still critical questions regarding the effect of multi-capital on hotel resilience to the global disaster COVID-19. Which essential characteristics must hotels enhance to boost the resilience of the tourism industry? Several studies on hotel resilience have been initiated within the scope of COVID-19. However, they still need to provide an overview of the importance and performance of multi-capital, which capital should be prioritized, and how the strategy flow must be executed to foresee similar future disasters. The study objective is to examine the practical use of multi-capital to hotel resilience, primarily in the context of the COVID-19 pandemic.

MATERIALS AND METHODS

This study is being conducted in Bandung City, the capital of West Java province. The research object is a hotel of the middle class, particularly a three- and four-star hotel. The classification was chosen based on the majority of hotels in Bandung, which is more prevalent than other categories. The quantitative method was adopted for data collection. The survey questionnaire was developed following the literature review and in order to propose the research framework. It incorporated items that had either been taken directly or adapted from previous studies on hotel and tourism resilience, multi-capital approach, and crisis in the context of COVID-19. The items proposed in the previous study measured the economic, social, human, and physical aspects of organizational capital. A sampling technique was carried out by calculating the G*Power software based on the statistical power effect size (Faul et al., 2009). The results of the G*Power calculations on the number of independent variables are four (4) variables with a medium effect size of 0.15, a probability of error (prob error) of 0.05, and a statistical power of 0.8, obtaining a

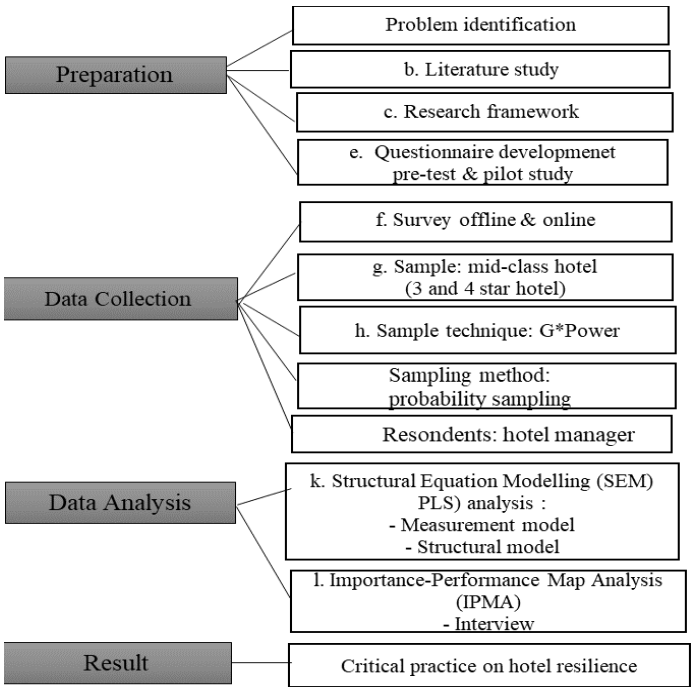

Figure 1. Research Flowchart (Source: Author's)

minimum sample size of 85 respondents. Questionnaires were distributed to the target respondents of hotel leaders or at the managerial level through online media and direct visits. There were 93 questionnaires collected, but only 91 were believed valid for data processing. As many as 61.54% are from three-star hotels, and 38.46 % are from four-star hotels. SEM-PLS (Structural Equation Modelling-Partial Least Square) is utilized to analyze data in order to build a model and examine the relationship between variables. The outcomes of the SEM analysis are then further processed by converting the weight values of each indicator to be analyzed by Importance Performance Map Analysis (IPMA). Figure 1 illustrates the study flowchart, which consists of three steps and finnaly come up with the result. The stages of SEM analysis consist of: 1) determining the measurement model or outer model, which is designed to test the validity and reliability of research indicators; and 2) structural model analysis or inner model, which is designed to examine the influence between variables (Hair et al., 2019). The data were then reprocessed using importance and performance analysis (IPA), which was derived from Martilla and James's notion (Ringle and Sarsteds, 2016). The IPA idea has been frequently utilized in tourism research (Simpson et al., 2020; Cai et al., 2020), particularly for identifying management goals and strategies. The importance and performance window is divided into four quadrants, with Quadrant 1 containing high levels of performance but low levels of importance (Possibly overkill). Indications in quadrant 2 are of high importance and high performance (keep up the good job), while indicators in quadrant 3 are of low importance and low performance (poor priority). Lastly, quadrant 4 contains traits with a high level of importance but low performance, which becomes a management development plan (concentrate here). Using the SmartPLS version of the program, the two phases of data analysis were performed. 3.0. The unstructured Interviews with hotel management were performed accidentally throughout the questionnaire completion process. In addition, the researchers conducted interviews with the hotel's general manager and the chairman of associations such as Riung Priangan (star hotel association) and PHRI (Hotel and Restaurant Association) of West Java to explore the functional roles of multi-capital in building hotel resilience and to enhance the research's findings.

RESULTS AND DISCUSSION

Hotel Industry Post Covid-19 In Bandung

From 2012 to 2019, the Bandung hotel sector has risen by roughly 10 to 15% annually. Data from the Central Statistics Agency for West Java (BPS, 2019) recorded as many as 422-star hotels in Bandung. There are 166-star hotels, varying from 1 to 5 stars, while the remaining are non-star hotels. The average occupancy rate of star-hotels during 2019 was 48.43 %. However, the arrival of the Covid-19 pandemic hit the hotel business hard, resulting in a fall in average hotel occupancy to 35.22 %. Since the finding of the first Covid-19 case in March 2020, the pandemic has begun to spread. The number of positive cases has continued to rise since then. The pandemic's influences on the hotel business include layoffs, reduced work hours, and cost savings. Hotel occupancy in Bandung began rising, as the the 'New Normal' era started in June 2020. It is follow when the government implements a program relaxing community activities, since then the hotel occupancy slowly keep raising. There is a correlation between the increase in the number of infected people and the hotel occupancy rate. The occupancy rate began to drop as the number of positive cases grew. Figure 2 illustrated the comparation of the occupancy of star hotels with the number of COVID-19 infected cases in Bandung from 2019 to 2021.

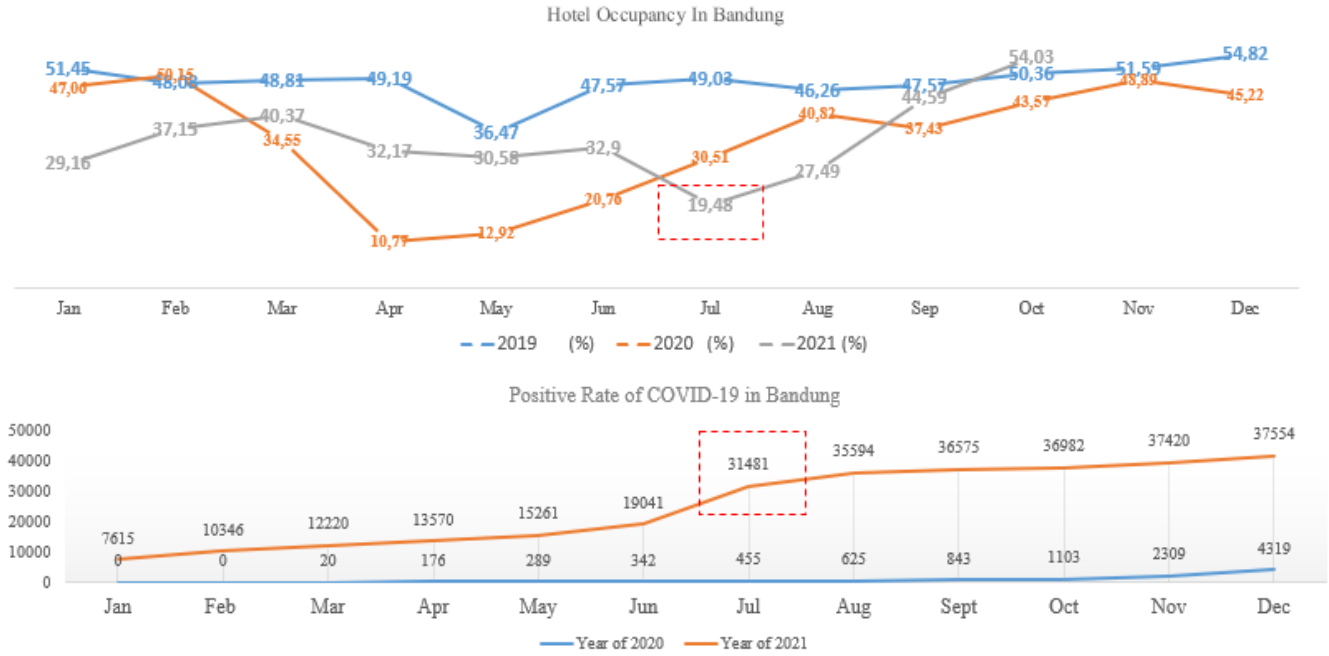

Figure 2. Comparison of Hotel Occupancy and Positivity Rate Period of COVID-19 from 2019 to 2021
(Source: Compiled data based on Data Book of Pikobar and BPS, 2021)

From January 2021, the number of infected cases keep increasing, when new typed of COVID-19 called Delta arrived. It is believed as as the second wave hit. In July 2021, the occupancy of star hotels fell to 19.48% it is followed by number

of infected cases reached its highest peak with 31,481 cases. This figure jumped by 12,440 people as compared to the previous month, June, when there were 19,040 affected people. In September 2021, the occupancy started to rise, when hotel occupancy reached 44.59 %, up 17.1 % from August 2021.

DATA ANALYSIS

Measurement Model

In order to test the model, SEM-PLS was used in the study. The initial stage of processing PLS Path Modeling is to perform a measurement model on all research indicators. This stage is intended to test the validity and reliability of research indicators. The results of the outer model test show that all research indicators are valid and reliable, with a loading factor value of > 0.07 (Hair et al., 2017).

The explanatory capacity of the model is evaluated using the value of R2, which reflects the significant variance described by the constructed construction.

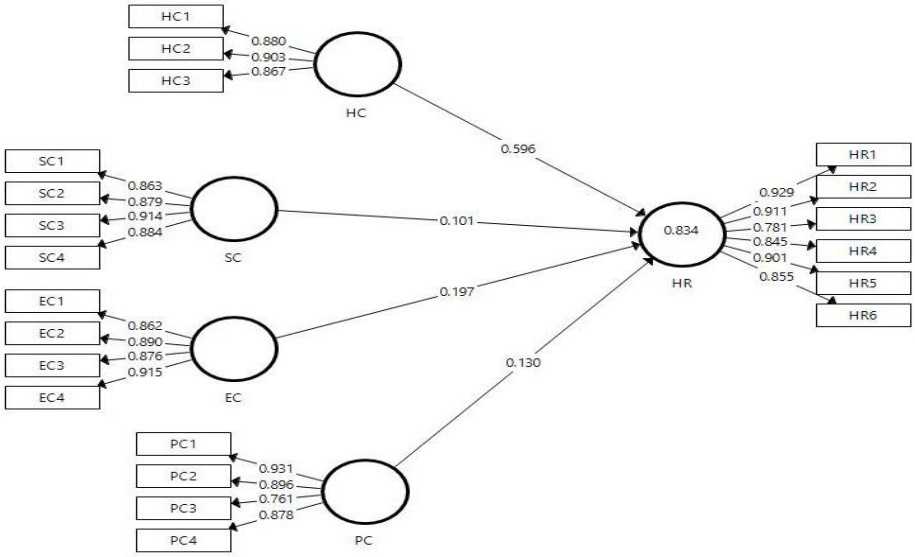

Figure 2. Outer Model (Source: Data processed SmartPLS, 2021)

The model explains that 83.4 % of the hotel's resilience variance is formed by a multi-capital approach (human, social, economic, and physical), while other variables explain the remaining 16.6%.The next step is testing discriminant validity. This test will evaluate whether one variable differs and is unique from another. Typically, researchers use two approaches to assess the validity of the indicator: cross-loading and the Fornell-Larcker criterion, which compares the square root of the AVE value with the correlation of the latent variables. In particular, the square root of the AVE of each construct must be greater than its highest correlation with the other constructs (Hair et al., 2017).

Table 1. Discriminant Validity-Fornell and Larcker Criterion- (Source: Data Processed Smart PLS, 2021)

	HR	EC	PC	HC	SC
HR	0.872				
EC	0.706	0.886			
PC	0.757	0.663	0.869		
HC	0.877	0.692	0.738	0.851	
SC	0.638	0.475	0.607	0.611	0.885

Table. 2. Hypothesis Testing (Source: Data Processed SEM PLS, 2021) Note: Two-tailed test, Significance level 95%, P < 0.05

Path Coefficient	Original Sample	T- Statistics	P -Values	Conclusion
HC ---> HR	0.533	5,379	0.000	H1- Supported
SC ---> HR	0.128	1.854	0.064	H2- Not Supported
EC ---> HR	0.171	2.161	0.031	H3- Supported
PC ---> HR	0.180	2,335	0.020	H4- Supported

The structural model is identified following the validation of the measurement model's level of validity and reliability. The inner model is the process of examining the relationship between variables. The significance of the relationship can be established by calculating the t-value and the P-value. According to Table 1, human capital (HC), economic capital (EC), and physical capital (PC) have a positive and statistically significant impact on hotel resilience (HR) with t-values > 1.96 and P-values of 0.05. However, social capital (SC) has little impact on hotel resilience (HR). The test results reveal t-values of 1.854 and P-values of 0.064, which are both less than the threshold.

IPMA Analysis

The Importance-Performance Map Analysis (IPMA) enriches the reported PLS-SEM path coefficient estimates using an analysis dimension that considers the average values of the latent variables' scores. In particular, the IPMA checks the overall effects, demonstrating its significance in generating a construct, with the average scores of its latent variables indicating their performance. The goal is to find the parts of the construct that are more important and, as a result, have a significant impact on the construct as a whole but do not give much back, meaning that the average scores of the latent variables are low (Ringle and Sarstedt, 2016). IPMA at the variable level shows that human capital has an importance level of 0.658. Compared to other variables' weighted importance, human capital has the highest importance. It can be interpreted that every one-point increase in human capital performance will increase resilience by 0.658. Therefore, to improve the performance of human capital, the aspect of resilience related to human capital needs to be enhanced.

In addition, the importance-performance scores for each indicator are presented in Table 4. The IPMA complements the standard PLS-SEM reporting of path coefficient estimates by incorporating the average scores of latent variable scores (Hock et al., 2010). The graph demonstrates that the IPMA has identified a number of significant manifest variables, but that its performance still has to be enhanced. On average, the importance value of the whole weight of the indicators is 0.079, and their performance is 83.260. It means between the importance and performance weights, they are still not at the expected maximum value. The IPMA analysis shows that the indicator of capacity to adapt (HC1) appears

to be highly relevant (0.209), but its performance still needs to improve (82.692). Similarly, several indicators show the lowest performance, even though the importance level was not really high during the restriction of economic activity, but in post COIVD-19 will affect the sustainability of business, such as sources of income (EC2), marketing strategies (EC3), and life safety (PC3). Consequently, it must increase its performance.

Table.3 Latent Variable Values
(Source: Data Processed IPMA SmartPLS, 2021)

Latent Variable	Importance Values (IV)	Performances Values (PV)
Human capital (HC)	0.658	87.774
Social Capital (SC)	0.133	88.611
Economy Capital (EC)	0.176	75.382
Physical Capital (PC)	0.187	88.611
Mean	0.2885	85.0945

Table 4. Importance-Performance Indicator Values
(Source: IPMA processed, SmartPLS)
Note: IV = importance Values, PV = Performance Values

Item	HC		SC		EC		PC	
	IV	PV	IV	PV	IV	PV	IV	PV
1	0.209	**82.692**	0.035	89,560	0.044	81.868	0.053	81,593
2	0.238	90,659	0.037	87,088	0.030	**56,044**	0.064	89,835
3	0.210	89,560	0.046	89,011	0.041	**75.549**	0.041	**74,725**
4			0.042	88.736	0.047	81.593	0.068	90.385

The IPMA map in Figure3 shows the indicator forming the hotel resilience construct target. The X-axis with the horizontal line shows the level of importance, while the Y-axis with the vertical line shows the level of performance. The focus on improving indicator performance is in quadrant 4 (concentrate here) and also those item with low performance.

Indicators in Quadrant 1 have good performance but low importance, notably connectivity indicators with external parties (SC1), stakeholder input (SC2), inter and intra-organizational communication (SC3), trust among stakeholders (SC4), hotel design (PC2), and evacuation location accessibility (MF4). Quadrant 2 is inhabited by indicators with high importance and good performance, particularly knowledge and skills (HC2) and leadership (HC3). Therefore, its performance must be maintained (keep up the good work). Indicators with relatively low levels of performance occupy the third quadrant, with most low performance highlights are life safety (PC1), sources of income (EC2), marketing (EC3). Indicators with high importance but low performance, such as capacity to adapt (HC1), occupy Quadrant 4. Hence, its improvement must be prioritized (concentrate here).

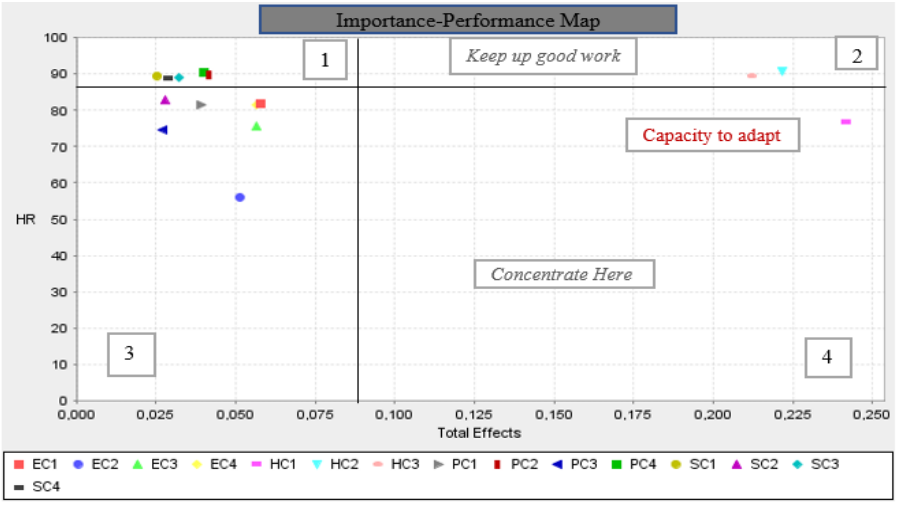

Figure. 3 IPMA Quadrant - Distribution of Hotel Resilience Indicators
(Sources: Primary data processes with IPMA, Smart-PLS)

DISCUSSION

The primary objective of this research is to assess the critical variables that the hotel business must address during the global disaster of the COVID-19 pandemic. SEM and IPMA analysis were used to evaluate this study's multi-capital framework (human, economic, social, and physical). The outcomes of this study highlight the significance of the multi-capital approach to organizational resilience in tourism, which earlier researchers have applied (Bigg et al., 2012; Brown et al., 2018; Mayunga, 2007). Based on the findings of the SEM analysis of the four (four) hypotheses proposed, it is demonstrated that three (three) hypotheses,such as the influence of human capital, social capital, and physical capital on hotel resilience during the COVID-19 pandemic, have a positive and significant effect. The findings of the social capital analysis demonstrate no substantial effect on hotel resilience in Bandung, which contradicts the findings of prior studies (Brown et al., 2018; Mayunga, 2007). Hotel management has made several attempts to save their businesses.

However, the reality is that economic growth and tourism are determined mainly by forces outside their control, particularly concerns relating to government regulations. The limited social capital impact on hotel resilience in the context of COVID-19 crises is believed to be due to several factors. According to Filimonau et al., (2020), intense rivalry in the hotel business might stifle collaborations, including competition between industries. Even with extremely low pricing, each hotel is attempting to gain a market share. Furthermore, the limited flow of information among industries can compromise their ability to adjust to disaster situations (Kim et al., 2013).

Bandung's COVID-19 cases keep fluctuate. It influences the government's policy to ease economic activity. The new COVID-19 cluster in certain places may also limit tourist visits. These issues make it hard for hotels and other tourism firms to build social capital. Figure 4 shows how Bandung hotels began embracing multi-capital practices after the COVID-19 outbreak. The hotel's indicators and resilience strategies following the pandemic can be described based on result.

The aim of human capital investment in knowledge and abilities is to reskill and upskill existing staff. Creativity and innovation are the lifeblood of a firm in the business world. Both of these require individual skills and knowledge (Ilmi

et al., 2022). Due to reduced of human resources, the hotel's existing staff is under pressure to make an extra effort, such as doubling up on shifts or working longer hours. The most prominent leadership practice during a pandemic is the cost efficiency strategy. Management had to cut back on some services because of the hotel's low income. Therefore, strong leadership is needed to formulate effective strategies and work plans. Leaders play an essential part in the success of an organization by facilitating its strategic planning, crisis prevention, team building, and internal culture. Compared with findings (Lee et al., 2013; Orchiston, 2016) that emphasize the importance of planning and cultural factors, in the context of the COVID-19 crisis, the form of adaptation carried out by leaders has the same level of importance as other tourism industry characters. Even in a crisis, leaders can plan a of their organization's culture by coming up with new ideas and working together to measure success. In term of adaption capacity, hotels in Bandung have implemented various strategies such as unpaid leave or run on a 14-day-per-month schedule, and most employees exceed typical work hours with multi-job. The effectiveness of optimizing the allocation of human resources conforms to the opinion Hao et al., (2020). Effective human resource allocation can help hotels decrease operating costs during a crisis.

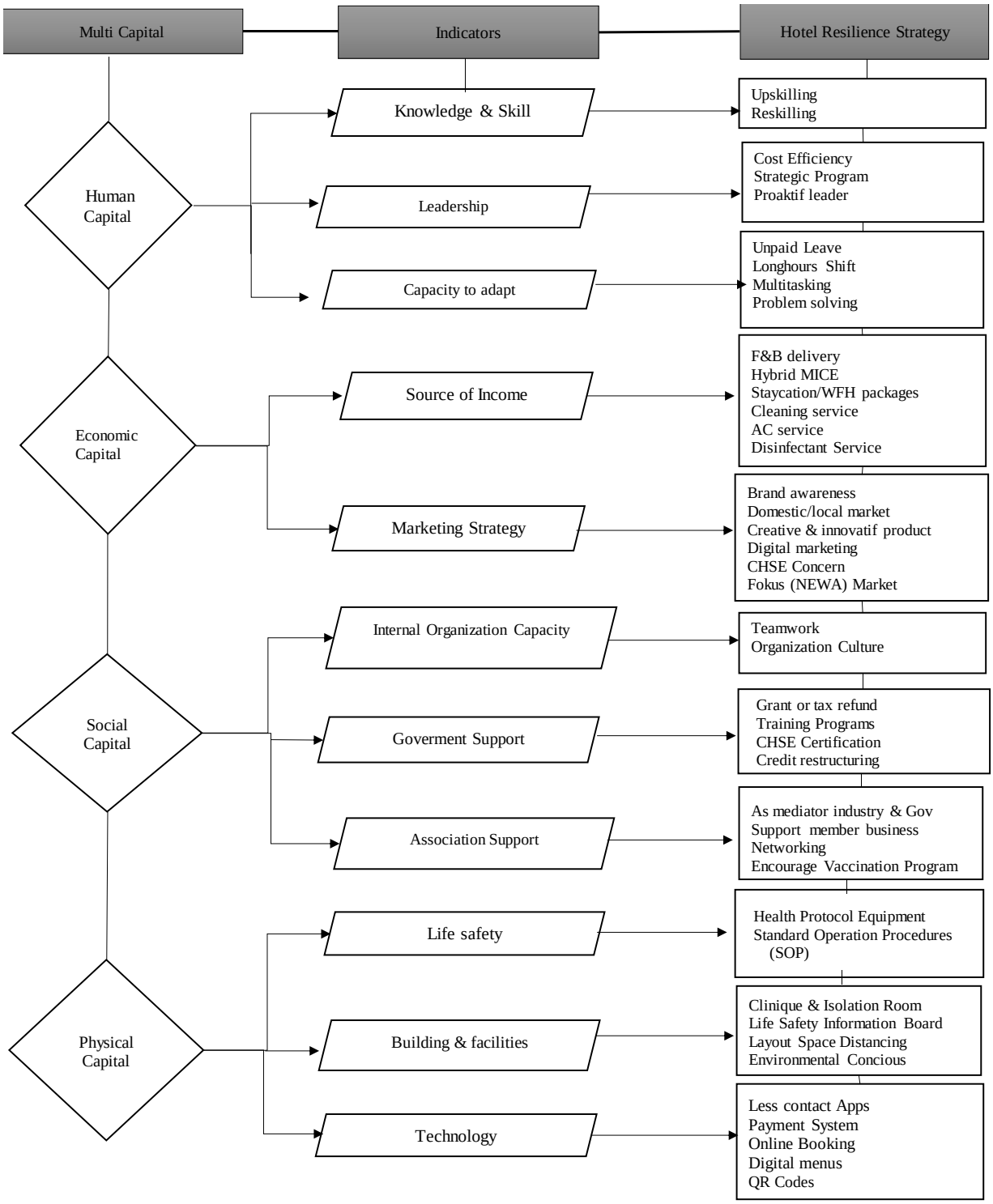

Figure 4. Typology of Multi Capital Practices on Hotel Resilience During Covid-19 in Bandung (Source: Author own finding)

The implementation of economic capital in strengthening post-pandemic hotel resilience plays a dominant role in the source of income plans and marketing strategies. Even in a challenging scenario, hotels in Bandung are attempting to secure a source of revenue by capitalizing on the numerous available alternatives. Hotels not only rely on tourism but also try to seek domestic and regional markets. Some of the hotel's revenue-generating strategies, such as promoting staycations or work-from-hotel packages, and Food and Beverage (FB) delivery services. They also offer residents cleaning services, including Air Conditioning (AC) and disinfection. During limited economic activity, called PPKM (Pemberlakuan Pembatasan Kegiatan Masyarakat), hotel activities emphasize marketing strategies, such as increasing brand awareness and utilizing digital marketing, which is more straightforward and can reach a wide range of customer. Even star hotels inspire their followers to visit tourist destinations by leveraging social media capabilities such as live promotion and live events. Hotels use technology and digital media for public communication and hotel branding. The hotel attempts to earn customers' trust by providing health and environmental-related information.

Social capital is reflected in the hotel's ability to empower internal and external parties to help escape crises. The dominant connectivity is the assistance of relevant stakeholders such as the government and associations. The government's role through policy is very important in increasing resilience. According to Ervina and Agoes (2022), the government's form of social capital during the COVID-19 pandemic was evident with the grants, social assistance, and training for tourism sector workers and the CHSE certification program. In addition, the government also encourages credit restructuring, given that many hotels cannot pay credit to banks.

The role of associations remains important during a pandemic. Associations are needed as a forum for members' aspirations, facilitating communication between the industry and the government and assisting the network of cooperation in realizing the vaccination program for the hotel industry. These results emphasize that social capital plays an important role in building resilience both in personal and professional networks (Hall et al., 2018). However, the key to all forms of social capital will not be significant if government policies do not support business activities. The presence of physical capital contributes significantly to the hotel's resiliency. Some of the physical infrastructure required for hotels to respond to the COVID-19. The most crucial requirement is life safety equipment.

This comprises health protocol equipment, clinic room facilities, isolation rooms, and modifying hotel layouts to limit the potential of virus transmission. Moreover, the pandemic is raising the demand for technology in the hospitality industry. The availability of this infrastructure necessitates substantial expenditures. Strong financial will aspire to embrace various technologies, such as online booking, touchless applications, digital payments with Quick Response (QC) barcode. Even though the hospitality business will slowly get better following pandemic, it will never be the same as before. There will be a greater demand for technology for hotels industry. Thus, rapid technological change, altering people's creativity, and generating innovation provide competitive advantages (Acar et al., 2019).

The IPMA analysis revealed the significance of multi-capital practices and their corresponding indicators for determining how to design hotel resilience construct targets. The IPMA suggests that the level of performance and significance of the multi-capital approach during the COVID-19 pandemic, particularly the performance of economic capital, remains below expectations. Human capital is the most influential factor in hotel resilience at the variable level. Prior research (Mayunga, 2007; Brown et al., 2018; Sydnor-Bousso et al., 2011) confirms that human capital has a greater influence on developing resilience. The SEM correlation value demonstrates that human capital substantially influences hotel resilience. At the indicator level, IPMA's analysis also showed that improvements should be focused on high-priority but low-performance items. The importance of knowledge, skills, and leadership is apparent, and performance is already high. However, the performance of adaptability capacity still needs to improve. In addition, some indicators have very poor performance. Even though the indicator is in the "low priority quadrant," due to the limited economy activity, but it will greatly affect the hotel industry's sustainability after COVID-19. It includes sources of income (EC2), marketing strategies (EC3), and life safety (PC3), all of which are underperforming and need to be brought up by star hotels during COVID-19. Looking deeper into the analysis, it provides a practical contribution to the management of star hotels in order to enhance their resilience performance by implementing the following elements:

1. **Capacity to adapt**: Managing the capacity to adapt in crisis circumstances, including employee commitment, is one of the most challenging things for managers during COVID-19. Sogno (2020) argued that when a pandemic causes anxiety and fear about the future of their work, it impairs the workforce's productivity. Even hotel jobs were very vulnerable to workers who remained in their positions. Employees must have the ability to adapt to rapid change and respond effectively. According to Zurnali (2010), commitment is more than membership in an organization; it also involves a commitment to achieve the organizational objective. This kind of dedication derives from job distribution, willingness to sacrifice, and employee loyalty. Hotels in Bandung are implementing various labour strategies to save expenses, such as applying 14 working days in a month or three days of work and four days off. The other way is to advise their staff to take unpaid leave. Even though the pandemic is improving, only some hotels operating all of their outlets. Increasing employee commitment can help develop the ability to change. It is essential to motivate existing personnel by providing training to improve their work capacities, such as creating an internal talent pool or rewarding system for loyalty. Besides, leaders must be proactive in encouraging employees to maintain their productivity.

2. **Source of Income**: During the pandemic, hotels are unable to rely on tourism activity as their primary source of income. They must develop a pivoting strategy in order to capitalize on different revenue-generating opportunities across multiple market segments. The new era of tourism economics, which cannot be isolated from issues concerning Hygiene,

Less- Touch, and Low-Crowding (HLL), has become a way to offer excellent service to guest (Yuswohady, 2021). Star hotels may also maximize their profit by offering new services and products to customers. Post-pandemic, the potential of hotel product to be offered include: food sales with delivery services (Food delivery), staycation packages, Work From Hotel (WFH) packages, Hybrid MICE, cooking classes, Isoman (isolasi mandiri) or quarantine package for Covid-19 suspect, cleaning service packages, Air Conditioning (AC) services, and hotel space rent.

3. **Marketing strategy**: Limited economic activity hinders hotel expansion. The Indonesian Central Statistics Agency (BPS, 2021) affirms poor hotel marketing strategies, suggesting that marketing is the greatest challenge for businesses in the pandemic era, reaching 58.94% in the industrial, service, and accommodation sectors. The marketing strategy targets prospective customers. First, hotels advertise their brand during outbreaks. The idea was to make hotel brands more recognizable to potential customers. Localization is the second idea. Pandemic objectives might include domestic tourists and Bandung residents. Lastly, hotels market distinctive products and services. Most hotels market their products online. Due to the high risk of mass tourism, the "next normal period" will highlight Nature, Eco-tourism, Wellness, and Adventure (Yuswohady, 2021), which hotels can utilize to target market segments.

4. **Life safety**: Although the number of infected cases continues to decline, the hotel industry must consistently prioritize hygiene, cleanliness, and safety. Some areas that need to be improved include ensuring that health protocols are consistently executed and providing customers with high-quality goods and services.

CONCLUSION

The multi-capital approach is critical in enhancing hotel resilience following the COVID-19 pandemic in Bandung. Star hotels managed to survive by leveraging their capital. Human capital, economic capital, and physical capital have all been proven to have a positive and significant effect on hotel resilience, though social capital has yet to contribute ideally. The central and local government's policies, which are still focused on the health side, have forced the hotel industry to survive and adapt to the laws regulating economic activities so that the functions of connectivity, trust, and networks have not been able to contribute considerably to hotel resilience ultimately. However, multi-capital must be entirely adopted, not just in parts. The evaluation of importance and performance findings suggest that human capital is dominant in resilience. A critical aspect that needs to be strengthened is the adaptive capacity through a willingness to respond, proactive leadership, and employee commitment. The vulnerability of jobs in the tourism industry during the COVID-19 crisis has increased the burden and challenges of the tourism business post-COVID-19, particularly in the performance of income sources, marketing strategies, and life safety issues.

Recommendation

This research has theoretical as well as practical implications. Theoretically, this contributes to organizational resilience in the hospitality industry in the context of the global health crisis. On the practical side, the hotel industry must focus on enriching human resource competencies by providing training to improve employee reskilling and upskilling. Furthermore, this research provides guidelines for hotel resilience initiatives in health crisis. In order to adjust to pandemic circumstances, hotels should adopt a strategy known as "pivoting." Therefore, hotels cannot rely solely on the tourism business but also non-tourism activities

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IMPACT OF EXCHANGE RATE ON FOREIGN TOURIST DEMAND: EVIDENCE FROM DEVELOPING COUNTRIES

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Abstract: The tourism sector plays a critical role in many countries worldwide. The purpose of this study is to explore the impact of the exchange rate on foreign tourist demand in 47 developing countries from 2005 to 2020. Unlike previous studies, our empirical data only includes low-income and low-middle-income countries for the quantitative research process. The Driscoll-Kraay standard errors method has been applied for the estimation. The result confirms that an increase in exchange rate leads to a higher number of international tourism arrivals in these countries. Therefore, if policymakers in these countries depreciate the value of their domestic currency, it will create a boosting effect on the number of foreign tourists. In addition, the result identified that the pollution, denoted by the carbon dioxide emissions, affected foreign tourist demand like an inverted U-shaped Kuznets curve. It implies that environmental pollution in developing countries has increased gradually which negatively influenced the demand of international travelers as well as the growth of the tourism sector. However, the quality of institutions and infrastructure in the host countries can have positive effects on the demand for international tourists. Finally, some policy implications are included for enhancing the tourist industry in developing countries.

Key words: Exchange rate, foreign tourist demand, tourism revenue, environmental pollution, Kuznets curve

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INTRODUCTION

The tourism industry is one of the most important socio-economic activities and has a great potential effect on global development in the future (Lin et al., 2019; Akadiri and Akadiri, 2021; Tung, 2021; Singh and Kumar, 2022). Tourism has been found to have a critical role in supporting economic growth (Jalil et al., 2013; Asongu et al., 2019; Bhuiyan et al., 2021), increasing per capita income (Brida et al., 2020), reducing poverty (Tung, 2019a), and improving business opportunities (Tang, 2018). Tourism also helps to create international integration and build bridges between different cultures by connecting cultural exchange between communities (Orgaz-Agüera et al., 2022). Furthermore, the tourism sector provides great resources in increasing export revenue and foreign income to the economy and is considered an important factor in economic development (Tang and Tan, 2013). Travel is a robustly growing industry worldwide and is considered a potential driver of economic development in many countries (Fernandes et al., 2019; Sharma and Pal, 2020; Bhuiyan et al., 2021; Tung, 2021). Because tourists spend for many reasons during their trips, the exchange rate can affect the tourists' decisions (Tung, 2019b; Chaudhry et al., 2022). The demand for foreign tourists can be influenced by the exchange rate in the host country. Thereby, the studies on this topic could provide empirical evidence for policymakers in enhancing the efficiency of the policies in practice (Lin et al., 2019). Tourism plays a critical role in many low-income countries; therefore, the exact accreditation of the exchange rate policy is not only helpful in the academic field but also necessary for public administrations in practice for supporting the tourism activities of developing countries (Meo et al., 2018; Dogru et al., 2019; Akadiri and Akadiri, 2021). On the other hand, some other factors, which affect foreign tourist demand, should be identified for a better policy-making process (Lin et al., 2019).

This study aims to explore the impact of the exchange rate on the demand of international tourists with a sample of developing countries. In overall, this paper provides two main contributions to the current literature. First, the result delivers new empirical evidence by clarifying the impact of exchange rates on the demand of foreign tourists with a quite large sample including 47 low-income and low-middle-income countries worldwide. Second, the data may be in the most up-to-date format in the period from 2005-2020. Then the findings are the newest evidence compared to previous studies. Third, this study also considers the relationships between the demand of foreign tourists and other elements, such as pollution, infrastructure, and institutional quality, and it provides some useful implications for policymakers enhancing the tourism sector in these countries in the future. The paper is structured into five sections. Section 2 presents relevant previous studies and Section 3 shows the methodologies and a description of the data. The result and discussion are in Section 4. A conclusion and policy implications are included in Section 5.

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LITERATURE REVIEW

Tourism is a service industry that is likely to be affected by the exchange rate fluctuation (Irandoust, 2019; Athari et al., 2021; Chaudhry et al., 2022). The exchange rate can influence the choice of international tourist destination, as tourists tend to choose countries with more favorable exchange rates (Webber, 2001; Sharma and Pal, 2020). When the monetary value of a destination depreciates, international tourists have more money to spend, and they are therefore able to prolong their trips and increase their spending in local destinations (Crouch, 1993). Besides, the devaluation of the local currency leads to a reduction in the overall cost of travel for ex-pats with strong currencies.

A depreciated exchange rate is positively related to tourism demand **(**Sharma and Pal, 2020**)**, as travel becomes less expensive when visiting a devalued country. As a result, the number of foreign tourists increased rapidly (De Vita and Kyaw, 2013). Some previous studies showed that the exchange rate could be a key factor in determining tourism demand (Balaguer and Cantavella- Jordá, 2002; Oh, 2005). There were some empirical results related to the current study topic but most of them were done in high-income countries (for example, Ongan and Gozgor, 2018; Işık et al., 2019). Ongan et al. (2017) analyzed the effect of real exchange rate and income on tourist demand from Germany, France, the UK, Netherlands, Italy, Spain, and Sweden to the United States in the period 1996-2005. The methodology was the Common-Correlated Effects (CCE) approach. The dependent variable was the number of tourists, and the independent variables were real GDP per capita and real exchange rate. The results showed that tourists were more sensitive to changes in the real exchange rate than to changes in GDP per capita.

Meo et al. (2018) investigated the impact of oil price, exchange rate, and inflation on tourism demand in Pakistan using the Autoregressive Distributed Lag (ARDL) model. Pakistan's annual data was taken from the period 1980-2015. The results confirmed that an increase in the exchange rate could lead to a devaluation of the host country's currency and this status had a positive association with tourism demand. However, poor institutional quality, high levels of inflation related to higher spending, higher cost of living and travel, and reduced the number of domestic and foreign tourists.

The study of Irandoust (2019) focused on the relationship between exchange rates and tourism demand in ten European countries between 1995 and 2016. The study used a hidden cointegration analysis. The results identified that the exchange rate had both positive and negative impacts on the number of arrivals. The direction of the relationship between the two variables depended on the monetary policy of each country.

The magnitude of the coefficients was much different from country to country, and they appeared to be smaller in Eastern European countries than in Nordic countries and Switzerland.

Dogru et al. (2019) used the ARDL technique with linear and non-linear models. The empirical evidence showed that a higher or a lower exchange rate had relationships with the balance of tourism trade, especially, for bilateral relations between the United States, Canada, Mexico, and the United Kingdom. The study concluded that a stronger US dollar harmed the US bilateral travel trade balance with Canada and the UK, but it did not create a relationship with Mexico in the long run. Işik et al. (2019*)* estimated the impact of the exchange rate on the tourism trade balance in Turkey and Spain by a non-linear ARDL cointegration approach. The study found that a depreciation of the euro currency had a significant positive effect on the tourism trade balance of Turkey. On the other hand, the appreciation of the euro did not significantly affect Spain's tourism trade balance. Tung (2019b*)* analyzed the relationship between the exchange rate and the number of foreign tourists in Vietnam from 2006-2018. The empirical evidence confirmed that a reduction in the value of the domestic currency could provide a positive effect on the demand of foreign travelers.

Table 1. The relationship between exchange rate and foreign tourist demand in previous studies (Source: Authors)

Authors and Publication year	Regions and Periods	Method	Results
Ongan et al. (2017)	8 developed countries, 1996–2015	CCE	Tourists visiting are more sensitive to changes in the real exchange rate than to changes in GDP. While French tourists are highly responsive to GDP, British tourists are highly reactive to exchange rates
Meo et al. (2018)	Pakistan, 1980-2015	NARDL	An increase in the exchange rate (known as the depreciation in the currency of the host country) has a positive association with tourism demand.
Irandoust (2019)	10 European countries, 1995-2016	ECM, VAR	Empirical results showed that the exchange rate had both positive and negative impacts on the number of arrivals in these countries.
Dogru et al. (2019)	4 developed countries, 1996–2017	ARDL	An appreciation in the U.S. dollar could worsen the U.S. bilateral travel trade balance with Canada and the UK, but it had not got a significant effect on Mexico in the long run.
Işik et al. (2019)	Spain and Turkey, 1996-2016	ARDL	The evidence indicated that the depreciation of the euro currency should promote tourist arrivals to Turkey, on the other hand, this effect was negligible for Spain's tourism balance.
Tung (2019b)	Vietnam, 2006-2018	OLS, Granger causality	A higher exchange rate leads to a higher demand for foreign tourists. The domestic currency devaluation was good for the tourism sector. A one-way Granger causality from the exchange rate to the number of foreign tourists.
Athari et al. (2021)	76 countries, 1995–2017	OLS, GMM	Lower levels in domestic exchange rates of countries are estimated to stimulate higher tourist capital flows.
Akadiri and Akadiri (2021)	16 island countries, 1995–2016	CSD	Whether the actual exchange rate was higher or lower would influence the international tourists' decisions
Chaudhry et al. (2022)	East Asia and the Pacific region, 1991-2018	DCCE	Exchange rates have a positive and significant relationship with tourism revenue

Akadiri and Akadiri (2021) examined the causal relationship between tourism, exchange rate, and economic growth in 16 selected island countries. The aim of the study was predictive the contribution to tourism on economic growth by incorporating the real exchange rate as an independent variable from 1995–2016. The results suggested that the real exchange rate could be employed as a good predictor of tourism demand. A higher or lower real exchange rate would influence the decision-making process of international tourists. Athari et al. (2021) investigated the role of political risk, exchange rate, and inflation rate on international tourist arrivals in a group of 76 countries during 1995–2017. Using the pooled OLS and GMM, the estimated results identified that political risk was a significant impediment to the growth of total tourist arrivals in these countries. The low domestic exchange rates of the countries played a stimulative role in attracting foreign tourists. Tourists from out-sites much excited to travel to a destination where they can buy more goods and services. Chaudhry et al. (2022*)* explored the relationship among environmental quality, real exchange rate, institutional efficiency, and tourism revenue in East Asia and the Pacific region. The Dynamic Common Correlated Effects (DCCE) method was applied. The empirical estimation concluded that the real exchange rate is related to the fluctuation of tourism receipts in this region. A brief review of relevant previous studies has been done and shown in Table 1.

METHODOLOGY AND DATA

Econometric model

Based on the previous studies (Meo et al., 2018; Athari et al., 2021; Chaudhry et al., 2022), some macroeconomic indicators were selected for representing the dependent and independent variables. We propose two research models with two different dependent variables including international tourist number (Tourist) and revenue from international tourists (Revenue). The purpose of this paper is to create multiple perspectives when considering the impact of the exchange rate on the demand for foreign tourists. Followed the empirical results (Meo et al., 2018; Athari et al., 2021; Chaudhry et al., 2022), the econometric models have been built with the following structures:

$$\begin{aligned} Tourist_{i,t} = \beta_0 + \beta_1*Tourist_{i,t-1} + \beta_2*Exchange\_rate_{i,t} + \beta_3*Pollution_{i,t} + \beta_4*Pollution^2_{i,t} + \\ + \beta_5*Institutional_{i,t} + \beta_6*Infrastructure_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (1)$$

$$\begin{aligned} Revenue_{i,t} = \varphi_0 + \varphi_1*Revenue_{i,t-1} + \varphi_2*Exchange\_rate_{i,t} + \varphi_3*Pollution_{i,t} + \varphi_4*Pollution^2_{i,t} + \\ + \varphi_5*Institutional_{i,t} + \varphi_6*Infrastructure_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

The dependent variables in the proposed models are the number of foreign tourists (denoted by Tourist) in thousands of people and the revenue from international tourists (Revenue) in millions of USD. Independent variables are the exchange rate (Exchange rate) is measured by the official exchange rate (LCU per US dollar, period average), Environmental pollution variable (Pollution) is calculated by CO_2 emissions (thousand tons) and Pollution^2 is the square of CO_2 emissions, the institutional quality (Institutional) is measured as the average of CPIA organizations and public sector managers (10 = low to 60 = high). The lagged variables ($Tourism_{(t-1)}$ and $Revenue_{(t-1)}$) are added as independent variables for examination of potential effecting from the demand of foreign tourists of the previous year.

Finally, infrastructure quality in destinations (Infrastructure) is included in the proposed models. $\varepsilon_{i,t}$ and $\varepsilon_{i,t}$ are the error terms, besides, i has denoted the cross-sectional units in the sample, and t is the period. The measurements of the variables in the research models are summarized in Table 2.

Table 2. The measure of variables (Source: World Bank, 2022)

Variable	Definition	Source
Tourist	International tourism (number of foreign arrivals, thousand people/year)	World Development Indicators (World Bank, 2022)
Revenue	International tourism, receipts (million, current US$)	
Exchange rate	Official exchange rate (LCU per US$, period average)	
Pollution	CO_2 emissions (thousand tons)	
Institutional	CPIA quality of public administration rating (10=low to 60=high)	
Infrastructure	Fixed broadband subscriptions (per 10000 people)	

Methodology

To determine the impact of the exchange rate on foreign tourist demand in developing countries, several quantitative methods will be applied in the analysis of the proposed models. First, the Pearson correlation analysis method is employed to explore the linear relationships between the variables in the research models. Then, a quantitative analysis was conducted with a sample including 47 low-income and low-middle-income countries from 2005 to 2020.

The regression estimation methods of the fixed effect model (FEM) and random effects model (REM) are used and the Hausman test helps to select the better result. Furthermore, to solve the defects of the econometric models, we also perform the estimations with the Driscoll-Kraay standard errors method for the fixed effect model to have the most reliable result. The "xtscc" regression command, developed by Hoechle (2007), produces the standard errors of Driscoll and Kraay (1998) for the linear panel models. The "xtscc" command runs well with both balanced and unbalanced tables, it can handle missing values (Hoechle, 2007).

Data

This study uses an annual dataset of 47 developing economies around the world for the period of 2005-2020 including

Albani, Armenia, Azerbaijan, Bangladesh, Dominica, Burkina Faso, Burundi, Bosnia and Herzegovina, Cambodia, Cameroon, Chad, Congo Dem Rep, Congo Rep, Cote d'Ivoire, Gambia, Ghana, Ethiopia, Guinea-Bissau, Guyana, Georgia, Haiti, Fiji, Grenada, Kenya, Laos, Marshall islands, Malawi, Mali, Mozambique, Namibia, Nicaragua, Niger, Nigeria, Papua New Guinea, Paraguay, Sri Lanka, St. Vincent and the Grenadines, St Lucia, Sudan, Tajikistan, Tanzania, Togo, Tonga, Tuvalu, Uzbekistan, Uganda, and Vietnam. Statistics of all variables were downloaded from the World Development Indicators database of the World Bank (2022). The descriptive statistics of the research variables are presented in Table 3.

RESULT AND DISCUSSION

First, the correlations between variables in the study models are checked by the Pearson Correlation matrix (Table 4). The coefficients not only show the degree level of correlations among variables but also help detect the multicollinearity problem that can make a great bias in the estimated results.

The correlation coefficients between exchange rate and foreign tourist demand are 0.6579 (with tourist variable) and 0.6738 (with revenue variable), which present positive relationships between exchange rate and foreign tourist demand. If the exchange rate increases, it is expected to raise the demand for foreign tourists and vice versa. The correlation coefficients between pollution and foreign tourist demand are 0.6210 (tourist) and 0.6493 (revenue) and they conclude positive relationships between CO_2 emissions and the demand of foreign tourists. It means when CO_2 emissions increase, it also creates an upward development of the economies of developing countries (through the expansion of production), which can attract foreign tourists. The correlation values between institutional and foreign tourist demand are 0.1155 (tourist) and 0.1477 (revenue), which suggests that the demand for foreign tourists is expected to increase when the quality of institutions is improved. On the other hand, the demand for foreign tourists can decrease when the quality of institutions reduces. The correlation coefficients between infrastructure and tourists are 0.1997 (tourist) and 0.2417 (revenue), therefore, a better infrastructure system leads to a higher demand for international tourists. Because the independent variables have VIF values < 2 and the mean values of VIFs are 1.47 and 1.43, the variables in the research model do not have multicollinearity between the independent variables (Table 5). In addition to showing the correlation relationship between the dependent variable and the independent variables, indicating the possibility of multicollinearity, looking at this correlation coefficient between the independent variables in the model is quite low, so it is unlikely. multicollinearity condition. However, regression results and tests are needed to accurately assess the impact with different significance levels. The following part of the regression analysis will give actual results.

Table 3. The descriptive statistics of the variables
(Source: Calculated from the study data)

Variable	Max	Min	Mean	Std. Dev.	Obs
Tourist	18009	1.1	1192.87	1775.02	685
Revenue	11830	0.1	773.178	1290.37	607
Exchange rate	23208.3	0.7843	1071.49	3201.02	719
Pollution	257.86	0.21	14.0587	32.4874	646
Institutional	40	20	29.3189	4.62659	624
Infrastructure	2843.8	0.0079	345.934	587.295	658

Table 4. Correlation coefficient matrixes
(Source: Calculated from the study data) *Note*: *significant at 5%

Variables	Tourist	Exchange rate	Pollution	Institutional	Infrastructure
Tourist	1.000				
Exchange rate	0.6549*	1.000			
Pollution	0.6210*	0.6819*	1.0000		
Institutional	0.1155*	0.0720	0.0392	1.0000	
Infrastructure	0.1997*	0.0494	0.0609	0.3946*	1.0000
Variables	Revenue	Exchange rate	Pollution	Institutional	Infrastructure
Revenue	1.000				
Exchange rate	0.6738*	1.000			
Pollution	0.6493*	0.6819*	1.0000		
Institutional	0.1477*	0.0720	0.0392	1.0000	
Infrastructure	0.2417*	0.0494	0.0609	0.3946*	1.0000

Table 5. Multicollinear values (VIFs) (Source: Calculated from the study data)

Dependent variable: Tourist			*Dependent variable: Revenue*		
Variable	VIF	1/VIF	Variable	VIF	1/VIF
Exchange rate	1.75	0.572459	Exchange rate	1.69	0.593255
Pollution	1.74	0.574928	Pollution	1.68	0.595567
Institutional	1.19	0.837075	Institutional	1.19	0.842502
Infrastructure	1.19	0.840039	Infrastructure	1.18	0.848238
Mean VIFs	1.47		Mean VIFs	1.43	

For panel data regression, we apply FEM, REM, and Hausman tests to estimate the research model. The Breusch-Pagan for the phenomenon of heteroskedasticity problem and the Wooldridge test for the serial-correlation problem. The test results show that there has been heteroskedasticity and autocorrelation for the FEM model. The Hausman test results give Prob = 0.000, which indicates that the selected model is the fixed effects model. However, the model is autocorrelation and heteroskedasticity problems (Shown in Table 6 by the Wooldridge test and Breusch-Pagan test).

Table 6. Results of diagnostic tests for heteroskedasticity and serial correlation problems (Source: Authors)

Dependent variable: Tourist				Dependent variable: Revenue			
Test	Error Process			Test	Error Process		
Modified Wald ($\chi 2$)	Heteroscedasticity	$\chi 2(43)$=6.1e+09	Prob (0.000)	Modified Wald ($\chi 2$)	Heteroscedasticity	$\chi 2(40)$ =2.0e+37	Prob (0.000)
WooldridgeTest (F-test)	Serial correlation	F (1,41) = 6.799	Prob (0.012)	Wooldridge Test (F-test)	Serial correlation	F (1,35) = 12.304	Prob (0.000)

After fully overcoming the defects of the models through the regression process with the Driscoll-Kraay standard errors method and the fixed effects model. The first model is estimated with the dependent variable as tourist and tourism revenue for the second model. The results after fixing the above errors are shown in Table 7.

Table 7. Estimated results (Source: Authors)

Variables	Driscoll-Kraay standard errors estimation	
	Tourist is the dependent variable	Revenue is the dependent variable
Tourist (-1)	0.875*** [20.22]	
Revenue (-1)		0.933*** [15.03]
Exchange rate	0.325*** [5.46]	0.132** [2.48]
Pollution	13.10* [1.79]	14.61* [2.15]
$Pollution^2$	-0.092** [-2.90]	-0.078*** [-4.62]
Institutional	18.30*** [3.89]	-0.141 [-0.05]
Infrastructure	0.120** [2.36]	0.077** [2.60]
Constant	-800.2*** [-5.65]	-178.1** [-2.95]
Observations	416	416
Number of countries	43	43

Note: *,**,*** significant at 10%, 5%, 1%. The t statistical values are in parentheses below the coefficients.

First, the exchange rate is the main independent variable in the proposed models. The estimated results show that the coefficients of the exchange rate are positive and statistically significant for all models. In detail, the coefficients of this variable have positive values (0.325 and 0.132) at 1% of significance. The evidence implies that an increase in the exchange rate can lead to a higher number of foreign tourists. The results also confirm that a depreciation policy of domestic currencies has positive impacts on international tourist demand in developing economies. This finding is supported and consistent with some previous studies, when the devaluation of the domestic currency will promote the tourist demand of international tourists (Tang et al., 2014; Ongan et al., 2017; Meo et al., 2018; Irandoust, 2019; Chaudhry et al., 2022).

Second, the estimated results indicated that environmental pollution could harm foreign tourist demand. It is necessary to consider environmental pollution as a critical determinant factor affecting tourists' decisions. The coefficients are positive (13.1 and 14.61) and the significance is at 10%. Therefore, when the amount of CO_2 increases, the demand for tourists also increases. This finding is completely contrary to previous studies (Berrittella et al., 2006; Meo et al., 2018). However, the coefficients of the pollution-squared variables received negative values and were significant. There is a new finding from this study when an inverted U-shaped Kuznets curve was found on the relationship between environmental pollution and foreign tourist demand. According to the common tastes of many foreign tourists, they are always attracted to discovering lands in developing countries with unspoiled and natural landscapes. A lot of developing countries face a pollution problem. However, when pollution is high, it will lose its attractiveness to international tourists. This conclusion is based on the coefficient of the $Pollution^2$ variable (-0.092 and -0.078). This evidence represents a decrease in foreign arrivals when emissions increase following an inverted U-shape.

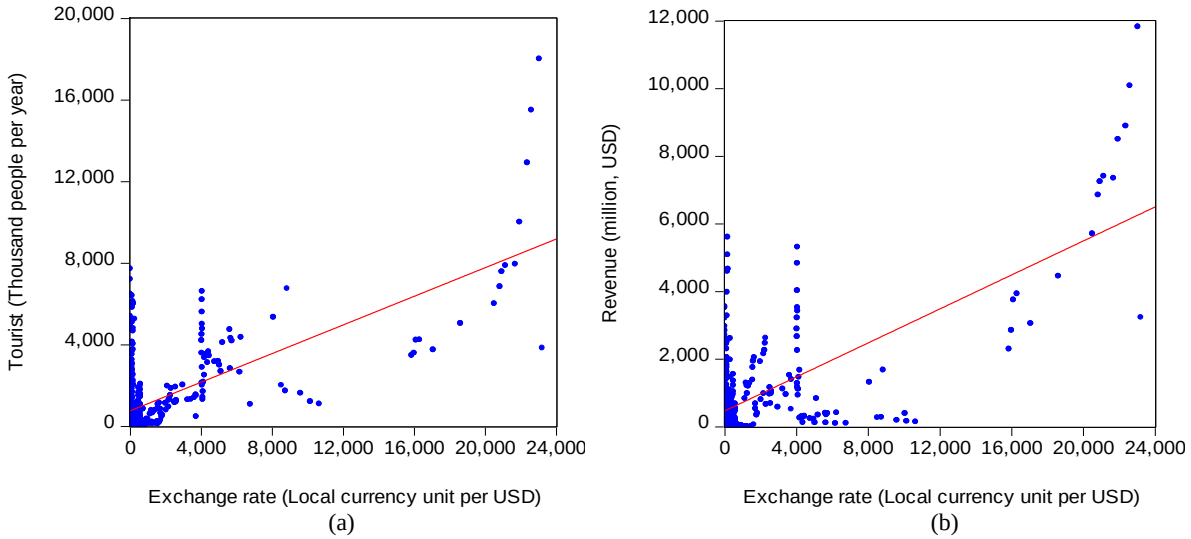

Figure 1. The relationship between exchange rate and foreign tourists (a) and exchange rate and tourism revenue (b) (Source: Calculated from the study data)

Third, the lag variables of tourism demand are a strong factor influencing the current demands with coefficients of 0.875 and 0.933 and a statistical significance of 1%. This result shows that when international tourists want to visit a certain place, they tend to find information about the number of visitors and the rating of tourists who visited these destinations in previous years (Kim and Scott, 2018). Fourth, institutional quality is found to have a significant positive effect on foreign tourist demand. However, this effect only appears when the number of foreign tourists is used as the proxy

of demand. Then the higher institutional quality could provide a higher volume of foreign tourist demand. Political stability, an advantageous investment environment, and transparency policies create a huge attraction for international tourists (Alleyne and Boxill, 2003). On the other hand, a political instability phenomenon and a weak public administration system will deliver bad outcomes for the tourism industry. This finding in-lines with previous studies (Alleyne and Boxill, 2003; Meo et al., 2018; Tang, 2018; Kim and Scott, 2018).

The coefficients of the infrastructure variable received positive signs and statistical significance at 5%. The evidence suggests that investment in infrastructure can support the development of tourist demand. It can be explained that the high quality of infrastructure gradually improves the satisfaction level of foreign tourists, thereby helping to attract a larger number of international visitors. This result is consistent with the previous result of Khadaroo and Seetanah (2007).

To further analyze the relationship between exchange rate and international tourist demand in developing countries. The Scatter plot graph technique as employed with the vertical axis is the exchange rate, the horizontal axis is the number of tourists, and the revenue from the tourism sector, respectively. The sample includes 47 low-income and low-middle-income countries during the period 2005-2020.

Through the graphs, we see a clear illustration of the positive relationship between the exchange rate and the demand of foreign tourists, which is shown through the dependent variables in the proposed models (Figure 1). The graphs have supplemented the quantitative results of the correlation matrix and regression analysis in the previous sections. These results help to suggest policy implications in the next section of the study.

CONCLUSIONS AND POLICY IMPLICATIONS

This paper aims to determine the impact of exchange rates on foreign tourist demand in 47 developing countries with a panel database for the period 2005- 2020. Unlike previous studies, there are only low-income and low-middle-income countries are collected for the quantitative research process. Using the fixed effects model with the Driscoll-Kraay standard errors method, the empirical result concludes a positive and significant effect of the exchange rate on the demand for international tourists. Based on the results, the study suggests some policy implications for enhancing tourism development in these developing countries.

First, an exchange rate policy is suitable maybe have a positive effect on the demand for international arrivals. The currency factor has forced tourists to make a destination selection before a trip. In this context, a country that has a depreciation in domestic currency will attract international tourists, and vice versa, an appreciation trend of domestic currency can hurt visiting this country. Therefore, policymakers should consider the exchange rate policy as an effective tool for driving the demand of foreign tourists.

Second, national institutional improvement should be a priority (as an important factor in attracting international tourists). Governments need to reform the administrative systems in compact and efficient ways. Promulgates progressive policies, ensuring a stable macroeconomic environment, and reputable laws. Builds better images of the countries in the perception of international friends. On the other hand, transparent rules are a critical point in the policies to raise public criticism and ensure a stable and secure society.

Finally, developing countries need to promote green technology in production and cut down pollution sources in the production process. The CO_2 emissions should be reduced to enhance environmental quality and support sustainable economic development. Governments need to improve their infrastructure systems. It is also an important policy to attract foreign tourists through expanding the development of smart information technology networks and transport systems which also create favorable conditions for visitors. The supporting policies from governments are very important for the sustainable development of the tourism sector in the future.

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HEALTHCARE AND WELLNESS TOURISM FOR PEOPLE WITH OCCUPATIONAL DISEASES IN CENTRAL KAZAKHSTAN

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Abstract: This study examines the scientific and theoretical foundations of the concept of medical tourism, and current trends in its development in the Republic of Kazakhstan and within the territory of Central Kazakhstan, which is of great importance in improving the professional health of the population since Central Kazakhstan is the largest industrial center. The purpose of the study is a scientific justification for the development of new directions of medical tourism in the field of occupational pathology with visits to healthcare facilities within Central Kazakhstan. The main method of research is a spatial analysis of the location of industrial regions with geoecological influence and priority healthcare organizations for developing new medical and health tourism routes for occupational pathology patients. The results of the study showed that the city of Karaganda has an absolute advantage for the further development of medical tourism in the contingent with production-related pathology.

Key words: medical tourism, health and wellness tourism, industrial center, occupational health clinic, anthropogenic load, occupational diseases, production-related pathology

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INTRODUCTION

The entry into scientific and practical use of the term "medical tourism" was largely facilitated by the foreign practice of developing the tourism industry as one of the leading and most dynamically developing sectors of the world economy. In countries with high-income levels, where they pay great attention to the development of this industry (Canada, Singapore, Japan, Spain, the United Kingdom, Dubai, Israel, and others), two types of tourism are traditionally considered related to the goals of treatment and recovery - medical tourism and wellness tourism (Savel'eva et al., 2020; Vetitnev and Kuskov, 2010; Dracheva, 2010; Kol'cova, 2015; Valorie and Crooks, 2010). These two types of tourism are often combined by a more general category - healthcare tourism. Currently, it is important to closely monitor global trends in medical tourism, taking into account the implications for the health and safety of patients and for health systems in a broader sense (Birch et al., 2010; Cheung and Wilson, 2007; Turner, 2007). Freire et al., 2012 defined medical tourism as a patient's journey for the purpose of treatment and/or prevention of diseases outside the usual place of residence. At the same time, the duration of such a trip can range from one day to one year.

On a global scale, medical tourism is considered to be sufficiently developed, characterized by a steady growth rate, and a profitable business worth 60 billion US dollars with an annual growth of 20%. The industry may move from the business model of medical tourism to the more precise term "medical outsourcing". The UN Economic and Social Commission for Asia and the Pacific has defined health and medical tourism as an international phenomenon describing the movement of travelers outside their region of residence in order to receive medical care that is not available in their country of permanent residence due to the high cost (Cortez, 2008; Zhong et al., 2021). Frustrated by high costs, long waits, and bureaucracy, more and more people in Europe and North America are seeking medical care in developing countries such as Thailand, India, Brazil, and others. For a small price and almost immediate access, these medical tourists can get a treatment that, according to supporters, is no worse, if not better, than anything they could get at home. There is a concept of “price discrimination”, which is a situation where different prices are indicated for the same product in different places, for instance, it is possible to get certain wellness services in Kazakhstan cheaper than in Russia (Sansyzbayeva et al., 2021). Under this model, governments and private enterprises seeking to take advantage of the cost savings of medical tourism will enter into formal agreements with foreign medical service providers that will set quality standards and ensure patient safety (MacReady, 2007). However, the industry is still in its infancy, the biggest issues concern the quality of service, more reliable data and academic research are needed.

The sphere of medical tourism in the Republic of Kazakhstan is currently under formation, about two thousand foreign citizens from China, Russia, Mongolia, the USA, Japan, and others visit the country annually in order to receive medical care (as medical tourists), and the popularity of domestic medical tourism among the local population is growing. Citizens

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are increasingly moving within the country to receive medical services, if earlier Kazakhstanis had to leave the country for the treatment of certain types of diseases, today there is an opportunity to seek help from local medical organizations.

In accordance with the Law of the Republic of Kazakhstan dated June 13, 2001, No. 211-II "On tourism activities in the Republic of Kazakhstan", the term "medical tourism" is defined as a type of tourism involving combining recreation with receiving specialized medical care, including high-tech medical services, outside the place of residence. The main factors ensuring the attractiveness of the country as a destination with developed medical tourism are: political and social stability; reputation and positive image in the field of healthcare; investments by the state and the private sector in healthcare infrastructure; the number of medical organizations with international accreditation; equipping medical organizations with advanced equipment; successful introduction of modern medical technologies; availability of competent and highly professional medical personnel; developed tourist infrastructure. The aim of the study is a scientific justification for the development of new directions of medical tourism in the field of occupational pathology with visits to healthcare facilities within Central Kazakhstan. The scientific and practical significance of the article is determined by the fact that the development of new routes of medical tourism is proposed and the tourist potential of medical and wellness services for persons with occupational diseases in the Republic of Kazakhstan is evaluated.

LITERATURE REVIEW

According to the research of the international consulting company "McKinsey and Company", the main motivations for medical tourism are the following (Figure 1). The analysis carried out by (Ushakov and Vasyuta, 2022) shows that almost all modern states around the world are currently taking large-scale and comprehensive measures aimed at supporting health and medical tourism as a priority sector of the economy. It should be noted that many foreign hospitals have been accredited by the United States Joint Commission, which evaluates and accredits healthcare organizations in the United States. Through its subsidiary Joint Commission International (JCI). The Joint Commission accredits international medical institutions, as well as provides educational and consulting services to hospitals around the world. In Nur-Sultan city in 2008, at the initiative of the Head of State, JSC "National Medical Holding" was established and in 2016 transformed into the Corporate Fund "University Medical Center".

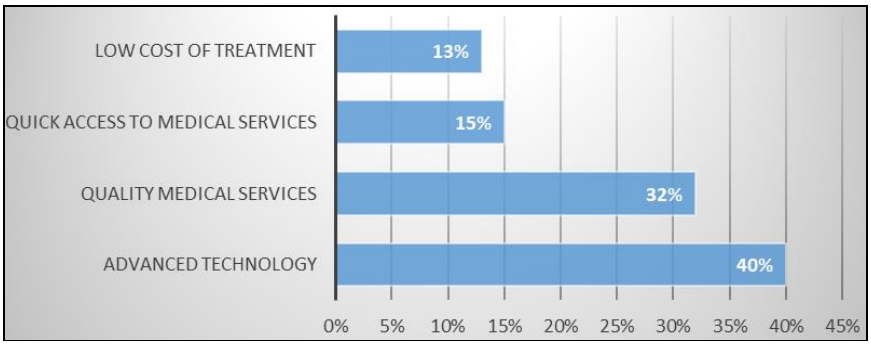

Figure 1. Motives for treatment abroad

It includes five innovative healthcare facilities – National Centers of Cardiac Surgery, Neurosurgery, Motherhood and Childhood, Child Rehabilitation, and the Republican Diagnostic Center, each of which has international accreditation by Joint Commission International (JCI). This accreditation, which must be held every three years, confirms the quality of medical services provided, the level of staff training, and the safety of patients in healthcare facilities according to international standards. In total, there are 7 such facilities in Kazakhstan, as well as 497 have national accreditations. In the above-mentioned medical organizations, foreign citizens are provided with services ranging from diagnostics (check-up - complete examination of the body) and ending to the most complex operations, including high-tech medical services: such as operations on the heart, spine, and brain.

Studies in 3108 U.S. counties and 67 Florida counties have shown conflicting evidence that tourism has a positive and/or negative impact on community sustainability. Geographically weighted regression combined with spatial moderation analysis was used to consider spatial interactions between communities. The data obtained show that the specialization of the tourism industry has a spatially heterogeneous mixed impact on the sustainability of the community and these effects are significantly affected by environmental pollution (Yang et al., 2022). Kazakhstan has the status of a state with an ecologically vulnerable territory, this is due to the increasing pollution of the environment in the Aral Sea region, the Semipalatinsk region, urbanized territories with the growth of various types of industrial production, and anthropogenic adverse impacts, due to the development of the economy for a long time, based on the raw material system of nature management, the main environmental pollutants are large industrial enterprises (Battakova, 2022).

Therefore, the prevention of occupational risks is relevant, as well as the market of medical and health tourism for people with occupational diseases (since they are common in large industrial centers), as an integral part of the tourism industry and the health care system requires special attention, since with its importance there is a risk of possible negative consequences for the health and life of the consumer in the case of low-quality or untimely services. Failure or absence of medical examinations in due time, as well as unfavorable factors of the production environment and the labor process, are the main causes of occupational diseases (Lukjanova, 2019). At the global and national levels, a healthy working environment is very important for social and economic development, therefore, the occurrence of occupational diseases is an important indicator of the working environment and working conditions (Pinosova, 2021).

Medical tourism is an important area for global health and for national health systems, especially now that there is easy access to medical information via the Internet and international travel is more accessible, given the fact of the globalization of healthcare (Beland, 2018). This work is devoted to the prospects for the development of medical tourism in Central Kazakhstan. Since enterprises in the coal industry, ferrous metallurgy, heavy industry, and mining

production are concentrated here, the working population in the industrial center needs to receive specialized treatment and a complex of medical and wellness services. Public health is aimed at developing this area competitively to attract foreign tourists and patients from other countries for medical tourism in Central Kazakhstan.

MATERIALS AND METHODS

The work was carried out on the basis of materials of medical statistics of the Republic of Kazakhstan on demography and morbidity of the adult population, the Institute of Public Health and Occupational Health of the NAO "Medical University of Karaganda" of the Ministry of Health of the Republic of Kazakhstan for the period from 2011 to 2020. The study of the relationships between variables was carried out by determining the correlation dependence, the statistical method of two-dimensional descriptive statistics, a quantitative measure of the relationship, the joint variability of variables used, the Kendall rank correlation coefficient ($\mathbf{r_{xy}}$), paired statistical relationships of correlation analysis were studied. The reliability of differences among unrelated samples was assessed by the t-criterion (Student). The results were processed using the Statistica 5.5 application software package. The dependence of the pollution level on the studied period was examined using the Tay-b correlation coefficient. Statistically significant values were assumed to be $p<0.05$.

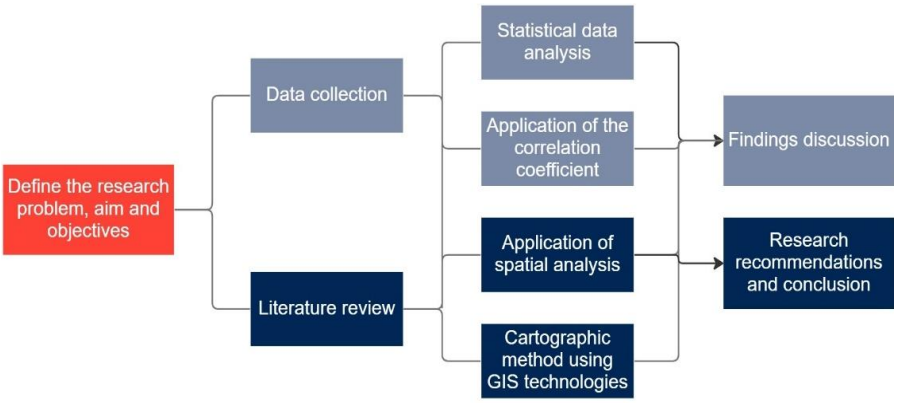

Figure 2. Research Methodology (Source: compiled by the authors)

This study was conducted using spatial analysis, cartographic methods, statistical data processing, official documents, and literary sources. The research methodology is presented in Figure 2. Spatial analysis was performed using the geographic information system ArcGIS. This platform for building and using Geographic Information Systems allows you to collect, manage, analyze, and distribute geographical information. We used a set of software products and tools to create maps and geographic information in real time, and updates can be made and edited by multiple users at once. The purpose of spatial analysis is to obtain new information from the obtained research data to make better decisions.

Assigning symbols to the source data and viewing them on the map is a form of analysis, maps initially include the interpretation of patterns and the relationships they display, spatial analysis takes a step forward by applying geographical, statistical, and mathematical operations to the data mapped. The ArcGIS system contains hundreds of analytical operations that can be used to solve a wide range of tasks, from finding objects that meet certain criteria to modeling natural processes or using spatial statistics to determine the information that a set of points can provide about the distribution of a phenomenon, for example, air quality or population characteristics (Wang, 2019). With the help of these research methods, data were collected on the presence and location of the largest industrial enterprises of the Republic of Kazakhstan, thus the zone most at risk of occupational morbidity of industrial workers was identified.

STUDY OBJECT

There are various sources of environmental pollution in the Republic of Kazakhstan, spatial analysis of the location of industrial regions with geoecological influence has shown that the territory of Central Kazakhstan is most polluted by emissions from ferrous, non-ferrous metallurgy, and coal mining enterprises (Alimbaev et al., 2020). There is a danger of heavy metals contamination of the soil near ore mining at the Temirtau Metallurgical Combine and the Balkhash Mining and Metallurgical Combine, the enterprises of JSC ArcelorMittal, Kazakhmys Corporation LLP, coal mines Abayskaya, Saranskaya, Shakhtinskaya, Kirovskaya, Tentekskaya, mine named after “Kuzembayev", mine named after “Lenin", "Western" and JSC "Shubarkol Komir" (Figure 3). This all applies to Central Kazakhstan.

Sources of increased risk of mercury pollution are represented in Temirtau, the former Karbid plant, and the Pavlodar Petrochemical Plant. Currently, measures are being taken to clean up the Nura River, in Pavlodar, it was noted that mercury is located between two clay layers, as a result of which the cleaning of the territory is impractical.

The consequences of the development of oil and gas fields in the Caspian region, covering the West Kazakhstan, Atyrau, and Aktobe regions are associated with contamination of soil, reservoirs, and ultimately, drinking water with oil hydrocarbons. In addition, emissions of chromium-containing dust are recorded during the extraction of ores and processing of chromates at enterprises located in Aktobe. These are industrial enterprises of Tengizchevroil LLP, JSC KazMunayGas, JSC Ferroalloy, Aktobe Chrome Compounds Plant, Atyrau Oil Refinery, and Don Mining and Processing Plant.

Harmful effects are caused by emissions of lead-zinc and titanium-magnesium combines in the East Kazakhstan region, JSC “Ulbinsky Metallurgical Plant”, LLP “Kazzinc”, industrial waste of phosphorus and lead enterprises of the South Kazakhstan region, JSC “KazAtomProm” of the Suzak uranium mining enterprises. In Ekibastuz city, the largest amount of coal is burned at a thermal power plant to generate electricity, releasing heavy metals into the atmospheric air.

Study design: We conducted a retrospective cohort study to study the prevalence of occupational morbidity, its causes, and recovery. To identify statistical differences and determine the degree of interrelationships between the relative movements of the two variables in groups, the correlation coefficient (r) was calculated, and the reliability of differences

among unrelated samples was evaluated by the t-criterion (Student). The results were processed using the Statistica 5.5 application software package. The dependence of the pollution level on the studied period was studied using the Kendall Tay-b correlation coefficient ($\mathbf{r_{xy}}$), the values of $p<0.05$ were statistically significant.

In these living conditions, the influence of environmental factors, namely, man-made impacts, largely determines the quality of health of the country's population. It is necessary to develop a new direction of medical tourism in the field of occupational pathology with the development of a new route of health tourism for people with occupational pathology.

Figure 3. The largest industrial enterprises of the Republic of Kazakhstan, 2022
(Source: Prepared by the authors, based on the materials of the Bureau of National Statistics of the Republic of Kazakhstan)

RESULTS AND DISCUSSIONS

The main role in shaping the development of medical tourism is assigned to the city of Nur-Sultan. Modern clinics have been deployed in the capital of Kazakhstan that meet international standards when assessing the current state in the field of domestic medical tourism, the most popular types of medical services, as well as healthcare organizations for foreign citizens coming to the country for treatment, are the following (Table 1).

Table 1. Medical specialization of medical tourism in Kazakhstan
(Data source: Compiled by the authors, based on the materials of medical statistics of the Republic of Kazakhstan)

Name of the organization	Types of demanded medical services
JSC "National Center of Neurosurgery" Corporate Foundation of "University Medical Center", Nur-Sultan city	Neurosurgery
JSC "National Scientific Cardiac Surgery Center", Corporate Foundation of "University Medical Center", Nur-Sultan city	Cardiac surgery
RSE "Republican Center for coordination of transplantation and high-tech medical services", Nur-Sultan city	Transplantology
JSC "National Scientific Center of Motherhood and Childhood", Corporate Foundation of "University Medical Center", Nur-Sultan city	Reproduction (IVF)
RSE "National Scientific Center of Traumatology and Orthopedics named after Batpenov N.D."	Orthopedics and traumatology

It follows from the table that high-tech medicine is attractive for medical tourism in the following areas: open heart surgery, with the help of which Kazakhstan became one of the 22 countries in the world that have the ability to perfor m such types of operations. On October 19, 2017, in Nur-Sultan city, JSC "National Scientific Cardiac Surgery Center" for the first time in the country performed an operation to implant a completely artificial heart. A patient suffering from severe end-stage heart failure was implanted with an artificial CARMAT heart (a French development in which the European aerospace and defense concern Airbus SE participated). It was a bioprosthesis weighing a kilogram, which can replace a human heart. Another promising area that can be confidently noted is in vitro fertilization (IVF), which has

been successfully mastered by domestic medical organizations in recent years. There is a tendency of increasing demand for this medical service in the world. According to the data of Kazakhstani clinics engaged in reproductology, the need for IVF is growing every year, and the demand exists not only among the local population. Thus, on average, more than 800 people from Kyrgyzstan, 134 from Uzbekistan, 72 from Russia, 41 from countries such as the USA, Canada, China, Turkey, etc. apply to medical organizations annually. If the cost of this service in Kazakhstan is about $2,000-2,500, then in Europe it is about $15,000, and in US clinics it is $19,000-20,000 (Lokshin et al., 2022).

Nevertheless, we are currently considering an additional direction – the need to develop medical tourism in Central Kazakhstan, as the most industrially developed region, only in Karaganda city are concentrated scientific potential, university clinic, a network of wellness centers, and the only scientific and medical center in the direction of the occupational pathology service, which should become a center of medical tourism for workers with a professional diagnosis. Another important direction for the future is the potential of health and wellness services for people with occupational diseases. This is a completely new route of medical tourism.

Occupational diseases have been with us since time immemorial, and they have evolved along with occupational medicine. As the nature of work changed, new diseases emerged, and it took decades for people to associate them with the work they did. These diseases have been termed “occupational diseases” (Lumnitzer et al., 2013).

It should be noted that the main part of occupational diseases is masked in the structure of general morbidity, therefore, workers with health disorders that have arisen in the course of work do not receive proper medical care and appropriate social compensation for loss of health. As a result, there is a weighting of the initially detected pathology, a polysystemic lesion of the body, which requires a long stay on the sick list, and in addition, disability is growing. On average, in the republic in recent years, during primary medical examinations, only 40% to 50% of occupational diseases from all identified cases are detected. Diagnosis of other occupational diseases occurs when patients contact medical organizations. Medical and social rehabilitation of patients with occupational diseases is carried out partially, although these measures contain reserves for preserving the further working capacity of sick patients.

The assessment of occupational morbidity indicators of the population of the Republic of Kazakhstan for the 10-year observed period from 2011 to 2020, the level of occupational morbidity was: in 2011 - 3,439, in 2012 – 3,435, in 2013 – 3,460, in 2014 – 3,430, in 2015 – 3,254, in 2016 – 3,291, in 2017 - 3,671, in 2018 - 3,659, in 2019 - 2,871, in 2020 - 2,156 (Table 2). These figures are much higher among the population living in Central Kazakhstan, namely in the Karaganda region (44.9%): in 2011 – 1,596, in 2012 – 1,512, in 2013 – 1,611, in 2014 – 1,712, in 2015 – 1,600, in 2016 – 1,678, in 2017 – 1,843, in 2018 - 1,896, in 2019 - 1,518, in 2020 - 1,427. Accordingly, the Central Kazakhstan region is the leader in this indicator and this justifies the choice of the organization of medical and health tourism for people with occupational diseases in this area on the basis of the Occupational Health Clinic.

Table 2. Occupational morbidity, 2011-2020
(Data source: Compiled by the authors, based on the materials of medical statistics of the Republic of Kazakhstan)

Regions of the Republic of Kazakhstan	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	r_{xy}	p
Nur-Sultan	10	10	12	11	10	9	17	19	15	10	-0.409	0.241
Almaty	2	1	2	-	1	2	5	2	1	2	0.176	0.650
Almaty region	2	1	-	2	-	-	-	1	1	3	-0.112	0.832
Akmola region	21	41	22	39	38	28	31	26	21	19	0.674	0.007
Aktobe region	129	139	165	143	160	158	189	163	168		0.611	0.022
Atyrau	13	11	11	9	10	10	4	7	4	-	-0.493	0.072
East Kazakhstan region	1211	1316	1289	1202	1164	1116	1163	1061	772	619	0.200	0.421
Zhambyl region	215	198	188	177	165	172	238	244	215	60	-0.090	0.719
West Kazakhstan region	35	25	6	19	3	11	9	10	10		0.310	0.249
Karaganda region	1596	1512	1611	1712	1600	1678	1843	1896	1518	1427	-0.289	0.245
Kostanay region	10	5	10	6	-	4	1	2	1	-	-0.148	0.615
Kyzylorda region	1	1	1	-	10	1	-	5	1	2	-0.318	0.312
Mangystau region	8	4	4	2	2	4	-	2	2	1	0.000	1.000
Pavlodar region	10	10	8	12	8	9	7	10	9	6	-0.094	0.714
North Kazakhstan region	3	4	4	4	3	2	3	3	-	1	-0.417	0.145
South Kazakhstan region (Shymkent city from 2018)	176	151	127	92	80	87	161	36	62	1	0.111	0.655
Turkestan region								13	71	5		
Total	3439	3435	3460	3430	3254	3291	3671	3659	2871	2156	0.067	0.788

The results obtained allow us to establish that a statistically significant positive correlation was found between the number of patients and the level of emissions in the Akmola and Aktobe regions (Kendall's Tay-b ($\mathbf{r_{xy}}$), $p<0.05$ values were statistically significant). The above data allow us to conclude the causal relationship between anthropogenic pollution and occupational morbidity of the population of Central Kazakhstan. One of the explanations may be the influence of unfavorable factors of technogenic and, first of all, chemical factors of the environment, since large production complexes of the coal, mining, and metallurgical industries are located on the territory of Central Kazakhstan. In recent years, an intensive process of technical improvement and intensification of production processes has been carried out, which radically changes not only the working conditions of workers but also leads to the formation of an unfavorable environmental situation. Occupational pathology deals with the prevention of the development of

occupational and production-related diseases, diagnosis, treatment, and rehabilitation, as well as the prediction of the risk of damage to health under the influence of harmful production factors.

The provision of specialized highly qualified occupational pathology medical care is carried out the only in its profile scientific and medical republican center under the Ministry of Health - **the Clinic of Occupational Health**, now part of the Institute of Public Health and Occupational Health of the NAO "Medical University of Karaganda" in Karaganda city (Central Kazakhstan). Earlier – a separate RSE "National Center for Occupational Hygiene and Occupational Diseases" of the Ministry of Health, has its own history of creation in 1958 in the city of Karaganda as part of the Central Kazakhstan Branch of the National Academy of Sciences of the Republic of Kazakhstan with branches in the cities of Ust-Kamenogorsk (Occupational Pathology Center), Shymkent, Aktobe to address issues of preserving the health of the working population in harmful and dangerous working conditions and conducting fundamental and applied scientific research on the management of workers' health from the perspective of assessing occupational risks in production. The choice of location and opening of the scientific and medical center in Karaganda is due to the fact that Central Kazakhstan is an economic and geographical region of the country, which is a large industrial region in which coal, mining, chemical industries, ferrous and non-ferrous metallurgy, the largest mineral resource base of the country are deployed. In this regard, in this region, there is the largest number of workers in industrial enterprises and a high concentration of patients with production-related pathology. Currently, the Occupational Health Clinic coordinates the Occupational Pathology Service of the Republic, a 105-bed hospital that has been deployed to provide specialized highly qualified and rehabilitative care to patients suffering from occupational diseases using modern and innovative technologies.

The structure of the occupational health clinic is represented by departments: **occupational therapy** for the rehabilitation of dust lung diseases, pneumoconiosis, dust bronchitis, occupational allergies, bronchial asthma, deforming osteoarthritis, occupational dermatoses, occupational poisoning, chronic intoxication when working with lead, mercury, beryllium, manganese, fluorine, nitrates, chromium and others; **occupational neurology** for rehabilitation occupational radiculopathy, vibration disease, encephalopathy, and others; consulting and diagnostic department of the day hospital.

Modern methods of endoscopic, ultrasound diagnostics, X-ray diagnostics, assessment of the function of external respiration, electrocardiography, audiometry, electromyography, assessment of allergological status, setting of allergological samples, genetic analysis, determination of heavy metal salts in biological media, neurophysiology, psychocorrection, physiotherapeutic methods of treatment, electrophoresis, magnetotherapy, ultrasound, diadynamic currents, paraffin treatment, UHF-therapy, inhalations, breathing exercises, massage, physical therapy.

The Clinic employs highly qualified specialists with qualification categories in occupational pathology, categorization of up to 85-90% of medical personnel, researchers with academic degrees of up to seven candidates of medical sciences and five doctors of medical sciences. Therefore, rehabilitation measures should be included in the program of medical and health tourism of occupational pathology patients. Domestic medical tourism is a complex of services provided by specialized health centers, such as the Bereznyaki sanatorium, the Zhosaly sanatorium, the Balkhash dispensary, the Balkhash sanatorium, the Karkaraly dispensary, sanatorium "Sayaly", sanatorium "Zhartas", somatic sanatorium "Karlygash", all these organizations are located in Central Kazakhstan. Below is a brief description of them.

The Bereznyaki sanatorium is located 150 kilometers from Karaganda, near the village of Kyzylkayyn, surrounded by picturesque nature, an abundance of coniferous and deciduous trees and shrubs, a birch grove, the Nura River flows nearby, there is a sports complex with a swimming pool, a medical center includes a physiotherapy complex, a magnetoturbotron, hydrocolonotherapy, shock wave therapy, dry carbon dioxide bath, mud treatment, massage, halotherapy, treatment with red deer antlers and hydrotherapy.

The sanatorium "Zhosaly" is located 130 kilometers from Karaganda in a picturesque place in the Karkaraly Nature Reserve. A special feature is a use for medicinal purposes of mineral water from the Aulie Bulak spring (Holy Key), as well as therapeutic silt mud of Lake Karasor. The Central Institute of Balneology and Physiotherapy conducted a balneological examination of the Zhosali mineral waters and concluded that it could be used to treat a wide range of diseases of the circulatory system, digestion, musculoskeletal system, chronic intoxication, including occupational poisoning with heavy metals and phosphorus, gynecological diseases and others.

The Balkhash health and wellness complex is located on the shore of Lake Balkhash, 4 kilometers from Priozersk, Karaganda region, equipped with the necessary equipment for recreation and medical rehabilitation. The sports equipment of the complex allows you to maintain and strengthen your health and physical strength, including a multifunctional sports hall, swimming pools, saunas, gym and fitness rooms, halls of physical therapy and table tennis, contains equipment for skating and skiing, snowmobiles, bicycles, lawn tennis equipment, balls for outdoor games and others. The following procedures are carried out in the medical and rehabilitation department: hydrotherapy (therapeutic showers, carbon dioxide, iodine-bromine, coniferous baths, underwater shower massage, hot tub "Karakala", underwater spinal traction), floating capsule, salt mine, inhalations, cedar barrel steam sauna, thermal therapy (mud applications of Tambukan mud, paraffin applications), physiotherapy (laser therapy, magnetotherapy, electrotherapy, light therapy, ultrasound), heliotherapy, automated mechanical bowel cleansing (intestinal irrigation), classical massage, anti-cellulite, stone therapy. Diagnostic tests: laboratory, ultrasound diagnostics, echocardiography, electrocardiography, daily monitoring of blood pressure, and reception of specialists: therapist, physiotherapist, neurologist, dermatologist, urologist, gynecologist, pediatrician, and psychologist.

"Balkhash Dispensary" is a multidisciplinary medical and preventive institution on the shore of Lake Balkhash. The medical base of the dispensary is equipped with modern medical equipment and its own mud, the source is the local Kossor lake, located between Tasaral and Saryshagan. The health resort accepts patients with pathology of the cardiovascular, respiratory, musculoskeletal system, diseases of the central and peripheral systems for rehabilitation.

The Karkaraly dispensary is located in Karkaralinsk, 200 kilometers from Karaganda, recovery is characterized by koumiss treatment (Kazakh national dairy product), and a wide range of diseases is cured: gastric ulcer and duodenal ulcer, chronic gastritis, cholecystitis, enterocolitis, functional disorders of the gallbladder and colon, chronic nonspecific lung diseases, atherosclerosis, hypertension, central nervous system disease and organs of hematopoiesis, bronchitis, tuberculosis, diabetes mellitus, urolithiasis, infectious, acute respiratory diseases.

Sanatorium "Sayaly" is a health and wellness complex 27 km from Karaganda on the banks of the Nura River. Rehabilitation in the sanatorium is carried out for respiratory diseases, occupational diseases, cardiac rehabilitation, after stroke, injuries, and operations. There is its own source of mineral water, the medical corps applies more than thirty procedures for recovery.

Sanatorium "Zhartas" is a general health resort, located on the territory of the Zhartas reservoir, 61 km from Karaganda. The laboratory and diagnostic department are equipped with X-ray equipment, electrocardiography, and a clinical diagnostic laboratory. The following methods are used: phytotherapy, inhalation, oxygen cocktail, acupuncture, massage, salt, iodine-bromine, sage, pearl baths, and mud of Lake Karasor are used.

Somatic sanatorium "Karlygash" is a children's sanatorium located in Zhezkazgan for the rehabilitation of children with somatic diseases aged from 3 to 14 years. Physiotherapy, ultraviolet irradiation, ultra-high frequency therapy, inhalations, physical therapy, massage, salt mine, oxygen cocktail, and darsonvalization are used. There are playgrounds equipped with sports equipment on the territory.

General problematic issues of medical tourism development in the Republic of Kazakhstan (including in Central Kazakhstan):

- lack of reliable statistical data and statistical records on incoming, internal, and outgoing medical tourists;
- lack of a medical visa;
- incomplete readiness of medical organizations to provide services to medical tourists (low level of corporate governance and service, lack of flexible pricing, the presence of a language barrier among medical personnel, and others);
- the weak infrastructure of medical organizations of regional significance;
- insufficient interaction of medical organizations with tourist operators;
- lack of medical tourism products;
- weak marketing and lack of recognizable brands of medical organizations;
- the negative image of domestic healthcare in society.

Main directions and solutions (including in Central Kazakhstan):

- formation of an interdepartmental Coordinating Council for medical tourism with the functions of coordinating and monitoring the activities of participants in the implementation of medical tourism;
- development at the state level of a regulatory National guide that clearly regulates the activities of all participants in the implementation of medical tourism (medical organizations, tourist operators, insurance companies, transport and logistics companies, providers of additional services, and others);
- formation of a mechanism for registration and issuance of a medical visa for foreign patients arriving in Kazakhstan for treatment;
- improvement of the existing system of statistical registration of medical tourists;
- organization and implementation of international accreditation for medical institutions Joint Commission International (JCI);
- introduction of medical insurance for foreign patients and improvement of existing insurance for Kazakhstanis;
- development of a marketing strategy for the development of medical tourism, conducting an extensive information campaign to familiarize citizens with the possibilities of domestic medicine and the formation of its positive and attractive image (accessibility, comfort, safety and quality of medical and tourist services);
- development of medical tourism products for both the local population and foreign patients, including the provision of medical services in combination with historical, educational, and cultural events;
- to increase the investment attractiveness of medical tourism, to provide certain benefits and preferences to domestic and foreign investors, to provide affordable loans for small and medium-sized businesses in terms of the development of medical tourism;
- improving the competence and qualifications of medical workers, increasing the number of international education grants for master's degrees and Ph.D. in tourism, introducing new educational programs at medical universities in the field of medical tourism, and attracting business representatives, including managers of hotels, sanatoriums, tour operators, clinic managers, graduates of the Bolashak program to teach some disciplines in tourism, increasing the number of foreign internships, advanced training for current doctors; improving the level of English language proficiency of the staff of leading medical organizations.

CONCLUSION

In general, today Kazakhstan can compete in terms of medical tourism, primarily due to highly qualified specialists whose wages are significantly lower than foreign colleagues, advanced medical technologies, favorable geographical location, and relatively low prices for in-demand medical services, and it is also important to note the presence of international accreditation in medical organizations. All these advantages will greatly help to promote medical tourism in Kazakhstan to the world market. The creation of a competitive field of medical tourism will contribute to the country's economy through tax revenues to the state budget, the inflow of investment, the emergence of new jobs, and also contributes to improving the quality of medical services and improving the health of the population. State support is a key factor in the sustainable development of medical tourism.

The study found that the city of Karaganda (Central Kazakhstan) has an absolute advantage and sufficient potential for health and wellness services for people with occupational diseases. A new route of medical tourism for occupational pathology patients is proposed, that is, foreign patients can be sent to a specialized institution located in Central Kazakhstan, with the most experienced doctors, scientific personnel, and standards, the only one in Kazakhstan in this profile is the Republican Scientific and Medical center under the Ministry of Health - the Clinic of Professional Health, such guidelines are necessary to ensure that the health and safety of patients are a priority; to establish and maintain high-quality standards of medical services provided; to recognize the country in regional and global markets and to create the possibility of selling medical tourism products in border countries due to the demand for domestic medical services.

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INDIGENOUS TOURISM: THE CHALLENGES AND OPPORTUNITIES ON LOCAL RESIDENTS, PHA MI VILLAGE, CHIANG RAI, THAILAND

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Abstract: Besides the leisure purposes, tourism is one of the key elements supporting a better quality of people life. However, striving for success in tourism development and management is challenging. This study aims to assess the success factors of Pha Mi indigenous tourism (PMIT) development for sustainability in the light of the sustainable development challenges faced, as well as opportunities available to local residents. A mixed method approach was applied, which employed in-depth interviews, focus groups and participatory rural appraisal for the qualitative. In The quantitative, confirmatory factor analysis was conducted using structural equation modelling (SEM). To highlight the challenges, cultivating the sense of indigenous pride and preservation, as well as providing knowledge on health safety, security, ecological systems and local product development are crucial. On the other hand, cooperation with tourism stakeholders, the marketing issues related to the promotion of tourism and transportation are opportunities. However, negative aspects were also revealed in terms of the local residents' behaviour changes in daily life consumption i.e. food and dressing. Of great significance is that the tourism stakeholders' cooperation has a great impact on PMIT sustainable development. That is the engagement of stakeholders in providing innovative knowledge, in assisting local residents to design and develop products and services, as well as in dealing with PMIT funding and promotional issues.

Key words: indigenous tourism, development, Pha Mi village, success factor, social impact assessment, challenges, sustainability

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INTRODUCTION

Pha Mi village is located in Mae Sai district, Chiang Rai province, which is the northern-most province in Thailand and is characterised by its mountainous landscape borderline with Myanmar. The route to the village itself was therefore unsafe and inconvenient for traveling back and forth from surrounding areas. Historically, Pha Mi villagers, who belonged to a tribe called the Akha, migrated from Xishuangbanna, an autonomous prefecture in China's south-western Yunnan province. Once located in Pha Mi, they planted opiates for medical treatment purposes, which later was transformed to heroin and other drugs (Thaipost, 2018). Therefore, during his reign, King Rama 9 implemented a project replacing the planting of opiates with the cultivation of other types of plant, such as coffee. Today, Chiang Rai is known as the biggest producer of high-quality Arabica coffee in Thailand (Sitikarn et al., 2022). At this point some years ago, Pha Mi village was still not popular as a tourist site among tourists. Henceforth, since 2014 our team has conducted an inductive study to promulgate and flourish the tourism of Pha Mi village, by addressing the tribal culture and norms that can be capitalised upon in attracting tourists. The identities of the tribe were blended into the available products and services, along with the promotion of the uniqueness of the mountainous scenery portrayed within indigenous tourism initiatives. It is evident that our project on Pha Mi indigenous tourism has been successful. Since these developments, the economic and living standard of the Pha Mi community has also been elevated. In addition, by 2018 there were 500 tourists, on average, visiting Pha Mi village per day, augmented to 1,000 tourists a day on the weekend (Prachachat, 2018).

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Obstacles do occur in all development projects, for example, Gohori and van der Merwe (2021) underlined the lack of community engagement in decision-making, and constraints on finances and time, as barriers to operational, cultural and structural progress in tourism development. Makhaye et al. (2021) placed emphasis on closing the gap through facilitation from stakeholders, resource planning and infrastructure provisioning by governors, which allows stakeholders' engagement for local sustainable development. However, Huang and Nguyen (2022) pointed out three cultural issues that must be properly considered for the development of indigenous tourism and cultural preservation, namely: material culture (souvenirs, handicraft, heritage, traditional clothes and accessories etc.); institutional culture (food, residents, rituals and festivals etc.); and spiritual culture (song, dance, music and beliefs etc.). While the indigenous culture may be the primary attraction, its promotion may be inconsistent over time. Therefore, the three cultural aspects have to be well-managed to ensure indigenous tourism development. On the other hand, Harbor and Hunt (2022) illuminated that indigenous tourism development should make the local residents feel that there are fair and beneficial outcomes, that is, the enhancement of common well-being and justice. Remarkably, the development of indigenous tourism was examined in terms of barriers, indigenous culture and participation, costs and benefit justice. Hence, this study aims to reflect the key success factors of Pha Mi indigenous tourism development based on national criteria and the social impact assessment (SIA), specifically from the micro and community level that would be beneficial as a sample for further study.

Background

From a conceptual understanding, community-based tourism (CBT) is a means to create and strengthen the development of remote and low-income villages, as well as to manage cultural and natural resources through the participation of local residents. Tourism has also been used as a mechanism to promote socio-economic development for communities (Halim et al., 2022), that is, the betterment of people's lives in virtues of education, income, skill development and job opportunities (Gaurav et al., 2021). Relatively, CBT stimulates the local people's awareness to preserve their culture and environment in a sustainable manner if the tourism performance excels on its goals and objectives. The role of community involvement in planning and development is, however, vital for the sustainable success of CBT (Blackstock, 2005). Therefore, CBT entails the involvement of the local community in tourism planning and development, which contributes to community well-being, as well as environmental and cultural preservation for sustainability (Sitikarn et al., 2022). To bear upon the CBT concept, then, the indigenous tourism in this study is, in the same way, referring to tourism that emphasises the local ways of life in terms of culture, nourishment, norms and environment, thus providing the exotic experiences for tourists. It is used as a source of community revenue by allowing visitors to savour local culture and to partake in the environment (Carey, 2022).

Hence, in this paper the authors preferably used 'local tourism' instead of 'community-based tourism' when referring to the CBT. Apparently, tourism is one of the significant economic sectors flourishing in 21st century that could also contribute to improving indigenous people's standard of living and thus their quality of life. This, however, is only possible in circumstances where indigenous tourism is managed sustainably and responsibly (World Tourism Organization-UNWTO, 2019). Liao et al. (2019) determined that indigenous tourism is a genre of tourism activities relating to the presence of indigenous culture which serves as an attraction. Further, the United Nations World Tourism Organization -UNWTO (2019) maintains that indigenous peoples are distinguished by their uniqueness and diversity in cultural expression of humans that developed more than a thousand years ago. Therefore, the cultural exposition is counted as a pull factor to tourists who desire to experience indigenous originality, and the associated cultural and natural heritage, physically, emotionally and intellectually. Culture is composed of beliefs, knowledge, art, morals, customs and other capabilities and habits of members within a particular society (Longhurst et al., 2008).

However, envisioning the definition of development and sustainability precisely would allow greater tourism management success. According to Litwinski (2017), development is a process of change or transformation to better states. Simultaneously, sustainability refers to managing a resource responsibly so that it does not decline over a period of time. Lucchetti and Arcese (2014) proposed administering the industrial ecology concept to the tourism industry to ensure sustainability. The notion is that the economic and environmental interaction requires systematic analysis considering that the tourism industry has various aspects of activities concerned which increasingly led to the degradation of certain environments. While tourism generates attractive revenue, sustainable tourism ensures that alongside economic growth there is also social equality, and the preservation of culture and the environment (Schott and Nhem, 2018).

Hence, the profound management of tourism structural planning and the understanding of different context areas and activities, including the involvement of stakeholders, are essential contributors to the development of sustainable tourism (Makhaola et al., 2017). However, inappropriate participation by local residents in decision-making can derail tourism development, which is considered as a significant weakness that may lead to conflicts of interest, and the problems of tourism resources utilization. In whatever way it occurs, developing tourism is not difficult; instead, ensuring the sustainability of this development is crucial (Hamzah and Khalifah, 2009) and challenging. While there are a multitude of studies on local tourism and its myriad associated aspects, studies on indigenous tourism are rather few in number, even though its existence was founded a decade ago (Carey, 2022).

In addition, numerous manuals for creating local tourism are available, for instance Asker et al. (2010) developed a manual containing best practice guidelines and recommendations for performing effective local tourism. Exemplarily, the success factors of local tourism in various places and contexts either share the same or different key factors. While in some cases the development of sustainable local tourism might not be as successful as expected, this is because it involves various stakeholders (Schott and Nhem, 2018) such as local residents, public and private sectors, visitors and NGOs.

In Thailand, the barriers affecting the success of local tourism were the lack of local residents' engagement, as well as the ignorance in tourism by other stakeholders and the community (Sitikarn, 2021). In addition, inadequate marketing communication of local tourism was one of the barriers preventing success. From this statement, it can be inferred that the achievement of sustainable local tourism development may be unpredictable and rather complex. More importantly, ensuring the sustainability of local tourism growth is critical yet challenging. Likewise, Okazaki (2008) highlighted that local tourism was frequently implemented only partially, which resulted in its unsustainability, since local tourism is dependent on the support and contribution of local residents, as well as ensuring that the benefits shall be achieved and will be of benefit to local people, natural resources and culture. Further, just as other forms of tourism could impact local people socio-economically, in both negative and positive ways, so too can indigenous tourism. Therefore, gaining an insight into the positive attitudes of local people would result in the sustainability of tourism development (Nugroho and Numata, 2021).

With regard to other related facets, there has also been investigation of the marketing collaborative issue (Ngo et al., 2018) on sustainable development of local tourism enterprises' success. It is important that all stakeholders engage in marketing activities that are in alignment with objectives and community development. Whereas, Schott and Nhem (2018) highlighted that market distribution channels via intermediaries have immense impact on distribution structure and sustainable local tourism. From another view, Iorio and Corsale (2014) examined the active networking between local leader and external stakeholders' outturn to sustainable development. They found that active networking enhances a chance for knowledge transitioning and sharing, which is vital for innovation development and competitiveness.

At the same time, there was also assurance of decision-making participation and, therefore, empowerment, (Chatkaewnapanon and Lee, 2022) both of which are essential for the growth of economic activities. On the other hand, Kurniawan et al. (2022) applied stakeholder theory, institutional sustainability tourism impact, and social exchange theory to assess local residents' perceptions toward sustainable local tourism development. In their research, it was found that the collaboration of stakeholders in performing tasks, and the power, authority and rules adhered to in the local tourism development had a definite influence on local residents' perceptions of tourism planning. It is worth emphasizing that political issues, such as government and changing regulations, has an effect on the planning processes and stability in tourism management. For instance, a study by Dung et al. (2022) found that the government and its hierarchy system impact on community empowerment in local community tourism development.

Indigenous tourism development has also been explored through assessing the satisfaction of indigenous people with economic benefits, sociocultural preservation, environmental protection, and the prevention of environmental devastation. Manifestly, based on these four stated factors, Liao et al. (2019) found that sociocultural preservation and environmental protection have the highest influence on indigenous residents. Adding to these, the economic benefits could enhance the residents' willingness in engaging in the protection of the natural environment and traditional culture. Thence, the officials should engage with local residents, listen to and seriously consider their views, and then action properly. In addition, indigenous tourism development should be direct, and involve engagement with and control by indigenous people with regard to representing the attractiveness of their culture (Cassel and Maureira; 2015, Butler, 2021). The positive aspect of indigenous tourism is the cognizance and reviving of indigenous culture and the sense of preserving indigenous people's beliefs and norms. However, according to Johansen and Mehmetoglu (2011) caution must be exercised as indigenous tourism could lead to the adaptation of indigenous culture and norms to the values of visitors, if there is mishandling. In Johansen and Mehmetoglu's (2011) study, Smith's model of 4Hs, which consists of habitat, heritage, handicraft and history, was used to assess an indigenous show, namely the Sámi festival in Northern Norway. The 'habitat' is the most significant component since it connects indigenous people and places where the natural resources are the core of their culture. It is followed by 'history' which the indigenous people take great pride in. Hence, the harmonious management of the indigenous community's residential and historical interests alongside the tourism interest must be considered as a priority for the positive mind-set of indigenous people toward tourism.

Bellow et al (2019) extended the value through the process in community which would beneficial to the tourists, indigenous sustainable performance and well-being. On the other hand, Chang and Huang (2014) explored the aspects related to sustainable indigenous tourism development in Taiwan including: the indigenous culture; the exploitation of ancient environment; and providing the facilities to accommodate tourists, all of which hindered or promoted the friendly attitude of local residents. Still, the indigenous people lack of management capability for competitive as Chang et al (2021) found in the hot spring development in Taiwan. At any rate, the negative impact toward indigenous people regarding tourism development should always be borne in mind.

In Thailand, specifically, the National Tourism Policy Committee was established which published criteria for local tourism development guidelines that are in accordance with the global sustainable tourism criteria for destinations (GSTC-D). The local based tourism development criteria consist of the elements which must ensure: that the local tourism group is sustainably managed; that the tourism is distributing benefits to the local area; that there is awareness of society and quality of life; that tourism activities which conserve and promote cultural heritages are favoured; and that there is systematic and sustainable management of natural resources, and services and safety. In addition to this, Kyriakaki and Kleinaki (2022) maintain that the tourists' expectations and experiences must be considered during planning processes. Another institution which influences local based tourism development in Thailand is the Public Organization known as Designated Areas for Sustainable Tourism Administration (DASTA), which has specified vision and mission for tourism development. The authors have compiled into five criteria namely: management and participation of community; economic, social and quality of life of community; preserving and enhancing arts and culture of community; environmentally sustainable handling of natural resources; and safety and services (DASTA,

2021). Concisely, sustainable local tourism development is concerned with community development in terms of improving the local economy, quality of life and education, and preserving and promoting the environment and natural resources. Supplementarily, the SIA from tourism development was evaluated and applied in this study.

The SIA is the study of social changes or changes in values that may have occurred as a result of projects that are implemented. It can also be used as a learning tool among stakeholders to monitor the effect of the project towards the community in terms of economic, social and environmental issues. The SIA, regularly, is based on the theory of change, logic model and the outcome linkage (ThaiPublica, 2017). In tourism, the SIA is viewed as a tool for enhancing local tourism popularity and is fundamental for long-term development since it deals with changes in the local community related to social and cultural diversity, local conservation, the development of community image, and public service and social amenities development (Halim et al., 2022). It is worth noting that most previous studies have identified primary factors of local tourism development in terms of either barriers or flourishment, for instance, participation in planning, economic and social value, and promoting culture and education, and have not specifically focused on indigenous tourism. In this study, consequently, we aim to shine the light on the components of the key factors related to the sustainable indigenous tourism development at Pha Mi village. On this account, the SIA on micro and community level, as well as the national criteria on tourism development will be examined.

MATERIALS AND METHODS

In this study, the inductive approach was first administered to identify key activities, which were evaluated by descriptive statistical methods. Inferential statistical analysis was then used for concreting the results through SEM. Hence, a mixed method approach was employed in this study in order to profoundly understand the data obtained in the course of the investigation. The mixed method approach refers to the combination of both inductive and deductive designs to generate the dataset (Leavy, 2017). An explanatory sequential design was applied where, in the first instance, qualitative data was collected, followed by the quantitative data gathering where hypotheses were identified and tested using quantitative techniques (Bryman, 2016). The qualitative approach was firstly conducted to identify the SIA and DASTA activities which are implemented as part of local tourism development, since qualitative research emphasizes pursuing the phenomena from people's experiences (Dung et al., 2022). In addition, the qualitative approach allows an in-depth study of the topics. It represents the views of participants within explicit real-world contexts that helps to explain social phenomena (Yin, 2016). The quantitative approach was later undertaken in the form of SEM, which was administered to foster and distinguish key components of local tourism development criteria as shown in Figure 1 below.

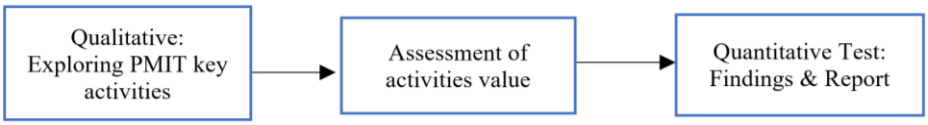

Figure 1. Processes of Study

Qualitative methods

Participatory action research was administered in the form of a field survey, in-depth interviews, focus groups and participation observation. The data was collected from 35 participants including: local resident leaders; travel agencies in Pha Mi village; local tourism stakeholders; representatives of local government and private sectors; and academicians in Mae Sai district. The key variables were adapted from DASTA community-based development criteria and SIA factors as the tools of investigation. Structured in-depth interviews were conducted to further grasp the social impact and to analyze the success factors related to tourism activities. The data collection was established into three phases.

Firstly, the secondary information that was sought was identified and the interview schedule was developed, the wording and content validity of the data collection tool was checked, and key relevant tourism stakeholders were contacted in order to obtain permission and cooperation in collecting data. Subsequently, the field survey was carried out, which was then followed by segregation of the information obtained from the survey. Content analysis and thematic analysis were both employed to interpret and contextualize the data. Thereafter, the results were assessed using descriptive statistical techniques. Specifically, descriptive analysis and gap analysis were implemented from the assessment of the participants' responses in the Likert Scale questions.

Quantitative methods

Quantitative analysis was subsequently undertaken to confirm the content analysis and thematic analysis of the results obtained from the inductive approach. Questionnaires were distributed to 385 respondents including villagers, travel agents, public officers, business owners, and members of non-governmental organisations (NGOs). The SEM was utilized to analyse the confirmatory factor analysis used to examine the relationship of development factors leading to sustainable local tourism development where the independent variables were extracted from the qualitative data. The fit indices were calculated for the structural modelling incorporated with: CMIN/degree of freedom <1.78, GFI >0.99, CFI $\geq$ 0.99, NFI $\geq$ 0.97, RFI $\geq$ 0.97, and RMSEA <0.045.

RESULTS AND DISCUSSION

In this part of the paper, we have divided the results into two separate sections, that is, the qualitative and quantitative findings. The qualitative approach was used to gather information and determine the components profile

based on DASTA and SIA criteria, hence, the descriptive statistical analysis applied to weight the importance of each criteria element. Thereafter, the inferential statistical analysis was conducted to confirm the results for discussion and contribution of Pha Mi indigenous tourism sustainable development success factors.

Qualitative investigation (Exploratory analysis)

The five criteria adapted from DASTA for sustainable indigenous tourism success (SITS) were identified namely: (1) local management and administration of tourism (LMAT); (2) economic, social and quality of life management (ESQL); (3) preservation and promotion of cultural heritage (PPCH); (4) sustainable management of natural resources and environment systematically (SMES); and (5) quality of indigenous tourism (QITR). The five variables for sustainable indigenous tourism can be explained as follows. Firstly, LMAT refers to the efficient management of tourism by local residents, such as clear explanation of the Dos and Don'ts for tourists, the efficiency of financial management, and the cooperation from all stakeholders in tourism development. Secondly, the ESQL was identified by the efficiency of income allocation, whether the quality of life was promoted effectively, whether the human rights in tourism were treated as an important issue, and whether the quality of local products was able to capture higher revenue.

Thirdly, PPCH denoted the quality of cultural heritage database, the effectiveness of preservation and restoration of local culture, and the effectiveness of cultural heritage propagation. Fourthly, SMES was indicated by the efficient management of tourism areas, the effective dissemination of wisdom on natural resources and the environment, the effectiveness of preservation and restoration of natural resources and the environment, and the awareness of the importance of preserving natural resources through tourism. Lastly, the QITR made reference to the services, safety and security provided by the community, the effective management of travel routes in the community, ensuring that itinerary and tourism activities are safe, and the efficiency of emergency management. The descriptive analysis was conducted on these five aforementioned criteria and the results are shown in Figure 2 below. It was found tha SMES had the highest mean score at 3.28, followed by PPCH, LMAT, ESQL and QITR with 3.18, 3.15, 3.13 and 3.07, respectively.

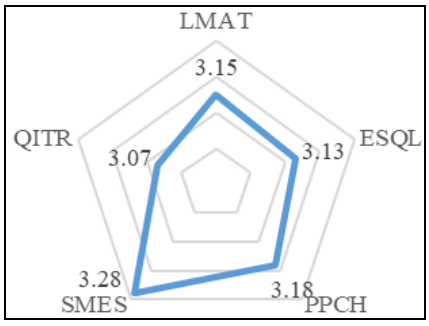

Figure 2. Mean scores of five key elements on Pha Mi sustainable indigenous tourism

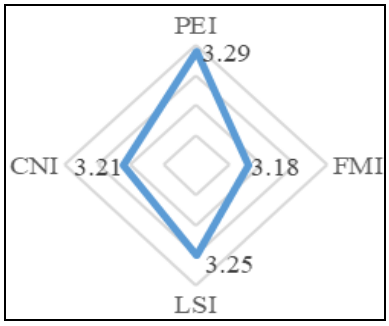

Figure 3. Mean scores of four social impact on Pha Mi indigenous tourism development

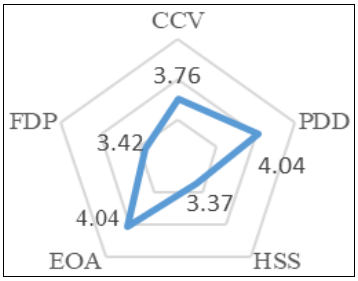

Figure 4. Mean score of five activities between local residents and tourism stakeholders' impact to Pha Mi indigenous tourism

For the SIA results, we have specified four components composed of: (1) personal impact (PEI); (2) family impact (FMI); (3) local society impact (LSI); and (4) cultural, norms and life span impact (CNI). At the essence of personal impact, it deals with the higher rate of individual revenue, physical and mental health improvement, job and residency security, and more job opportunity from tourism. These aspects resulted in family impact, which refers to the quality of family members' life, better economic standing, and less stress and worry about living issues. In addition, with regard to the reputation of the village among tourists, the local products were upgraded for commercialization, and the pride in community accounted for the tourism impact on local society and the community. This also led to continuous development of touristic sites and cooperation in the community. At the same time, the mind-set of local people toward strangers was positively enhanced. As things go, the way of local life has been changed, for example, the wearing of tribal clothes was ignored, and eating habits and types of local foods were adapted. This may mean that the local residents are losing their original identity and uniqueness. Conversely, there are also positive impacts on cultural aspects and norms in terms of preservation of local artefacts, arts and culture. As shown in Figure 3, the mean scores of the four social impacts toward Pha Mi indigenous tourism development was found to be highest on personal impact, with a mean score of 3.29, followed by local society impact, cultural, norms and life span, and family with mean scores of 3.25, 3.21 and 3.18 accordingly.

We further discovered the impact from tourism stakeholders' participation (TSP) with community cherishing the success of tourism. The impacts that were identified are: (1) the activities creating the community contents and communicating its values to the public (CCV); (2) local products design and development (PDD); (3) workshop on health safety and security (HSS); (4) English on air (EOA); and (5) local food decoration and presentation (FDP). The descriptive analysis was performed and the results are shown in Figure 4 below.

It was found that local products design and development, and English on air have great impact on Pha Mi tourism development, with equal mean scores of 4.04. The second important activity is the creation of community contents and communicating the village values to the public with a score of 3.76, followed by local food decoration and presentation, and the workshop for health safety and security for villagers with scores of 3.42 and 3.37 respectively. It is notable that the interval of mean scores of all criteria are not distinctively different. Therefore, inferential statistical analysis was carried out to concrete and complement the inductive results.

Quantitative analysis (CFA)

To be assured of the reliability of the inductive results, we distributed questionnaires to collect data from 385 respondents. The demographic information of respondents was recapitulated, as shown in Figure 5 below. The majority of respondents comprised of 210 females, which accounted for 55 percent of the sample. The highest average age group were those who were between 36 and 40 years old, with 95 persons falling in this age range. Relatively, there were 110 local residents living in Pha Mi village parameters, and in terms of education, most of the respondents (125) had attained a diploma.

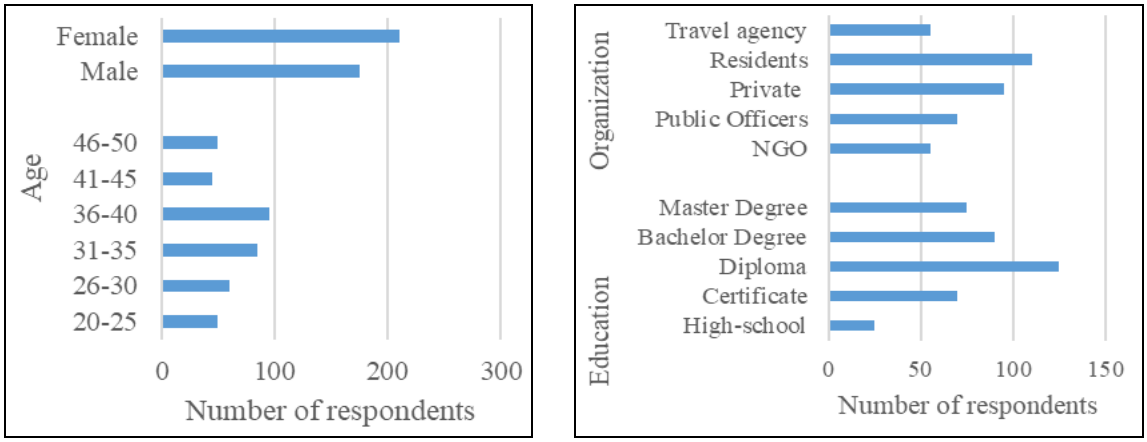

Figure 5. Respondents' demographic

The causal relationship analysis was conducted by SEM. The findings illustrated in Table 1.

Table 1. Causal relation assessment results of DASTA components *** sig. level 0.001

			Estimate	S.E.	C.R.	P	SMC
LMAT	<---	DASTA	.792	.0582	16.765	***	.627
ESQL	<---	DASTA	.753	.0557	15.498	***	.567
PPCH	<---	DASTA	.787	.0576	16.962	***	.620
SMES	<---	DASTA	.821	.0603	17.182	***	.675
QITR	<---	DASTA	.761	.0655	15.067	***	.579
SITS	<---	DASTA	.708	.0507	14.825	***	.501

Table 2. Causal relation assessment results of SIA components *** sig. level 0.001

			Estimate	S.E.	C.R.	P	SMC
PEI	<---	SIA	.821	.0582	17.765	***	.594
FMI	<---	SIA	.793	.0555	17.107	***	.618
LSI	<---	SIA	.759	.0488	16.197	***	.577
CNI	<---	SIA	.786	.0550	16.927	***	.628
SITS	<---	SIA	.770	.0490	16.496	***	.674

Table 1 reveals that the five DASTA criteria has a loading factor toward the success of SITS development in Pha Mi village of 71 percent where its explanation power to the SITS development success is equal to 50 percent. To highlight, the activity that has the highest impact in DASTA components is the sustainable management of natural resources and environment systematically with a regression loading factor of 82 percent and the explanation power of 67 percent, followed by the local management and administration of tourism with a loading factor of 79 percent and explanation power 63 percent. Thirdly, is the preservation and promotion of cultural heritage that could explain DASTA at 62 percent with its regression weight at 79 percent. At the same time, the SIA was examined and the results are shown in Table 2 below.

The most obvious findings to emerge from the SIA is the personal impact with regression weight of 82 percent and explanation power of SIA 59 percent. This is followed by family impact with explanation power of 61 percent and loading factor of 79 percent. The cultural, norms, and life span impact come in at third place with the explanation power of 63 percent and loading factor of 78 percent. The overall SIA explains SITS at 67 percent with its loading factor of 77 percent. Thereafter, we serially investigated the TSP components and their overall influence on SITS, as illustrated in Table 3.

Table 3. Causal relation assessment results of TSP components *** sig. level 0.001

			Estimate	S.E.	C.R.	P	SMC
CCV	<---	TSP	.771	.0576	15.754	***	.595
PDD	<---	TSP	.834	.0672	17.471	***	.695
HSS	<---	TSP	.828	.0728	17.176	***	.685
EOA	<---	TSP	.804	.0763	16.599	***	.647
FDP	<---	TSP	.767	.0706	15.425	***	.589
SITS	<---	TSP	.832	.0620	17.438	***	.693

Table 4. Causal relation assessment results of DASTA, SIA and TSP on sustainable indigenous tourism success (SITS) *** sig. level 0.001

			Estimate	S.E.	C.R.	P	SMC
DASTA	<---	PMIT	.784	.0564	16.576	***	.555
SIA	<---	PMIT	.826	.0589	17.535	***	.627
TSP	<---	PMIT	.860	.0584	18.390	***	.758
SITS	<---	PMIT	.889	.0620	19.080	***	.824

The investigation of TSP demonstrated that the local products design and development activity, the workshop on health safety and security activity, and the English on air activity are the three most loading factors to tourism stakeholders' participation, with loading factors of 83, 82 and 80 percent respectively, and its explanation power to TSP equals to 69, 68 and 64 percent accordingly. In total, the TSP activities have explanation power to the SITS of 69 percent with regression weight of 83 percent. Following this, the three major variables, namely DASTA, SIA and TSP, were tested in terms of the causal relation and explanation power to Pha Mi indigenous tourism which leads to SITS, as revealed in Table 4 below.

It is apparent from Table 4 that the tourism stakeholders' participation has the highest loading factor at 86 percent which has explanation power to Pha Mi indigenous tourism (PMIT) development success of 75 percent. The second variable is social impact with the explanation power to Pha Mi indigenous tourism development success at 62 percent, and loading factor of 82 percent. The last variable having explanation power to PMIT development success is DAST A at the rate of 55 percent and regression weight of 78 percent. In sum, all three variables have explanation power over the sustainable PMIT success of 82 percent with loading factor at 88 percent.

CONCLUSION AND RECOMMENDATIONS

Taken together, these results suggest that there is an association of the tourism stakeholders' participation in terms of providing novel knowledge to local residents through various activities and support. An example of this is the workshop on local products, health safety and security, since the well-designed products could gain tourists' attention and create a first impression that leads to desire and purchase. This could ameliorate the image value (Worasuwannarak and Kankaew, 2022) to the village itself and encourage the need for tourists to acquire these goods. The present results on tourism stakeholders' participation are significant in major respects as they can contribute to garnering support from stakeholders in developing Pha Mi indigenous tourism given the fact that the Small and Medium Enterprise Development Bank of Thailand has also surveyed and embraced Pha Mi development as an indigenous tourism destination in 2018. As Pha Mi village is still unexplored among tourists, its ecological system and local life span remain in their original state. The region is also known for its high quality of coffee beans and its mountainous location which is only seven kilometres away from the Mae Sai district (the border between Thailand and Myanmar) (Prachachat, 2018). In addition, a project from the biggest low-cost airline in Thailand, Thai Air Asia, established the "Journey D" project which embraces and cherishes the sustainable development of Pha Mi village.

The airline has deployed experts and its employees to share and educate local residents about the project, which is enhancing Pha Mi's reputation and is ensuring that the transportation system efficiently connects tourists to this destination (Kankaew, 2022). Furthermore, the Journal D project has demolished the barriers related to marketing issues, which Ngo et al. (2018); Schott and Nhem (2018) emphasize is critical to the success of sustainable local tourism. Notwithstanding, the SIA must start from the micro unit, that is the individual benefit, development and knowledge transfer. Thereafter, this small unit will expand to family, community and living society, which will enhance the positive perception of tourism development. This could also elevate the cooperation and collaboration on how to build sustainable tourism. In this study, there is a rather remarkable finding in term of the cultural, norms, and life span impact of local residents that shall be aware of tourism development.

The local way of life might be absorbed from modern culture which the tourists carry with them. In consequence, the implementation of arts, culture, norms, and certainly environmental preservation, is immensely crucial for sustainability. Additionally, the pride in community identity should be embedded in every individual of the village. However, there is a need to upgrade and design products or services for commercialization, health safety and security, which should be blended and represented in the uniqueness of Pha Mi cultural village. The UNWTO (2021) has suggested that this is crucial for enhancing indigenous people's capability and transitioning to enable entrepreneurship, for strengthening skills and capacity-building, and for nurturing digital literacy in order to run the tourism business, which ultimately will ensure the acknowledgement of indigenous people by destination authorities and all stakeholders.

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THE INFLUENCE OF PERSONALITY TRAITS ON TOURISTS' INTENTION TO VISIT GREEN HOTEL IN QATAR: THE ROLE OF ATTITUDE AND PERCEIVED VALUE

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Abstract: Green hotels industry is blooming, and growth rate is promising. Perception of tourists is critical for green hotels usage. However, the impact of personality traits and behavioral factors has received limited attention in the context of emerging economies. This study aims to examine the effect of personality traits and variables of theory of planned behavior (TPB) on intention to visit green hotels in Qatar. Based on personality traits and TPB, the study proposes that conscientiousness, extraversion, neuroticism as well as attitude and subjective norms will have a direct effect on intention to visit green hotels. Attitude is proposed as a mediating variable while perceived value is proposed as a moderating variable. The data was collected from tourists in Qatar. Smart Partial Least Square was deployed. The findings showed that conscientiousness, extraversion, attitude, and subjective norms have significant effects on intention to visit green hotels. Attitude only mediated the effect of extraversion on intention to visit green hotels while perceived value did not moderate the effect of attitude on intention to visit green hotels. Decision makers are advised to increase the awareness and to establish clear practices and procedures of green hotels.

Key words: Green hotels, TPB, Personality traits, Perceived Value, World Cup, Qatar

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INTRODUCTION

Recently, the climate change and the issue of green and less polluted environment has attracted the attention of community, governments, researchers and policy makers (Stanef-Puică et al., 2022). The practices of green environment have been observed in all business-related aspects such as manufacturing and less into the service-oriented industries. In hospitality, the sector has become one the main contributors to the national economy in several countries. The growth of this sector has increased the attention to implement green practices which attracted argument regarding the environmental concern and the extra cost that customers are bearing to stay in green hotels (Muniandy et al., 2019). Nevertheless, due to the increase competition among hotels and the need to attract more customers, hotels have shifted their attention to focus on more green practices in providing the services (Muniandy et al., 2019). Customers are increasingly aware that their decision to visit a hotel can influence the environment (Yadegaridehkordi et al., 2021). Green practices in hotel environment is an indication that the hotel is adopting a system to conduct its operation bearing in mind the reduction of extra use of water, energy, non-durable product, gas emission, and oil and soil pollution (Patwary et al., 2020). In line with this concept, the green hotel term was developed by the green hotel association in 2008 which described a green hotel as an environmental friendly properties whose its management are motivated to reduce pollution activities by reducing the waste of water, energy, and solid material so that they can save money and enhance the hotel's image and reputation (Eid et al., 2021).

Several studies have deployed the Theory of Planned Behaviour (TPB) to explain the intention of tourist to visit a green hotels. However, the TPB lack in term of explaining the variaiton in the behavioral intnetion (Teklehaimanot et al., 2021). TPB includes the variables of subjective norms (SN) and attitude (AT) as well as perceived behavioural control (PBC) (Ajzen, 1991). AT was deployed in another important model such as the Technology Acceptance Model as a mediating variable to explain the effect of personal variables on the behavioral intention (BI) (Davis, 1989). In addition, researchers suggested to examine the personality trait because they can essentially affect the behaviour and decision to visit green hotels (Verma et al., 2017). Trait is defined as a variety of individual attributes including aspects of personality, needs, motive and values (Kiffin-Petersen and Soutar, 2020; Singh et al., 2020). Personality traits is defined as relatively stable dispositions to behave in a particular way (Gebauer et al., 2020; Oklevik et al., 2020). In this study, the variables of conscientious (CO), neuroticism (NE), and extraversion (EX) are used to represent the personality traits. These traits has been deployed in previous studies in the context of green hotels (Verma et al., 2017; Verma and Chandra, 2018).

Usually, the decision of individual is based on their pre-established assumptions and belief. While some find it difficult to pay extra for similar services in non-green hotels (Teklehaimanot et al., 2021), other find it as a moral obligation toward the community (Verma and Chandra, 2018). This makes the perceived value (PV) an important variables that can to a large

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degree explain the behavior of individuals and determine their decisions (Olya et al., 2019). It was noted from the previous studies as shown in Table 1 that most of previous studies were conducted in either western or non-middle eastern countries. In Qatar, the country will host the world cup 2022. The government are striving to build comfortable hotels that considers the environmental issue. According to the FIFA more than 1.7 million visitors are expected to arrive in Qatar during the world cup 2022 (FIFA, 2016). Hotels from all brands are operating in the country to attract and accommodate the visitors during the world cup. Statistics showed that the number of tourists in the country reached 2,256,490 in 2018 contributing to a large sum of gross domestic product and indicating a rapid growth in the hospitality sectors (Yap et al., 2020). Therefore, this study aims to understand the drivers of intention to visit green hotels in Qatar. The study will examine the mediating role of AT and the moderating effect of PV. In the next sections, the literature review and the development of hypotheses are discussed followed by methodology and findings. Discussion and direction for future works are discussed as well as the limitation and conclusion.

LITERATURE REVIEW

In this section, the theoretical framework as well as the hypotheses development are discussed.

1. Theoretical Framework

Two theories are deployed in this study as the theoretical framework. The first is the theory of planned behavior (TPB) which was developed by (Ajzen, 1991). The theory proposed that the behavior of an individual is affected by AT, SN, and PBC. The developer (Ajzen, 1991) indicated that the BI is a critical factor for the use behavior or the actual behavior. Researchers deployed the TPB in explaining the BI to visit green hotels. For instance, (Chen and Tung, 2014), TPB can explain significant part of the variation in intention to visit green hotels. Similar findings were derived in previous studies (Muniandy et al., 2019; Teng et al., 2015; Verma and Chandra, 2018; Wang et al., 2018) and the theory were able to explain important part of the variation in BI toward green hotel's visiting.

Nevertheless, researchers indicated that TPB is able to explain only 36% of the variation. For this reason, more theories are needed to increase the variation in BI (Yadegaridehkordi et al., 2021). Researchers deployed the personality traits and indicates that the theory operationalized personality traits into five dimensions that are the extraversion, agreeableness, conscientiousness, neuroticism, and openness (Verma et al., 2017; Verma and Chandra, 2018). However, in this study, the personality traits are operationalized to include conscientious, neuroticism, and extraversion.

Table 1. Critical Analysis of Variable Selection

Author	Country	Theory	Sample	Data analysis	Attitude	Subjective norms	Consci-entious	Neuro-ticism	Extra-version
(Zuriyati et al., 2014)	Malaysia	Theory of reason actioned and marketing mix	Conceptual	SEM	√	√			
(Chen and Tung, 2014)	Taiwan	TPB	559 respondents	SEM	√	√			
(Teng et al., 2015)	Taiwan	TPB	258 Respondents	SEM	√	√			
(Verma et al., 2017)	Seven countries	Personality trait	285 respondents	AMOS			√	√	√
(Verma and Chandra, 2018)	India	TPB	295 respondents	AMOS	√	√	√		
(Wang et al., 2018)	China	TPB	324 respondents	AMOS	√				
(Muniandy et al., 2019)	Malaysia	TPB	147 respondents	SPSS	√	√			
(Olya et al., 2019)	Cyprus	TPB	260 respondents	AMOS	√	√			
(Patwary et al., 2020)	Malaysia	TPB	393 respondents	PLS	√				
(Yarimoglu and Gunay, 2020)	Turkey	TPB	400 respondents	AMOS	√	√			
(Eid et al., 2021)	Egypt	TPB	757 respondents	PLS	√	√			
(Wang et al. 2022)	China	Value belief norms, TPB	304 respondents	PLS	√	√			
(Patwary et al., 2022)	Malaysia	TPB	393 respondents	PLS	√				
(Filimonau et al., 2022)	Poland	Pro-environmental behaviour, Theory of reasoned actioned.	376	PLS	√				

Note: AT: Attitude, SN: Subjective norms, CO: Conscientious, NE: Neuroticism, EX: Extraversion,
TPB: Theory of planned behavior, PLS: Smart partial least square, AMOS: Analysis of the moments structure.

2. Critical Analysis

To understand the predictors of intention to visit green hotels, a critical analysis of existing studies was conducted. Several studies have deployed the TPB alone. Only few studies have combined more than one theory to explain the variation in BI toward green hotels (Zuriyati et al., 2014). It can be seen from Table 1 that the variables attitude and subjective norms have been deployed in several studies and only the study of Patwary et al. (2020) deployed attitude as a mediating variable. Variables of personality traits has been used by few studies. In addition, none of the reviewed studies included the variable of TPB with the personality traits. Most of the prior literature has examined attitude as presented in TPB along with other theories. For instance, the attitude was deployed in the study of Wang et al. (2022), further, the attitude was also examined in the study of Patwary et al. (2022) in Malaysia and the study of Filimonau et al. (2022) in Poland while few studies examined the intention to visit green hotels using more than one theory such as in the study of Wang et al. (2022) and Filimonau et al. (2022). This justified the selection of the variables of this study.

3. Conceptual Framework and hypotheses Development

Based on the theory of planned behavior as well as the personality trait, this study proposes that the effect of conscientious, neuroticism and extraversion on intention to visit green hotels is mediated by attitude. The study also proposes that subjective norms will have a direct effect on intention to visit while perceived value will moderate the effect of attitude on intention to visit. Figure 1 shows the conceptual framework of this study.

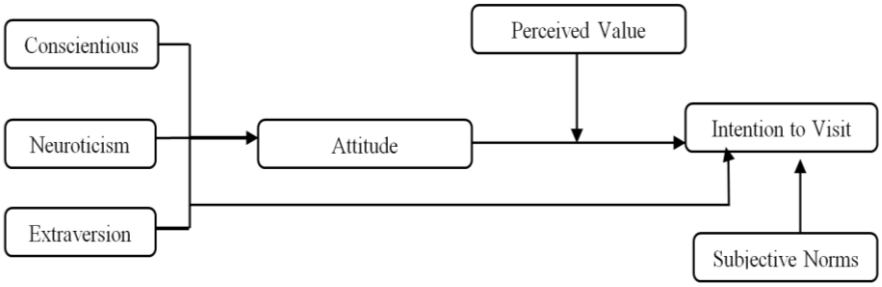


Figure 1. Conceptual Framework (Authors developed)

3.1. Conscientiousness and intention to visit green hotels

Conscientiousness is one of the personality traits and it is defined as the tendency of individuals or customers to be systematic, self-disciplined, responsible, and follow the procedures and norms (Zhang et al., 2020). Customers who have future orientation will be more concerned about their action and the result of their action (Nimri et al., 2020; Wang and Wong, 2020). Previous studies examined the effect of conscientiousness on BI toward green hotels. For instance, a positive link was found in the study of (Verma et al., 2017) between conscientiousness and intention to visit green hotel. Similar findings were also derived in the study of (Verma and Chandra, 2018) where the effect of conscientiousness on green hotel visit intention was found positive. Findings of the study of (Sun et al., 2018) also confirmed the positive link between the variables. Accordingly, this study proposed that the effect of conscientiousness on intention to visit green hotel in Qatar is positive.

H1: conscientiousness affects positively the intention to visit green hotel.

3.2. Extraversion and Intention to visit green hotels

Extraversion is the second personality traits and it refers to how much a customer is assertive, active, social, talkative and outward spoken (Watson et al., 2019). Customer with high extraversion activities are more concerned about the environmental change (Blain et al., 2020). Previous studies found that the effect of extraversion on intention to visit green hotels is positive. For instance, the study of (Verma and Chandra, 2018; Verma et al., 2017) confirmed that the extraversion is a positive predictor of BI toward visiting green hotels. Previous studies also indicated that the effect of extraversion is confirmed on BI toward visiting green hotels and toward reducing the environmental pollution (Blackwell et al., 2017; Watson et al., 2019; Wilmot et al., 2019). In this study, the extraversion is expected to have a positive effect on the tourists in Qatar. Thus, it is proposed:

H2: Extraversion has a positive effect on intention to visit green hotels.

3.3. Neuroticism and Intention to visit green hotels

This is the third personality trait and it is defined as a tendency to experience negative emotional states, accompanied by heightened anxiety or depression, anger and guilt, as well as increased tendency for somatization of psychological problems (Balta et al., 2020). Researchers examined the effect of neuroticism on the intention to visit green hotels and found mixed findings. For instance, in the study of (Verma et al., 2017) found that all personality traits have significant effect on intention to visit green hotels except neuroticism. However, other researchers found that the effect of neuroticism is significant on other green products and services (Dalvi-Esfahani et al., 2020; Hwang and Lee, 2019; Ma et al., 2021; Salem and Alanadoly, 2020; Tang and Lam, 2017; Wang et al., 2021). In this study, the neuroticism has a significant effect on the intention to visit green hotels. Thus, it is proposed:

H3: Neuroticism has a positive effect on the intention to visit green hotels

3.4. Subjective Norms and Intention to visit green hotels

Subjective norms is one of the variables of TPB. It refers to the perceived normative beliefs of a social network member regarding a given relationship weighted by the motivation to comply with that network member (Etcheverry and Agnew, 2004). Subjective norms is concerned with the perception of others that might affect the decision of individual (Ajzen, 1991). The TPB proposed the SN as a critical factor that affect the BI toward performing a specific behavior (Ajzen, 1991). Several studies found that SN is an important variable in the context of green hotels. For instance, in the study of (Zuriyati et al., 2014), social influence is found as a critical variable for the intention to visit green hotels. Similarly, the study of (Chen and Tung, 2014; Muniandy et al., 2019; Olya et al., 2019; Teng et al., 2015; Yarimoglu and Gunay, 2020) found that SN is an essential predictors of the intention to visit green hotels. In this study, it is expected that SN will affect intention to visit green hotels significantly. Thus, it is hypothesized:

H4: Subjective norms will have a positive effect on the intention to visit green hotels.

3.5. Attitude

Attitude is one of the main variable in the TPB and it is defined as the degree to which a person has a favourable or unfavourable assessment of the behaviour (Ajzen, 1991). Thus, the attitude toward the green hotels can be essential in driving the behaviour of customers (Eid et al., 2021). Attitude has been used as a main predictor of BI in TPB. Several studies deployed and examined the variable in the context of green hotels. For instance, (Yarimoglu and Gunay, 2020) found that attitude affect the intention to visit green hotels in Turkey. In line with this findings, the study of Eid et al.

(2021) and Olya et al. (2019) also found that attitude has a positive effect on intention to visit green hotels. Attitude also a main variable in the technology acceptance model (TAM). In TAM, attitude was proposed as a mediating variable (Davis, 1989). However, in the context of green hotels, few studies deployed attitude as a mediator. For instance, in the study of (Patwary et al., 2020) examined the mediating role of attitude between perceived environmental responsibility and consumers' intention to visit green hotels. The findings indicated that attitude partially mediated the effect of perceived environmental responsibility on consumers' intention to visit green hotels. Thus, in this study, it is expected that attitude will have a direct effect on the intention to visit green hotels. It is also expected to have a mediating role between personality traits and intention to visit green hotels. Therefore, it is hypothesized:

H5: Attitude affect positively the intention to visit green hotels.
H6: Attitude mediates the effect of conscientiousness on intention to visit green hotels.
H7: Attitude mediates the effect of extraversion on intention to visit green hotels.
H8: Attitude mediates the effect of neuroticism on intention to visit green hotels.

3.6. Perceived Value

Perceived value is an important intervening variable and it has been neglected in the context of marketing (Chen and Tsai, 2007). In the context of green hotels, the perceived value is important due to the notion that visiting a green hotel requires the customers to pay extra money (Li et al., 2022). The mediating role of perceived value was tested in several studies (Al-Gharaibah, 2020; Al-Gharaibah, 2020). However, few examined the moderating role of this variable. In the study of Kuo et al. (2011), perceived value moderated the effect of service quality and customer satisfaction on loyalty of customers in restaurant industry. Further, in the study of (Chang et al., 2014) perceived value moderated the effect of trust and quality on customer satisfaction. In the study of (Ismail et al., 2016), it is found that perceived value moderated the effect of service quality on customer satisfaction. In this study, it is expected that perceived value will moderate the effect of attitude on intention to visit green hotels. Therefore, it is hypothesized:

H9: Perceived value moderate the effect of attitude on intention to visit green hotels.

RESEARCH METHODOLOGY

This study is quantitative in nature. The study investigates the effect of personality traits, subjective norms, attitude, and perceived value on the intention to visit green hotels. The population of this study are the tourists that are visiting Qatar. Due to the notion that there is no database of these tourists, the convivence sampling is deployed. A link was posted on travel website to collect the data of this study. The data was collected using a questionnaire.

The questionnaire was adopted from previous studies. Measurement of intention to visit green hotels (3 items) was adopted from Verma and Chandra (2018), measurement of attitude (4 items), conscientiousness (4 items), subjective norms (3 items) were adopted from Verma and Chandra (2018), extraversion (4 items) and neuroticism (4 items) were adopted from Kvasova (2015), perceived value (5 items) was adopted from Shu Wan Tan et al. (2018).

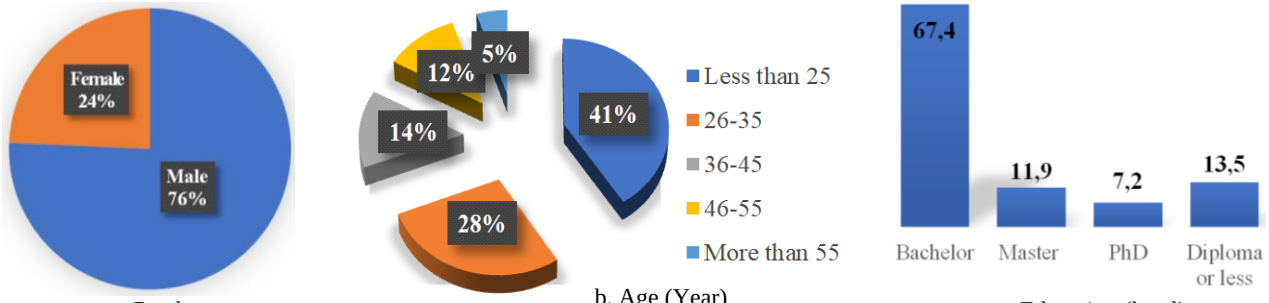
The questionnaire was validated by three experts in marketing and a pilot study was conducted prior to data collection. All the measurement scored a Cronbach's Alpha greater than 0.70 indicating that the measurements are reliable. Field data was conducted using a link posted on traveling website and travel agencies. Network referral and snowballing approach were deployed to collect the responses. A total of 219 responses were collected. The responses were examined for missing values and outliers. This has resulted in removing 7 response making the usable and complete responses 212. The normality of the data was checked using skewness and kurtosis. All the values are less than absolute 1 indicating that the data is normally distributed. This is in line with Hair et al. (2017). In addition, the multicollinearity was checked and the data is free from the issue of multicollinearity because the variation inflation factor (VIF) is less than five and tolerance is greater than 0.20.

FINDINGS

This section discusses the findings of this study. The section includes the descriptive information of the respondents as well as the assessment of measurement and structural model. The data analysis was conducted using Smart Partial Least Square (Smart PLS).

1. Profile of Respondents

The descriptive information of the respondents showed that the respondents are divided into 75.7% are males while females constitute 24.3% as shown in Figure 2a. A total of 85.7% of the respondents are younger than 45 with 67.4% as shown in Figure 2b and are holders of bachelor's degree as shown in Figure 2c. Figure 2 shows the demographic of respondents.



a. Gender b. Age (Year) c. Education (level)

Figure 2. Demographic of Respondents

2. Measurement Model

In the measurement model, there are five criteria must be examined to assess the measurement model (Hair et al., 2011; Lowry and Gaskin, 2014). The factor loading (FL) for all the items should be 0.70 or greater. In addition, the composite reliability (CR) and Cronbach's Alpha (CA) should be equal or greater than 0.70. The measurement is considered to fulfill the convergent validity if the value of Average Variance Extracted (AVE) is greater than 0.50. In addition, the fulfilment of the discriminant validity happens if the square root of AVE is greater than the cross loading. In this study, the first criterion assessed was the factor loading and it was found that some of the items of AT, SN and CO have weak factor loading. Accordingly, some items were removed to enhance the reliability and validity of the model. Table 2 shows that all the criteria were achieved. All FL of the items is higher than the threshold of 0.70. CR and CA are higher than 0.70. Lastly, AVE has value higher than the threshold supporting the achievement of the convergent validity. To examine the discriminant validity, the square root of AVE was examined and compared with the cross loading. Table 3 indicates that the discriminant validity was fulfilled because the number in bold are greater than the cross loading with other variables.

Table 2. CA, CR, and AVE of Constructs

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Intention to visit	0.942	0.956	0.813
Conscientiousness	0.944	0.960	0.857
Extraversion	0.868	0.903	0.700
Neuroticism	0.947	0.959	0.825
Attitude	0.942	0.956	0.812
Subjective Norms	0.919	0.939	0.755
Perceived Value	0.947	0.960	0.826

Table 3. Discriminant Validity

Variables	INV	CO	EX	NE	AT	SN	PV
Intention to visit (INV)	**0.901**						
Conscientiousness (CO)	0.543	**0.925**					
Extraversion (EX)	0.445	0.473	**0.837**				
Neuroticism (NE)	0.168	0.140	0.287	**0.908**			
Attitude (AT)	0.518	0.649	0.385	0.133	**0.901**		
Subjective Norms (SN)	0.471	0.636	0.461	0.201	0.599	**0.869**	
Perceived Value (PV)	0.498	0.459	0.635	0.149	0.351	0.402	**0.909**

3. Structural Model

To assess the structure model, (Hair et al., 2017) indicates that there are four criteria. The first criteria are the R-square and it is widely accepted that a value of 0.25 is weak while 0.50 is moderate and 0.75 is excellent. In this study, the R-square (R^2) was found 0.51 indicating that 51% of the variation in intention to visit can be explained by the variables. The second criterion is the predictive relevance (Q^2). This value indicates whether the variables can predict the dependent variable. The accepted value is greater than zero. In this study, it was found that Q^2 for the dependent variable AT and INV were 0.26 and 0.35 respectively indicating that the condition of predictive relevance has been met. The effect size is acceptable if the value of f^2 is greater than 0.02. In all the paths of this study, the value of f^2 was greater than 0.02 except for the paths in the mediating effect of attitude and moderating effect of perceived value and this was due to the insignificant paths. The last criterion is the path coefficient which is also the hypotheses testing and it is discussed in the next section.

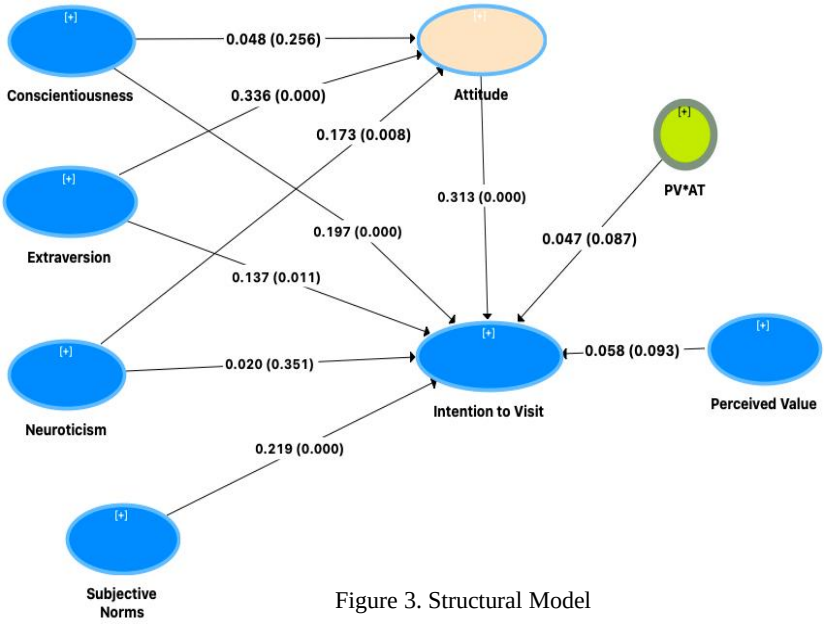


Figure 3. Structural Model

3.1. Hypotheses Testing

Nine hypotheses were proposed in this study. In Figure 3, the structural model of this study is presented. It shows the result of testing the hypotheses. To explain the result of this study, Table 4 shows the result of testing the hypotheses.

The effect of personality traits on intention to visit was examined in H1, H2, and H3 as shown in Table 4. The conscientiousness (β=0.197, P<0.001) as well as the extraversion (β=0.137, P<0.001) have significant effect on intention to visit green hotels in Qatar. Therefore, H1 and H2 are supported. For H3, neuroticism (β=0.020, P>0.001) has insignificant effect on intention to visit. Thus, H3 is rejected. For H4 and H5 subjective norms (β=0.219, P<0.001) and attitude (β=0.313, P<0.001) were found to have significant effects on intention to visit. Thus, H4 and H5 are supported. For, the mediating effect it is examined by comparing the direct and indirect effect (Alaaraj et al., 2018; Alaarj et al., 2016). Attitude in this study is proposed as a mediating variable. The direct effect of conscientiousness and extraversion are significant. However, the indirect effect is only significant for the extraversion (β=0.105, P<0.001). Therefore, H6 is rejected due to the insignificant effect of indirect effect as shown in Table 4. For H7, it is accepted because the direct and indirect effect are significant. Thus, H7 is supported. For H8, it is not supported because neither the direct nor the indirect effect are significant. For the moderating effect of perceived value, it is examined by multiplying the items of perceived value (PV) with the items of attitude (AT) to create the moderating effect (PV*AT) as shown in Figure 2. The moderating effect is not significant. The interaction effect between perceived value and attitude (PV*AT) is not significant (β=0.047, P>0.05). Thus, H9 is rejected.

DISCUSSION

Table 4. Results of Direct Effect Hypotheses

Type	H	Path	β	Std	T	P	Label
Direct	H1	Conscientiousness -> Intention to Visit	0.197	0.057	3.436	0.000	Accepted
	H2	Extraversion -> Intention to Visit	0.137	0.060	2.301	0.011	Accepted
	H3	Neuroticism -> Intention to Visit	0.020	0.053	0.383	0.351	Rejected
	H4	Subjective Norms -> Intention to Visit	0.219	0.051	4.268	0.000	Accepted
	H5	Attitude -> Intention to Visit	0.313	0.058	5.379	0.000	Accepted
Mediation	H6	Conscientiousness -> Attitude -> Intention to Visit	0.015	0.023	0.650	0.258	Rejected
	H7	Extraversion -> Attitude -> Intention to Visit	0.105	0.032	3.323	0.000	Accepted
	H8	Neuroticism -> Attitude -> Intention to Visit	0.054	0.025	2.208	0.014	Rejected
Moderation		Perceived Value -> Intention to Visit	0.058	0.044	1.321	0.093	
	H9	PV*AT -> Intention to Visit	0.047	0.035	1.359	0.087	Rejected

Note: H: Hypothesis, β, path coefficient, Std: Standard Deviation, T= t-value, P: p-value

This study is conducted to examine the effect of personality traits and variables of TPB on the intention to visit green hotels in Qatar. The data was collected from tourists using travel agencies websites and network referral. The findings showed that the effect of personality traits such as conscientiousness and extraversion are important predictors of intention to visit hotels. However, the neuroticism has insignificant effect. The positive effect of the conscientiousness and extraversion could be due to the notion that education level of the respondents is high and they have adequate awareness toward the environmental issues. Customers with a focus on the future will care more about the consequences of their actions (Nimri et al., 2020; Wang and Wong, 2020). Customer with high extraversion activities are more concerned about the environmental change (Blain et al., 2020). In line with these findings, the study of Verma et al. (2017) and Verma and Chandra (2018) found that the personality traits except neuroticism affect the intention to visit green hotels.

The finding also showed that subjective norms and attitude affected the intention to visit green hotels. This is in line with the theory of TPB which indicates that the two variables are essential to constitute the behaviour (Ajzen, 1991). The findings also are in line with the findings of previous studies that suggested subjective norms and attitude are important variable for the intention to visit green hotels (Chen and Tung, 2014; Fauzi et al., 2022; Muniandy et al., 2019; Olya et al., 2019; Teng et al., 2015; Yarimoglu and Gunay, 2020). The study of subjective norms focuses on how one's peers could interpret one's actions and how that can influence one's own decision-making (Ajzen, 1991). The TPB suggested that the SN is a major determinant of whether or not the BI would engage in a certain activity (Ajzen, 1991). One of the most important aspects of the TPB is a subject's attitude, which is defined as the extent to which they see a certain conduct favorably or unfavorably (Ajzen, 1991). As a result, guests' perceptions of eco-friendly hotels may have a significant role in shaping their decisions and actions (Eid et al., 2021). The findings are also in agreement with the personality trait theory which pointed out that there are some characteristics that might affect the decision making of individual and their willing to conduct a specific behaviour (Verma et al., 2017; Verma and Chandra, 2018). The mediating role of attitude was only confirmed between extraversion and intention to visit hotels. This mediating role is supported by the theory of TAM and the findings of previous studies such as (Patwary et al., 2020).

Perceived value did not moderate the effect of attitude on intention to visit green hotels. This indicates that the perceived value are not a significant factor in the equation of green hotels. Such findings are contradicting with the findings of researchers such as Kuo et al. (2011). Marketing neglects perceived value, as essential intervening variable (Chen and Tsai, 2007). Green hotels charge more, therefore perceived value is crucial (Li et al., 2022). The study of Kuo et al. (2011), perceived value mitigated the influence of service quality and customer satisfaction on restaurant customer loyalty. Perceived value impacted the effect of trust and quality on customer satisfaction (Chang et al., 2014). Perceived value has affected the impact of service quality on customer satisfaction (Ismail et al., 2016). This research expects perceived value to mitigate the influence of attitude on green hotel intention. However, the result is in line with the findings of Karavasilis et al. (2015) who found that paying extra money for green hotels is perceived as difficult by respondents.

IMPLICATIONS

This study has contributed to the literature and the body of knowledge. The study has examined the effect of personality traits and combined the theory of personality trait with TPB and has managed to explain 51% of the variation in intention to visit green hotels. The study also examined the mediating effect of attitude and the moderating effect of perceived value. In addition, the study contributed to the literature by examining the green hotel in the context of emerging economies such as Qatar.

From a practical perspective, the study found that the effect of conscientiousness, extraversion, subjective norms, and attitude on intention to visit green hotels is positive and significant. Decision makers in hospitality industry in Qatar are advised to make clear instruction regarding the green hotels practices and procedures. This will increase the conscientiousness which in turn will lead to more positive BI toward green hotels. They are advised also to spread a positive word of mouth and be committed toward having all the practices of green hotels applied to enhance the public image and the perception of tourist regarding the green hotels. This can be done by holding public lecture or providing a short orientation for tourist upon arriving in the hotel for checking in. Perceived value is a critical variable for decision making. Policy makers in green hotels must understand this variable and reduce the pricing of green hotels to encourage tourists to book in these hotels. The price is a critical factor in the green hotel industry. This should be carefully considered.

CONCLUSION AND DIRECTION FOR FUTURE WORK

This study has examined the predictors of intention to visit green hotels in Qatar. The country in the stage of preparing to host the world cup 2022. Increase in the perception and understanding of the green hotels will help the country to provide better and sustainable services and hospitality for tourists. The study found that personality traits such as conscientiousness and extraversion are important predictors of the intention toward green hotels. In addition, the study found that attitude and subjective norm from TPB are also critical to encourage tourist to book in green hotels. The attitude

can be an explanatory variable in this process while perceived value did not provide any significance result in term of its moderating effect. These findings are useful for decision makers to improve the behavior intention to visit green hotels.

This study has included several limitations. First is the sampling. The sampling in this study was conducted using convivence sampling. This type of sampling suffers from generalization issues. However, this sampling provided broader view of the intention of tourist to visit green hotels without focusing on a specific hotel. To extend the findings of this study, future work is recommended to examine the predictors of intention to visit green hotels using different sampling technique such as random sampling by taking two or three hotels and or stratified sampling by dividing the population into strata. Future studies are also recommended to examine the pricing strategies of green hotels and understand its effect on the intention to visit such hotels. A comparison between the respondents based on their country of origin or education as well as gender can be a direction for future work. This study has contributed to the literature and decision makers can benefit from this study by understanding the perception and attitude of tourist toward the green hotels. It can be also of benefit for decision makers in Qatar to be well prepared for the hosting of world cup 2022 and to understand the mentality of various type of tourists.

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THE RELATIONSHIP BETWEEN THE DEGREE OF KNOWLEDGE AND THE PERCEPTION OF THE IMPORTANCE OF THE ROUTE OF TOURIST ROUTES. CASE STUDY: TOURIST DESTINATION ARIESENI, ROMANIA

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Abstract: Tourism is a relatively recent economic activity, in the studied area, in spatial and structural expansion. Knowing the functioning mechanisms of tourism and the impact on the environment requires sustained efforts in order to identify them. In this context, the main objective of this study is to identify the relationship between the degree of knowledge and the perception of the importance of the development of tourist routes at the level of the local population, tourists and tourism service providers. Tourist routes are important structural elements in shaping and affirming tourist destinations with functions in the direction of extending the duration of the action and improving the tourist experience. To achieve this goal, the sociological survey method, based on the questionnaire, was used. The results highlighted the existence of direct interconditioning relationships between knowledge (high degree of knowledge) and tourist perception (good perception), regarding the existence of the destination and the importance of tourist routes. Moreover, the obtained results can be used by all the factors involved in the implementation and development of tourism at the local level.

Key words: tourism perception, tourist resources, the management of tourist routes

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INTRODUCTION

Tourism is a global activity with economic, social and cultural impact, which involves the movement of the population from an emission area to a tourist destination (Herman et al., 2020a; Ilieș et al., 2018). The tourist destination is an intensively touristed space that differs from the emission space by the wide range of objectives and by the specific arrangements. Tourist facilities are the results of human action aimed at facilitating the tourist act. Among them, the number and diversity of accommodation structures, public food facilities, health and leisure facilities, etc. stand out. A special category of tourist facilities in destination spaces is represented by tourist routes and circuits. They fulfill numerous roles and functions, including interconnecting tourist attractions; direct tourist flows along well-established

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routes; facilitates knowledge; contributes to increasing the retention rate of tourists; contribute to improving the image of the tourist destination; contributes to increasing economic efficiency; contributes to increasing social efficiency; contributes to increasing ecological efficiency. Considering the roles and functions performed, it is imperative, before implementing such structures in the field, to know the perception of the main actors involved in tourism (local population, tourist service providers and tourists) regarding the importance of tourist routes in touristic destination.

Knowing the perception of the importance of the development of tourist routes is particularly important in establishing the local tourism development strategy. The working hypothesis that started from the realization of the present study, aimed at the fact that a favorable perception contributes to a good understanding and acceptance of the arrangements to be implemented in the field, while the lack of knowledge of their importance and an unfavorable perception will represented a restrictive, sometimes insurmountable factor in the process of tourist planning. In this context, the aim of the present study is to know the perception of the importance of the development of tourist routes in the tourist destination Arieseni, Alba County, Romania. The emerging scientific questions concerned the degree of knowledge of the analyzed destination and the perception of the consulted target group regarding the roles and management of tourist routes, the relationship between perception and tourist knowledge.

Tourism represents an important economic alternative (Deng et al., 2002; Nepal and Chipeniuk, 2005; Mutana and Mukwada, 2018), with a major role in poverty alleviation (Chirenje, 2017; Anderson, 2015; Cole, 2008) and the sustainable development of a destination (Nurkovic, 2017; Ilieș et al., 2020; Stupariu et al., 2022). Its appearance and manifestation in certain areas was imposed against the background of urbanization, industrialization and scientific and technical progress, and implies the existence of optimal conditions for spending free time in the tourist destination area (Muntele and Iațu, 2003).

The diversification of the tourist offers and the optimal exploitation of the tourist potential of a certain area, at a given moment, calls for sustained efforts from all interested factors (the local population, public authorities and service providers, etc.) in the direction of planning and arranging tourist routes and circuits. From a conceptual point of view, tourist routes and circuits represent the route or path on which potential tourists are guided to travel to carry out the tourist act, for the purpose of physical-psychic recovery, relaxation, rediscovery, contemplation, knowledge, etc. The touristic act involves traveling along a well-established route, during which the tourist will meet a series of objectives, the purpose of which is to arouse and maintain his interest (Dincă et al., 2012; Deac et al., 2019; Ilieș et al., 2015; Ilieș et al., 2018; Linc et al., 2019; Stupariu, 2017; Stupariu and Morar, 2018; Tătar et al., 2018;). The arrangement of tourist routes and circuits are intended to diversify and interconnect the tourist offer of a tourist destination, contributing to the preservation of historical, cultural and folkloric heritage; extending the retention interval of tourists in that destination and increasing the quality of life of the local population (Rátz and Puczkó, 1998; Kombol, 2000; Mousazadeh, 2022; Szucs and Koncz, 2020). In this context, some attention has been paid in the specialized literature to the methodology of route identification and design (Duarte-Duarte et al., 2021; Zheng and Liao, 2019; Liao and Zheng, 2018; Zheng et al., 2017; Cenamor et al., 2017), which through its design and architecture, play an essential role in capitalizing on relatively isolated tourist attractions by interconnecting them along travel routes.

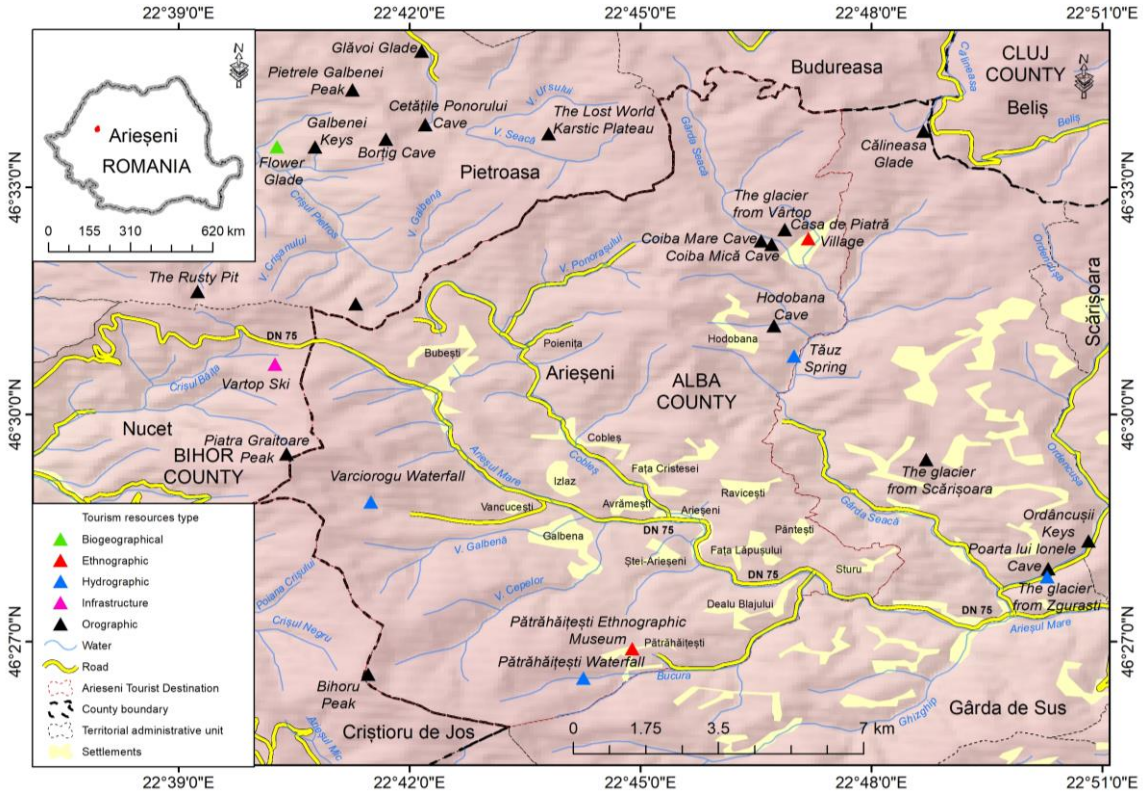

Figure 1. Areal study of the territorial administrative unit Arieseni

In this context, the present research, with an applicative character (the results obtained can be used in the planning and development strategy of tourist routes in the destination of Arieseni, Romania), complements previous research on perception (González-García et al., 2022; Herman et al., 2020c, 2022; Matlovičová et al., 2019; Prima, 2022) bringing as an element of novelty the proposed theme (the perception of the importance of tourist routes), the people consulted (tourists, the local population and service providers tourism) and the unexplored research area.

RESEARCH METHODOLOGY

Areal Study

The Arieseni destination is located in North-West Romania, Alba County, at the contact between the Bihor and Vlădeasa mountain units, in the upper basin of the Ariesul Mare Valley. From an administrative point of view, it brings together 17 villages scattered spatially, whose specificity emerges from the defining particularities of the natural framework, among which the orographic and hydrographic ones stand out. The large number of natural (23 units) and anthropogenic (3 units) tourist attractions and their high degree of attractiveness have led to an intensification of tourism in this area, culminating in the inclusion of the locality of Arieseni in the category of resorts of local interest (Table 1).

The development of a specific infrastructure made up of 604 accommodation bases (1307 places), eight public catering structures (482 places) and a 1000 m long "Vârtop I" ski slope (Ministry of Tourism, 2022, https://turism.gov.ro/web/autorizare-turism/). The converging effect of tourist flows is given by the arrangement of the road network, the national road DN 75, in the West-East direction and implicitly the orographic configuration, the Arieseni Depression being a gateway to the Apuseni Mountains, which interconnects the Beiuș Depression with the Cîmpeni-Bistra Depression. From the brief analysis of the tourist resources and the specific infrastructure, it can be seen that this tourist destination is able to support different types of tourism, among which stand out the mountain (focused on winter sports and hiking), rural and agritourism.

Data analysis

The data necessary to carry out the present study were obtained in the time frame of April 2022, in the commune of Arieseni, through the sociological survey method based on a questionnaire (Bryman, 2012; Chelcea, 2007; Wendt et al., 2019). The methodology used involved the consultation of tourists (42 people, 38.18%), locals (40 people, 36.36%) and tourist service providers (28 people, 25.45%) regarding the "Perception of the importance of the development of tourist routes", through the questionnaire method. From a structural point of view, the questionnaire was made up of thirteen items with reference to: the degree of knowledge (of local touristic objectives; of the role and importance of the development of tourist routes through the prism of economic, social and ecological efficiency; of the mechanisms through which the development of tourist routes contributes to improving the image of the destination) and the respondents' perception (regarding the extent to which the studied area is a tourist destination; the role and importance of the development of tourist routes; the management of tourist routes (the optimal size of tourist groups; the sources and forms of exposure of the information necessary for the performance of the act tourist; responsibility for the proposals, financing and arrangement and maintenance of future tourist routes) and the duration of the tourist stay.

Also, within the questionnaire, socio-demographic data relevant to tourism were captured, namely the nationality, gender, age, level of completed studies and domicile of the participants. Thus, 55 (50%) females and 55 (50%) males, aged over 18, of Romanian (99.09%) and Moldovan (0.91%) ethnicity participated in the present study. From the analysis of the respondents by age groups, it was found that the largest share of them was owned by the groups of people aged between 20 - 24 years (36.36%), 26 - 35 years (14.1%), 40 - 44 years (13.64%), while at the opposite pole were people aged between 55 - 59 years (1.82%), 65 - 69 years (1.82%) and 75 - 79 years (1.82%). Regarding the level of education completed by the respondents, the share of people with university education (49.09%), followed by those with high school education (40%), post-graduate education (9.09%) and gymnasium (1.82%) was noted.

RESULTS AND DISCUSSIONS

The degree of knowledge of the importance of the development of tourist routes

Information is an essential premise in establishing the perception regarding the importance of arranging tourist attractions in a tourist destination (Herman et al., 2020b). In this context, the main aspects targeted were knowledge of the Arieseni tourist destination, respectively the existing tourist attractions; the role and importance of tourist routes; the mechanisms through which the development of tourist routes contributes to improving the image of the destination.

The knowledge of tourist resources is an important desideratum in the emergence and evolution of a tourist destination, along with others related to the knowledge of the infrastructure (technical and specific to tourism), tourist services, human resources involved in tourism, the local population, etc.

From the answers obtained following the consultation of the interviewed target group, a number of 26 units (tourist objectives) were known. From a typological point of view, they can be classified into natural resources (23 units, 18 orographic; 4 hydrographic; 1 biogeographic) and anthropogenic (3 units, 2 ethnographic; 1 infrastructure) (Figure 1, Table 1).

The most popular tourist resources among the respondents were: The Rusty Pit (40 people; 16 tourists; 15 locals; 9 providers), Varciorag Waterfall (34 people; 14 tourists; 14 locals; 6 providers) and Bihoru Peak (22 people; 11 tourists; 8 locals; 3 providers), while at the opposite pole were The glacier from Zgurasti, Casa de Piatră Village and Călineasa Glade, each being mentioned only once (Table 1).

Regarding the knowledge of tourist resources by category of respondents, a good knowledge was noted, at the level of each category (tourists, local population, tourism service providers), in direct relation to their percentage share (Table 1).

Table 1. The known tourist resources from the Arieseni destination

No	Latitudine	Longitudine	Resource type	Resource subtype	Name	Tourist service providers	Local populations	Tourists	Total
1	46.527099	22.654038	Natural	Orographic	The Rusty Pit	9	15	16	**40**
2	46.480793	22.691522	Natural	Hydrographic	Varciorag Waterfall	6	14	14	**34**
3	46.442806	22.690964	Natural	Orographic	Bihoru Peak	3	8	11	**22**
4	46.512901	22.783191	Natural	Hydrographic	Tauz Spring	4	10	8	**22**
5	46.441969	22.737594	Natural	Hydrographic	Patrahaitesti Waterfall	1	10	10	**21**
6	46.540754	22.781211	Natural	Orographic	The glacier from Vartop	5	5	7	**17**
7	46.558942	22.679489	Natural	Orographic	Galbenei Keys	5	7	4	**16**
8	46.537474	22.77839	Natural	Orographic	Coiba Mare Cave	6	7	3	**16**
9	46.511106	22.670783	Man-Made	Infrastructure	Vartop Ski	2	2	10	**14**
10	46.538249	22.776116	Natural	Orographic	Coiba Mica Cave	4	6	3	**13**
11	46.448422	22.748186	Man-Made	Ethnographic	Patrahitesti Ethnographic Museum	3	2	8	**13**
12	46.490042	22.811789	Natural	Orographic	The glacier from Scarisoara	3	6	2	**11**
13	46.491337	22.673303	Natural	Orographic	Piatra Graitaoare Peak	2	2	5	**9**
14	46.571487	22.68754	Natural	Orographic	Pietrele Galbenei Peak	1	4	3	**8**
15	46.466077	22.838258	Natural	Orographic	Poarta lui Ionele Cave	4	3	1	**8**
16	46.558989	22.671244	Natural	Biogeographical	Poiana Florilor/ flower glade	4	1	1	**6**
17	46.519549	22.778893	Natural	Orographic	Hodobana Cave	3	1	1	**5**
18	46.561845	22.73008	Natural	Orographic	The Lost World Karstic Plateau	1	2	1	**4**
19	46.579997	22.702585	Natural	Orographic	Glavoi Glade	1	2	0	**3**
20	46.472137	22.847007	Natural	Orographic	Ordâncușii Keys	0	1	1	**2**
21	46.560601	22.694846	Natural	Orographic	Bortig Cave	1	1	0	**2**
22	46.524408	22.68829	Natural	Orographic	Hoanca Urzicarului Cave	1	0	1	**2**
23	46.563782	22.703312	Natural	Orographic	Cetățile Ponorului Cave	0	1	1	**2**
24	46.464309	22.83803	Natural	Hydrographic	The glacier from Zgurasti	1	0	0	**1**
25	46.538701	22.786331	Man-Made	Ethnographic	Casa de Piatră Village	0	1	0	**1**
26	46.562395	22.811222	Natural	Orographic	Călineasa Glade	1	0	0	**1**

Knowing the role and importance of tourist routes in a destination area is an essential aspect on which the intention and decision to implement such tourist development elements depends. Thus, following the consultation of the respondents, it emerged that only 69.09% have knowledge in this regard. The most familiar with the importance of the routes were tourists (29.09%), followed by locals (26.36%) and tourist service providers (13.64%). The analysis of the share of respondents (30.91%) who do not know the role of tourist routes, on the three interviewed categories, showed us the existence of small differences that oscillated between 9.09% (tourists), 10% (locals) and 11.82% tourist service providers.

Another particularly important aspect targeted in the present study was the knowledge of the mechanisms through which the development of tourist routes contributes to improving the image of a tourist destination. Thus, starting from the knowledge and experiences acquired as a result of tourist consumption in other similar tourist destinations, the target group interviewed identified two main mechanisms through which the development of tourist routes contributes to the improvement of the destination image, namely: interconnection of objectives (50%; 20% tourists; 15.45% tourist service providers; 14.55% locals) and knowledge facilitation (53.64%; 22.73% locals; 20% tourists; 10.91% tourist service providers). The share of other mechanisms had a low value of 0.091%. The interconnection of objectives facilitates knowledge at the level of tourist destinations, at the same time contributing to the extension of the duration of the tourist act (implicitly the duration of the stay) and to the increase of tourists' satisfaction.

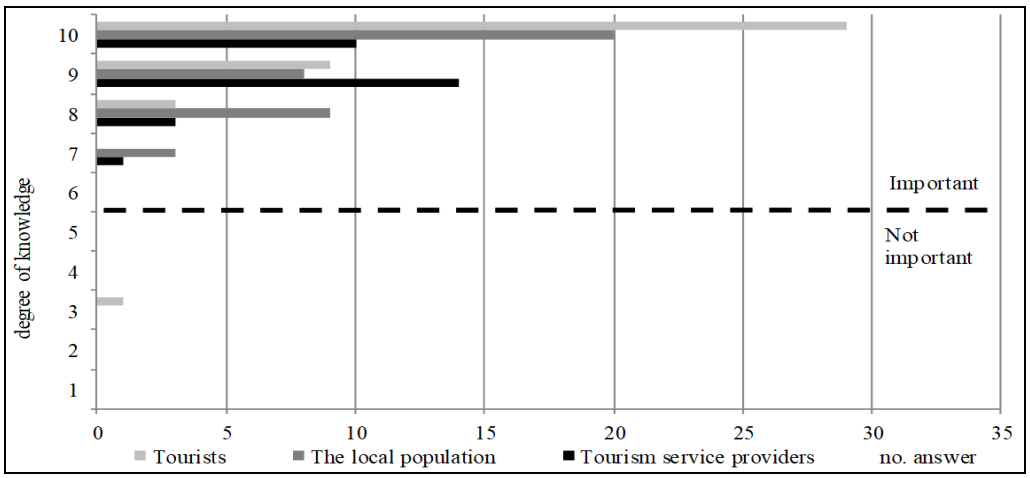

Figure 2. The perception of the importance of tourism in the development of the local economy

Respondents' perception

Tourist perception is a subjective image regarding tourism that is formed at the level of the human individual as a result of his interaction with the other structural elements of the environment, thanks to the senses and reason (Bittarello, 2008; Herman et al., 2022c; Mura et al., 2016).

The perception of the main actors involved in tourism (tourists, locals and tourism service providers) is a particularly important aspect in establishing tourism development strategies at the local, regional and even national level. In this context, the present study focused on the extent to which Arieseni Commune is a tourist destination; the role and importance of the development of tourist routes; the management of tourist routes and the duration of the tourist stay.

The analysis of the measure in which the respondents appreciated the Arieseni commune as a tourist destination on a scale from 1 to 10 (where 1 = Not at all, and 10 = to a very large extent) showed us that 99.09% consider the studied area to be a destination touristic. The analysis by value intervals emphasized the importance of the upper classes "10" (53.64%, of which 26.36% tourists, 18.18% locals and 9.09 tourist service providers) and "9" (28.18%, of which 12.73% tourist service providers, 08.18% tourists and 7.27% locals), while the lower ranges were represented by class "3" (0.91%, represented by tourists) (Figure 2).

In order to establish the perception of the roles of tourist routes on a scale from 1 to 10 (where 1 = Not at all, and 10 = to a very large extent), eight measurement variables were used: a) interconnect the tourist objectives; b) direct tourist flows along well-established routes; c) facilitates knowledge; d) contribute to increasing the retention rate of tourists; e) contribute to improving the image of the tourist destination; f) contributes to increasing economic efficiency; g) contributes to increasing social efficiency; h) contributes to increasing ecological efficiency.

Table 1. The perception of the roles of tourist routes in the Arieseni destination

	not at all																	**to a very large extent**											
	1			**2**			**3**			**4**			**5**			**6**			**7**			**8**			**9**			**10**		
	T	**P**	**L**	**T**	**P**	**L**	**T**	**P**	**L**	**T**	**P**	**L**	**T**	**P**	**L**	**T**	**P**	**L**	**T**	**P**	**L**	**T**	**P**	**L**	**T**	**P**	**L**	**T**	**P**	**L**
a) interconnect the tourist objectives	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	2	9	1	8	4	5	6	27	21	23
b) direct tourist flows along well-established routes	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	5	2	0	10	4	11	25	22	28
c) facilitates knowledge	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2	1	2	4	1	6	14	5	5	22	21	25
d) contribute to increasing the retention rate of tourists	0	0	0	0	0	0	1	1	0	1	1	0	1	1	0	0	0	0	2	0	2	7	0	4	9	5	7	21	21	26
e) contribute to improving the image of the tourist destination	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2	2	4	4	7	7	4	31	17	30
f) contributes to increasing economic efficiency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3	8	6	7	14	9	9	19	20	11
g) contributes to increasing social efficiency	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	2	1	6	3	10	3	4	14	9	13	15	9	17
h) contributes to increasing ecological efficiency	0	0	0	0	0	1	1	0	0	2	1	1	3	1	1	3	4	0	6	2	4	5	3	4	10	7	6	12	10	23
Total	0	0	0	0	0	1	3	1	0	3	2	3	6	3	2	5	6	5	13	12	18	50	20	37	82	51	61	172	141	183

Following the quantification of the answers, it emerged that 496, respectively 56% of the respondents consider that tourist routes are very important. A relatively similar situation was recorded in the analysis of the answers provided by each of the three samples, namely: tourist service providers 141 (60%); locals 183 (59%) and tourists 172 (51%) (Table 1).

The optimal size of tourist groups on tourist routes according to the respondents varies between 2 tourists (one local) and 50 tourists (two providers, two locals and four tourists). The analysis of this indicator by value classes showed us that 26.36% (45% of tourists, 38% of locals and 17% of interviewed service providers) appreciated the optimal size of tourist groups as being between 6 and 10 people, while what 19.09% considered that it would be between 21 and 30 people, respectively over 30 people. The analysis of answers by typological categories of respondents, highlights the existence of major differences between the tourist service providers, 7.27% opting for groups larger than 30 people and the other categories, tourists and locals (3.64% each), who opted for groups small between 2 and 5 people (Table 2).

Table 2. The perception of the optimal size of tourist groups on the tourist routes in the destination of Arieseni

The size of the group of tourists on tourist routes	**2-5**		**6-10**		**11-15**		**16-20**		**21-30**		**over 30**	
	%	**no.**	**%**	**no.**	**%**	**no.**	**%**	**no.**	**%**	**no.**	**%**	**no.**
Tourist service providers	1.82	2	4.55	5	0.91	1	3.64	4	7.27	8	7.27	8
Population local	3.64	4	10	11	8.18	9	2.73	3	4.55	5	7.27	8
Tourists	3.64	4	11.82	13	6.36	7	4.55	5	7.27	8	4.55	5
Total	9.09	10	26.36	29	15.45	17	10.91	12	19.09	21	19.09	21

Regarding the provision of the information necessary to run the tourist act in the analyzed destination, the respondents considered that it is the responsibility of local public authorities (51.82%), local guides (43.64%) and tourist service providers (40%), followed by the population local (12.73%), NGO (5.45%) and someone else (3.64%) (Table 3).

Table 3. The perception regarding the sources of information in the destination Arieseni

	a) Public authorities	b) Tourist service providers	c) Population local	d) Local tourist guides	e) NGO	f) Another
Tourist service providers	13.64%	9.09%	2.73%	8.18%	1.82%	0.0%
Population local	23.64%	15.45%	7.27%	12.73%	0.91%	0.0%
Tourists	14.55%	15.45%	2.73%	22.73%	2.73%	3.64%
Total	51.82%	40%	12.73%	43.64%	5.45%	3.64%

According to the consulted target group, the most appropriate forms of information display for the Arieseni destination are: informative panels (51.82%); online environment (41.82%); through live speech, local guides (30.91%); informative indicators (29.09%); direction indicators (19.09%) and other forms (1.82%) (Table 4). Considering that information panels, information and orientation signs are important structural elements of the development of tourist routes alongside the travel route, markings, tourist attractions, etc., the importance of their development is noted.

Table 4. The perception regarding the forms of information exposure in the Arieseni destination

	a) Information boards	b) Informative indicators	c) Orientation indicators	d) Local tourist guides	e) On-Line	f) Other forms
Tourist service providers	10.91	5.45	2.73	4.55	12.73	0
Population local	20	10.91	6.36	10.91	10	0
Tourists	20.91	12.73	10	15.45	19.09	1.82
Total	51.82	29.09	19.09	30.91	41.82	1.82

The analysis of the perception of responsibility for the proposal, arrangement and maintenance of future tourist facilities highlighted the role of local public authorities, followed by that of tourist service providers, tourist guides, the local population, etc. If regarding the perception of the responsibility of local public authorities to propose, arrange and maintain tourist routes, opinions are unanimous among tourist service providers, residents and tourists, the situation is different regarding the other categories of actors involved (tourist service providers, tourist guides, local population, etc) (Figure 3).

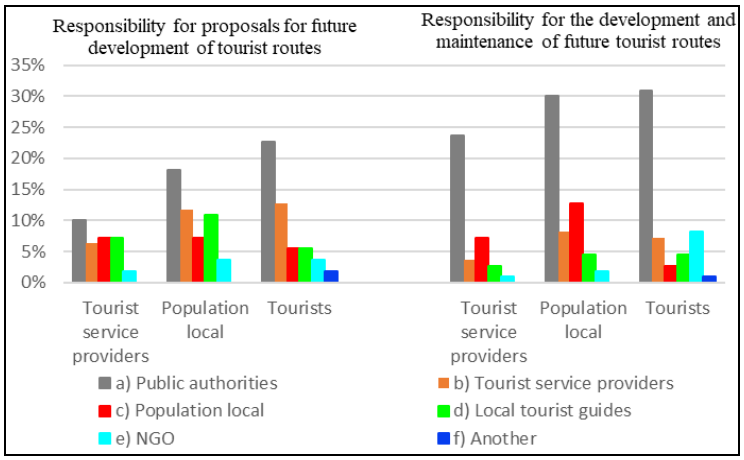

Figure 3. The perception regarding the responsibility of proposals, arrangement and maintenance of tourist routes in the destination of Arieseni

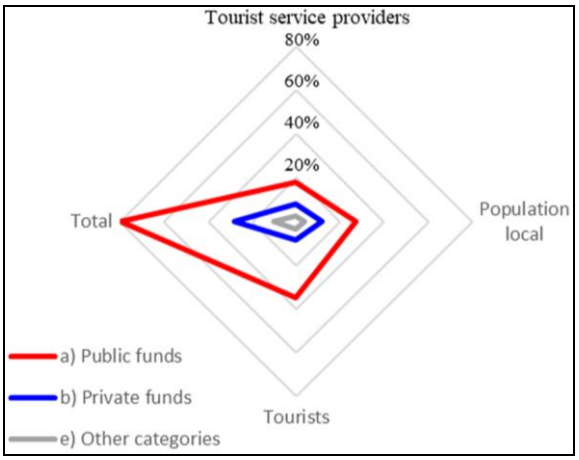

Figure 4. The perception regarding the sources of financing tourist routes in the Arieseni destination

The perception of the sources of funding for the tourist routes in the Arieseni destination highlighted the major share of public funds (80%, 34.55% tourists; 27.27%, locals; 18.18% tourist service providers), followed by private funds (28.18%, 11.82%, locals; 8.18% tourists; 8.18% tourist service providers) and other categories (10%, 3.64% tourists; 3.64%, locals; 2.73% tourist service providers) (Figure 4). Starting from the experience of the respondents in the Arieseni destination, they assessed the duration of a stay as oscillating between four and seven days (62.73%); one and three days (25.45%) and eight and 14 days (11.82%) (Table 5). This indicates that this destination lends itself to holiday and weekend tourism. Moreover, this information supports the need for the development of tourist routes, through which the retention time would increase significantly, indirectly leading to an increase in the economic, social and cultural efficiency of tourism.

Table 5. The perception regarding the duration of a stay in the Arieseni destination

	1-3 days	4-7 days	8-14 days
Tourist service providers	6.36%	16.36%	2.73%
Population local	8.18%	24.55%	3.64%
Tourists	10.91%	21.82%	5.45%
Total	25.45%	62.73%	11.82%

CONCLUSIONS

Following the conduct of the study regarding the perception of the importance of the development of tourist routes in the destination of Arieseni, several conclusions were drawn:

- The degree of knowledge of the Arieseni destination was good among the people interviewed, derived from the knowledge of the tourist attractions (100%); the role and importance of tourist routes (69.09%); and the mechanisms through which the development of tourist routes contributes to improving the image of the destination (over 50%).

- The perception of the existence of the Arieseni destination and the importance of the development of tourist routes was good (53.64% perceived the studied area as a tourist destination; 56.36% perceived the role and importance of the development of tourist routes).

- Regarding the perception regarding the management of tourist routes, this highlighted: the optimal size of tourist groups as between 6 and 10 people, 26.36%; the sources (51.82%, local public authorities) and forms of exposure (51.82%, informative panels; 29.09%, informative indicators; 19.09%, orientation indicators) of the information necessary for the development of the tourist act; responsibility for the proposals (22.73%, public authorities), the arrangement and maintenance (30.91%, public authorities) of future tourist routes, the sources of financing (80%, public funds) and the duration of the tourist stay (62.73%, between four and seven days).

Therefore, there is a direct inter-conditioning relationship between knowledge and tourist perception, thus the Arieseni tourist destination benefits from a high degree of knowledge among the interviewed people, doubled by a good perception regarding the existence of the destination and the importance of tourist routes. From the analysis of the perception regarding the management of the future tourist routes, the role of the local public authorities regarding the sources and forms of exposure of the information necessary for the development of the tourist act and the responsibility for the financing of the future tourist routes emerges. A special situation emerges from the respondents' perception regarding the optimal size of tourist groups and the duration of the stay, where opinions are divided between tourists, locals and service providers. A similar situation is presented by the perception regarding the responsibility of proposals, arrangement and maintenance of tourist routes, which highlighted the existence of an unequal distribution at the level of the main actors involved in tourism (providers of tourist services, tourist guides, the local population, etc.).

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THE PARALLEL MEDIATORS OF TOURIST SATISFACTION AND PLACE ATTACHMENT ON PERCEIVED VALUE AND DESTINATION LOYALTY RELATIONSHIP

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Abstract: Langkawi Island, the first Global Geopark in Southeast Asia, is believed to experience an unstable and sluggish growth rate pattern of domestic tourist arrivals. Hence, to curb the situation from persisting, the main objective of this study is to enhance the destination loyalty through its factors, namely, perceived value, tourist satisfaction, place attachment. The target population of this study is domestic tourists who have visited Langkawi Island. A self-administered questionnaire using google form has been distributed to the respondents who have visited the island for at least 24 hours and staying not more than a year. The 244 data collected were analysed using SMART-PLS version 4.0. Interestingly, this study has verified two parallel mediators, tourist satisfaction and place attachment on the relationship between perceived value and destination loyalty. Focusing on these factors, the study would provide practical strategies and plans for tourism management on this island to enhance loyalty among domestic tourists. Furthermore, it is believed that the findings would assist local business enterprises and tour agencies to grasp continuous benefits from loyal tourists to this island.

Key words: Parallel Mediators, Perceived Value, Tourist Satisfaction, Place Attachment, Destination Loyalty

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INTRODUCTION

Tourism activities play a crucial role in the development of a country or region because tourism sector has a significant impact on the growth of economy (Umam et al., 2022). In Malaysia, the tourism and hospitality industry are considered the third most significant contributor to the national GDP after the manufacturing and commodities industry (Hirschmann, 2020). Malaysia offers world astonishing peaceful and gorgeous islands, all of which are ideal for a dreamy holiday. Most of the islands in Malaysia look no less than shining gemstones. The fantastic features and characteristics of the islands in Malaysia would offer valuable experiences to tourists for any types of holiday such as spending time with family, romancing with the loved one, and chilling with friends. In other words, if someone wants to get some time off from their daily monotonous schedule, choosing any commercialised islands in Malaysia for short gateway is the perfect choice. Hence, tourists' expenditure on the consumption tourism products and services generates revenues for the tourism and hospitality industry (Nasir and Wongchestha, 2022). One of the renowned Malaysia's islands among tourists is Langkawi Island. It is located in Northern West Malaysia around 30 kilometres from Kuala Perlis, 51.5 kilometres from Kuala Kedah, and 109 kilometres from Penang. This island was formed by 99 islands making it unique, famous for its stunning beaches and richness in fauna and flora (Nasir et al., 2020). Back in 2007, this island was nominated as the first Global Geopark in Southeast Asia. Therefore, like other popular islands in neighbouring countries such as Phuket in Thailand, and Bali in Indonesia, Langkawi is actively staging itself as a world-class tourism destination to provide a more significant economic

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contribution to the country. Normally, tourists will choose to spend their time on this island during public holidays, thus the island is not only popular among domestic tourists but also international tourists.

However, before the covid-19 hits the whole country, statistics demonstrated a slow-moving and unstable growth rate pattern amongst domestic tourist arrivals to Langkawi Island (Figure 1). This is an unfortunate situation to Langkawi as one of the famous islands in Malaysia and the first Global Geopark in South East Asia. Hence, it is imperative to improve the destination loyalty among domestic tourists because they will repeat their visits and recommend to other potential tourists. Consequently, it will raise the percentage of domestic tourist arrival rate. The destination loyalty among domestic tourists visiting Langkawi Island can be improved through its predicting factors. Past studies suggested that perceived value (Sato et al., 2018; Nadarajah and Ramalu, 2018; Huang et al., 2019), tourist satisfaction (Haji et al., 2021; Muhamad Nasir et al., 2021), and place attachment (Jiang and Hong, 2021) are pivotal in increasing the level of loyalty among tourists.

Thus, past studies have proven that perceived value, tourist satisfaction and place attachment are the important predicting factors to improve the level of the destination loyalty. Hence, the main objective of this present study is to determine the effect of these variables on destination loyalty. More importantly, this study intends to prove the parallel mediating effects of tourist satisfaction and place attachment on the perceived value and destination loyalty relationship. The outcome of the study is valuable to the existing literature since lack of past studies have proven two parallel mediators (place attachment and tourist satisfaction) and tested these latent constructs simultaneously in one model.

LITERATURE REVIEW

Destination Loyalty

In the field of business marketing, the key concept of destination loyalty is crucial to determine the destination's success (Nasir et al., 2022). In the context of tourism marketing, the concept of destination loyalty has been explained broadly by past scholars, such as the desire to repeat visits (Prayag et al., 2017; Morais and Lin, 2010) and intention to recommend (Cheng et al., 2016; Morais and Lin, 2010). To be exact, destination loyalty refers to the tourist's intention to revisit and recommend the destination to other tourists (Nasir et al., 2021). Hence, based on the previous studies, loyalty of tourists towards certain destination can be seen from their repeated visits and advising the destination to the other people such as families and friends. The intention to revisit the destination (destination loyalty), which is deemed as the level of satisfaction after the consumption of tourist products and services in a particular tourist destination, is seen as a behavior planning for the future of tourist destination (Aksoz and Cay, 2022). Hence, it is crucial to improve the level of loyalty among visitors to guarantee the sustainability of tourism industry (Kawada and Naoi, 2018), because devoted tourists will increase sales through recurrence purchases or visits and recommend the destination to their families and friends (Mohamad et al., 2019). Consequently, it will increase the number of tourist arrivals and income generation to the destination. Past studies explained that the concept of destination loyalty focused on how visitors are associated with destinations to develop long-lasting and beneficial connections between them (Almeida-Santana and Moreno-Gil, 2018). This is the reason destination loyalty is treated the main variable of the study since improving the destination loyalty could help in increasing the number of tourist arrivals. Hence, the main objective of the study is to determine the factors to enhance the destination loyalty among the tourists.

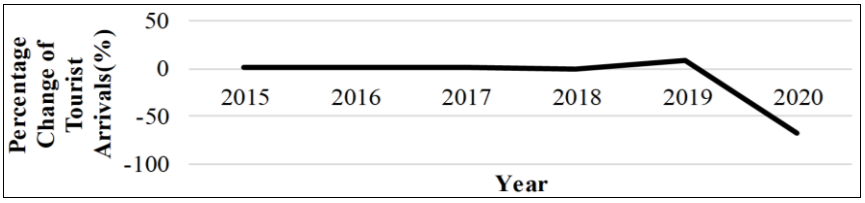

Figure 1. Percentage Change of Domestic Tourist Arrivals to Langkawi
(Source: Langkawi Development Authority, 2021)

Perceived Value

Bajs (2015) claimed that studies on perceived value in the tourism and hospitality industry is still insufficiently investigated. However, most of the marketers in tourist destinations devote their effort to enhance tourist value as it appears to be the key determinant of tourist decision-making. This perceived value concept is crucial in determining tourist decision making since positive perception among tourists while evaluating time and effort values of a destination will indirectly trigger their revisit intention. Several scholars have defined the concept of perceived value. One of the plausible explanations of perceived value concept contended by Suhartanto et al. (2020) which refers to a comparison between the benefits (what tourists receive from their trips) and sacrifices (what the tourists spend) on the tourism products or services utilised during their holidays to the destination. Hence, the tourists will feel worthiness of their trip, if the destination can accommodate their needs significantly based on what they have spent. Previous empirical researches in the context of tourism marketing found that perceived value has a significant effect on place attachment (Jiang and Hong, 2021) and tourist satisfaction (Nasir et al., 2021). Hence, based on this background, two hypotheses are established:

H1: Perceived value has a significant influence on place attachment

H2: Perceived value has a significant influence on tourist satisfaction

Place Attachment

The concept of place attachment has been widely researched by the scholars across disciplines. It was also applied to tourism studies to comprehend individual-place relationships and subsequently, to effectively manage and promoting tourism destinations (Dwyer et al., 2019). Place attachment relates to an individual connection with one particular destination (Suntikul and Jachna, 2016). This concept explains how an emotional relationship between people and destination is built from the interaction between them. For this reason, developing attachment to the destination may affect tourists' thinking and emotions, and enhance their knowledge about the place so it can build strong emotional ties between individuals and places. Therefore,

building a strong connection between the place and individuals would create a strong sense of loyalty among tourists to the destination (Xu and Zhang, 2016). Moreover, destination loyalty is predicted by place attachment (Patwardhan et al., 2020, Nasir et al., 2020, and Nurbasari et al., 2021) and place attachment is predicted by perceived value (Jiang and Hong, 2021). However, lack of studies has combined these three constructs to examine the mediating effect of place attachment on the relationship between perceived value and destination loyalty, especially in the context of Langkawi. Hence, this study proposed this mediation as research gap that needs to be fulfilled. Therefore, two more hypotheses are proposed in this study:

H3: Place attachment has a significant influence on destination loyalty

H4: Place attachment mediates the relationship between perceived value and destination loyalty

Tourist Satisfaction

The concept of tourist satisfaction is being studied broadly in the context of the tourism and hospitality industry. Normally, tourists will form an expectation on the destination's offering, which mainly related to services and indirectly involves product perception before they travel to specific destination. Once they arrived at the destination, they will experience the destination's tourism offerings, which in turn will build their perceptions of the experience based on their pre-travel expectations. This experience will determine whether they are satisfied or not on their travel to the destination. Therefore, Tran et al. (2018) claimed that tourist satisfaction refers to comparing real perceivable benefits and expectations. In other words, satisfied tourists can be seen when their perceived benefits meet their expectations before they travel to a certain destination. Thus, tourist satisfaction is important in developing destination loyalty among tourists (Haji et al., 2021; Thawornwiriyatrakula and Meepromb, 2020). Moreover, Nasir et al. (2021) also claimed that tourist satisfaction is the mediator between perceived value and destination loyalty. Based on these findings, two more hypotheses are developed:

H5: Tourist satisfaction has a significant influence on destination loyalty

H6: Tourist satisfaction mediates the relationship between perceived value and destination loyalty

RESEARCH METHODOLOGY

The Figure 2 depicts the flow chart of methodology for the current study. It explains the steps involve in the research methodology.

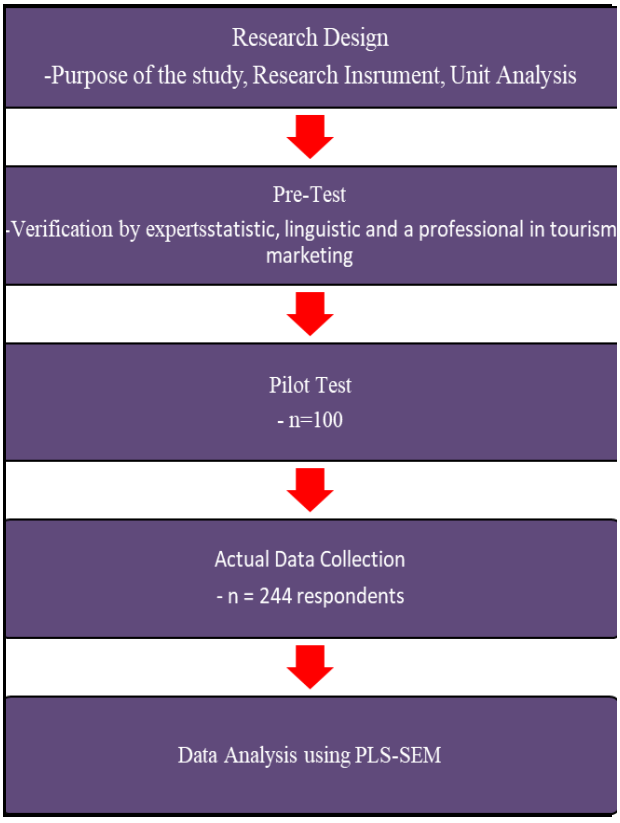

Figure 2. Flow Chart of Methodology

Research Design

The purpose of this current study is to test the changes in exogenous variables (perceived value, tourist satisfaction and place attachment) which may cause reciprocal changes in the endogenous variable (destination loyalty). By using quantitative approach, the data were collected from the respondents who are domestic tourists who had travelled to Langkawi Island for more than 24 hours but less than 365 days using self-administered structured questionnaires in the google form.

Questionnaire Design

A close-ended questionnaire was utilised to collect the data from respondents. A 7-point interval measure ranging from one (indicated as strongly disagree) to seven (indicated as strongly agree) was scaled for all items. There are five parts in the questionnaire to cover all constructs. The respondents have to answer screening questions to guarantee trustworthiness of responses based on selection of the right respondents. Qualified respondents will start to response to the first part of the questionnaire which is related to perceived value construct. The items to measure this construct were adapted from Lee et al. (2007). The second part and third part are related to tourist satisfaction and place attachment, which were also adapted from previous empirical findings (Lee et al., 2007; Kim et al., 2015; Xu and Zhang, 2016). Last but not least, the final part is related to destination loyalty construct, adapted from the study by Sun et al. (2013) and Mohamad et al. (2011). Meanwhile, questions for the demographic profile of the respondents were included to gain personal information related to their trip to Langkawi.

Pre-test and Pilot Test.

The pre-test and pilot test have been performed before the field study was conducted. The pre-test is to ensure that respondents understand the questionnaire that is posed to them. Hence, three experts in the field of statistic, linguistic and a professional in tourism marketing were appointed to review the questionnaire structure. Then, 100 respondents were selected to participate in the pilot test. The pilot test is crucial to ensure feasibility of the study especially on the survey instrument.

Table 1. Cronbach's Alpha

Constructs	Cronbach's Alpha value
Perceived Value	0.97
Tourist Satisfaction	0.97
Place Attachment	0.98
Destination Loyalty	0.96

Data collected during the pilot study stage were tested for the reliability analysis. Table 1 indicates that the items used are highly consistent in measuring the constructs with all Cronbach's Alpha value exceeding 0.90.

Data Collection

Responses were captured using google form and purposive sampling method was used to select the respondents. The screening questions were included in the google form to ensure that individuals who respond to the questionnaire possess the required criteria for the study such as: (1) Stayed at the island for at least 24 hours but less than 365 days (2) 18 years old and above. Finally, 253 responses were collected but 9 responses were found to be invalid because respondents did not fulfil the screening criteria stipulated in the questionnaire. The remaining 244 responses were later analysed using PLS-SEM method. Most importantly, the data fit within the range of sample size recommended by Burn et al. (2017) that is between 96 and 384.

Demographic profile

A majority of the respondents are female (82.2%) and most of them attained bachelor degree qualification (79.5%). Their marital status is mostly single (67.2%) followed by married (30.3%) and the remaining are divorced (2.5%). Most of them are between the age of 18 to 27 years old (61.4%) and went to Langkawi for holidays (85.2%). Most of the respondents were at Langkawi as repeat-visitors (67.2%) and they chose to stay at hotels (60.7%).

Data analysis

Partial Least Square (PLS) based Structural Equation Modelling (SEM) was used to analyse the data collected from the respondents. This method is suitable to analyse the data whenever one dependent variable is acting as an independent variable in the subsequent relationships. Utilizing the Partial Least Square (PLS) based Structural Equation Modelling (SEM) is also useful when it does not include assumptions of homogeneity in covariances and variances of the dependent variable. As such, the PLS-SEM method provides a complete analysis for the inter-relationships among variables since it can simultaneously test the measurement and the structural models. The current study also utilizes the bootstrapping analysis (1000 resamples) to test on the significant levels of the loadings, weights, and path coefficients.

Examining the measurement model

In this present study, it involves a reflective model (Figure 3) which requires the measurement of reflective model such as convergent and discriminant validity analysis. The requirement that needs to be met in order to achieve a convergent validity are factor loadings, (2) composite reliability (CR) and (3) average variance extracted (AVE).

Table 2. Factor loadings, CA, CR, AVE and VIF

Constructs	Items	Factor loadings	CA	CR	AVE	VIF
Place Attachment (PA)	PA1	0.922	0.981	0.982	0.766	3.617
	PA10	0.926				
	PA11	0.936				
	PA12	0.861				
	PA13	0.828				
	PA14	0.851				
	PA15	0.827				
	PA16	0.763				
	PA17	0.751				
	PA2	0.901				
	PA3	0.895				
	PA4	0.926				
	PA5	0.888				
	PA6	0.823				
	PA7	0.913				
	PA8	0.904				
	PA9	0.937				
Perceived Value (PV)	PV1	0.844	0.969	0.972	0.700	1.000
	PV10	0.867				
	PV11	0.846				
	PV12	0.811				
	PV13	0.858				
	PV14	0.862				
	PV15	0.794				
	PV2	0.839				
	PV3	0.821				
	PV4	0.832				
	PV5	0.823				
	PV6	0.824				
	PV7	0.782				
	PV8	0.857				
	PV9	0.885				
Tourist Satisfaction (TS)	TS1	0.845	0.971	0.976	0.833	3.617
	TS2	0.896				
	TS3	0.911				
	TS4	0.928				
	TS5	0.934				
	TS6	0.926				
	TS7	0.939				
	TS8	0.918				
Destination Loyalty (DL)	DL1	0.938	0.961	0.969	0.840	-
	DL2	0.81				
	DL3	0.927				
	DL4	0.956				
	DL5	0.959				
	DL6	0.902				

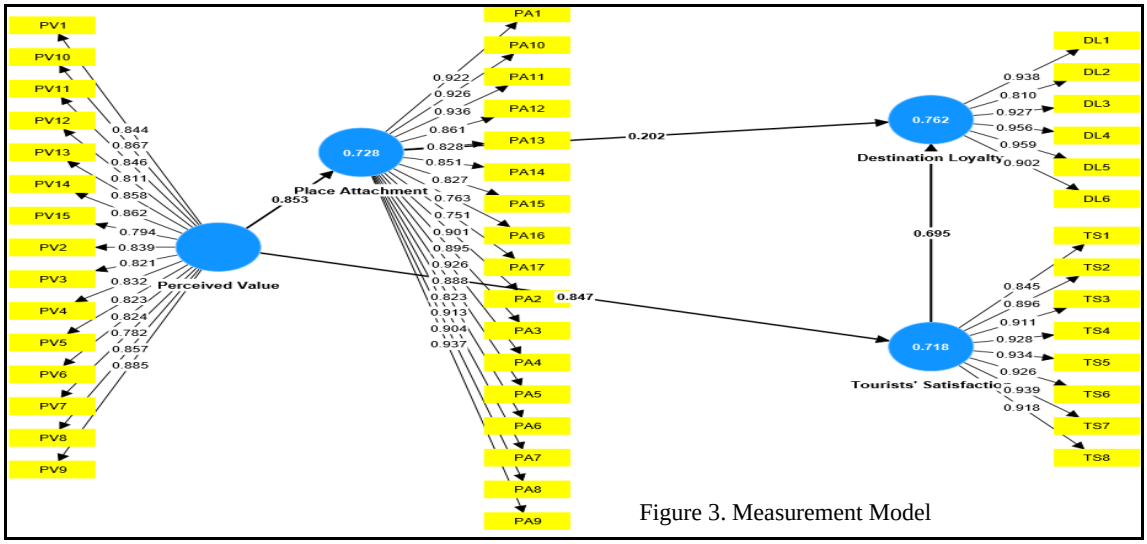

Figure 3. Measurement Model

The loadings for all items exceed the recommended value of 0.6, while the composite reliability values to which the items indicated the latent construct are more than 0.9 for all constructs which surpass the recommended value of 0.6 (see Table 2). Moreover, the range of average variance extracted are between 0.70 to 0.84, which is more than the recommended value of 0.5. Next, discriminant validity was verified through Heterotrait-Monotrait Ratio (HTMT) in order to ensure the construct is conceptually different from other latent constructs used in this current study. The scores of the HTMT as depicted in Table 3 are in the range 0.810 to 0.897, which is lesser than 0.90 threshold suggested by Hair et al. (2022). As such, the results for HTMT criterion confirmed that discriminant validity has been fulfilled. The scores have met all of the requirements, hence indicating that the current model possess an adequate convergent and discriminant validity.

Examining the structural model

Direct Effect

Table 3. Heterotrait-Monotrait Ratio (HTMT) of the correlations

HTMT Criterion				
Construct	1	2	3	4
Destination Loyalty	-			
Perceived Value	0.860			
Place Attachment	0.810	0.866		
Tourists' Satisfaction	0.897	0.869	0.866	-

Table 4 shows the results for structural model testing. Findings indicate that the perceived value construct has a significant impact on place attachment ($\beta = 0.853$, $p < 0.05$) and tourist satisfaction ($\beta = 0.847$, $p < 0.05$). Hence, the hypotheses H1 and H2 are supported. Furthermore, place attachment construct demonstrates significant effect on the destination loyalty ($\beta = 0.202$, $p < 0.05$). Therefore, H3 is also supported. Similarly, tourist satisfaction construct also shows significant effect on the destination loyalty ($\beta = 0.695$, $p < 0.05$), supporting H5. Meanwhile, Table 4 also provides the results for coefficient of determination (R-square). The R-square values for destination loyalty, place attachment and tourist satisfaction constructs are 0.762, 0.728, and 0.718 respectively. The result suggests that place attachment and tourists' satisfaction constructs could explain about 76.2% variations in destination loyalty, while perceived value construct could explain about 72.8% variations in place attachment. The finding suggests that perceived value is a major determinant of place attachment. Also, it is found that perceived value explained more than 70% variations in tourists' satisfaction.

Table 4. Results for Structural Model

Direct Relationships	Beta	Std. Error	t-value	P values	R2	Decision
H1: Perceived Value → Place Attachment	0.853	0.018	46.639	0.000	0.728	Supported
H2: Perceived Value → Tourists' Satisfaction	0.847	0.019	45.356	0.000	0.718	Supported
H3: Place Attachment → Destination Loyalty	0.202	0.090	2.230	0.026	0.762	Supported
H5: Tourists' Satisfaction → Destination Loyalty	0.695	0.077	8.999	0.000		Supported

Mediating Effect

Regarding the mediation effect, this study follows the rule of thumb by Preacher and Hayes (2004). Two parallel mediating effects were tested: (1) the mediating effect of place attachment on the relationship between perceived value and destination loyalty (H4) and (2) the mediating effect of tourist satisfaction on the relationship between perceived value and destination loyalty (H6). Table 5 indicates the result of the bootstrapping analysis, where the indirect effect of place attachment construct is significant ($\beta = 0.172$) with a t-value of 2.217. This means that place attachment mediates the relationship between perceived value and destination loyalty. Hence, H4 is supported at five percent significance level. Meanwhile, the indirect effect of tourist satisfaction construct is significant ($\beta = 0.589$) with a t-value of 8.181. This also means that tourist satisfaction mediates the relationship between perceived value and destination loyalty. Thus, H6 is supported at one percent level of significance.

Table 5. Mediating Effect Results (Note: ** at 5% significant level, *** at 1% significant level)

Mediating Relationships	Beta	Std. Error	t-value	P value	Decision
H4: Perceived Value → Place Attachment → Destination Loyalty	0.172**	0.078	2.217	0.027	Supported
H6: Perceived Value → Tourists' Satisfaction → Destination Loyalty	0.589***	0.072	8.181	0.000	Supported

DISCUSSION

Theoretical Contribution

This study is considered as unique and original because it covers a wide variety of constructs, namely, perceived value, tourist satisfaction, place attachment and destination loyalty, simultaneously in one model, which were insufficiently investigated by previous similar studies. Most importantly, based on the current findings, this study has verified the existence of two parallel mediators of tourist satisfaction and place attachment on the relationship between perceived value and destination loyalty which have been tested simultaneously on the research model. The outcome contributes significantly to existing literature because lack of past studies had proven the two parallel mediators. Moreover, this study focused on the population of domestic tourists visiting Langkawi Island, in which limited number of past researchers has tested on this population. Most importantly, the findings of the study conform with the Oliver's (1999) Four Stage Loyalty Theory. The theory is structured based on the four components which is positioned in an orderly manner: (1) cognitive loyalty (2) affective loyalty (3) conative loyalty and (4) action loyalty. The development of destination loyalty starts with an individual cognitive loyalty, whereby, it relates with the perception of visitors on the worthiness of time and money spent on their holiday to Langkawi. The most appropriate variable in this study to represent this stage is perceived value. The next stage is affective loyalty which is related to emotional feeling of visitors. Hence, this stage is represented by two variables: tourist satisfaction and place attachment. The subsequent stage is conative loyalty which is related to the intentions of visitors, namely, intention to repeat visit and intention to recommend. These two are the components of

destination loyalty. Finally, when these three stages have completed, the intention will turn into an action. This means, in future, the visitors will repeat visit to Langkawi and recommend the destination to others.

Practical Contribution. Tourism Management

Several practical insights are useful for Langkawi tourism authorities to develop plans and strategies from the findings of this study, especially to improve the loyalty of the domestic tourists to the destination. First, this present study emphasizes on perceived value of Langkawi Island by the domestic tourists, which is deemed useful for the authorities in planning the tourism development strategies. Langkawi tourism authorities should offer valuable products and services as perceived by the tourists so that visiting the destination is acknowledged as their best decision and their overall visit to the island is valuable and worthy. This situation will lead to their overall evaluation of the destination being satisfactory. Moreover, it will build a strong personal connection between the tourist and the island, consequently lead to creating a strong sense of loyalty among the tourists to the destination.

Travel and tour providers

The travel agencies and tour providers should focus on providing authentic experience to the tourists including a list of interesting tour activities in their travel package, such as visiting water buffalo farms and learning on local plants and herbs to understand their medicinal value. On top of that, these agencies should also actively promote the Langkawi Homestay programme whereby the tourists would be able to stay together with the local community and be involved in their daily activities. This will portray Langkawi Island as a destination with good quality of tourism experience, and indirectly leads to getting positive evaluation by tourists in visiting the island. It is believed that their worthy visitation and memorable experience will encourage tourists to come again, more than other island destinations. They also would feel that visiting the island is satisfactory when considering their invested time and money. Eventually, they will start to be loyal to the destination, and it would bring a sustainable income to the travel and tour providers.

Local Business Enterprise: Local business enterprises such as restaurants and handicraft shops should provide affordable, tasty food and creative handicrafts as deemed by the tourists. It is important to please tourists' preferences especially in getting reasonable prices for good-quality products. Local food and souvenirs are part of Langkawi Island image representation and visibility; thus, tourists will repeat purchases during their next visit and recommend the shops to their families and friend. Indirectly, providing excellent local products will lead a long-lasting income for the local suppliers.

CONCLUSION

In conclusion, the PLS-SEM was executed to analyse the data. Based on the findings, four direct hypotheses are supported (H1, H2, H3 and H5) and the other two indirect hypotheses are also supported (H4 and H6). As a renowned island in Malaysia, Langkawi Island is believed to be a unique and worthy destination to be visited by tourists. Its amusing nature and richness of local products are definitely classified as pulling aspects, however there are more factors that need to be studied in order to retain tourists to revisit this island.

The study found that tourists' perceived value is the main determinant of their attachment to the island, which leads to their satisfaction in visiting Langkawi Island. Meanwhile, their sense of attachment to the destination and satisfaction has a significant influence on their loyalty in visiting Langkawi Island. More to the point, the place attachment and tourist satisfaction constructs were validated as parallel mediators and has the indirect effect to the relationship between perceived value and destination loyalty. Thus, all hypothesis for this study were supported.

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DETERMINATION OF THE TOURIST POSITION OF LAKES OF WESTERN AND CENTRAL KAZAKHSTAN BY SPACE SURVEY

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Abstract: The article reviews the methodology for assessing water bodies in the territories of Western and Central Kazakhstan. The concept of sustainable development of the region for recreational activities of this study is relevant. Literary sources of research of lakes of Western, Northern, and Central Kazakhstan are analyzed. The study area has excellent opportunities for the development of certain types of tourism. As a result of topographic and bathymetric surveys of water resources of geosystems, the most reliable morphometric data were obtained. Analyzing of the results of remote sensing data processing and index mapping made it possible to assess the area of lakes and determine their main metric characteristics. The article also evaluates the accuracy of the results obtained using various remote sensing materials. The geographical position of the lakes causes differences in the factors of formation of their hydrological regime. The altitude position of the studied lakes is also manifested in the peculiarity of the course of long-term changes in their characteristics. These received and processed research materials will be used for tourist and recreational activities. Recommendations on the tourist and recreational use of lake systems of Kazakhstan are given.

Key words: remote sensing, dynamics, mapping index, recreational potential, resource use, medical tourism, ecotourism

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INTRODUCTION

Currently, the concept of sustainable development has found wide application in the economic, social and environmental sphere of public activity. Tourism is considered to be one of the most active and important industries in many countries and plays a vital role, contributing to the economy of many developing countries. In addition, the tourism industry has provided governments with many opportunities to live in the global economic space, thereby stimulating economic development (Tokpanov, 2021). Tourism has become an important strategy for communities to achieve economic, social and environmental benefits that can contribute to the development of tourist destinations (Huseynli, 2022; Drozdov, 1999). Rapid growth of tourism has increased the role of the community in the tourism development, and scientific geographical research is needed in order to balance the status of communities and other relevant stakeholders in the development of tourism (Inskeep, 1991; Garbuk and Gershenzon, 1997; Akbar et al., 2020; Aliyeva et al., 2019). Depending on the remoteness of the territory of lakes from settlements, remote sensing requires, along with natural conditions, the determination of the tourist and recreational potential of lakes. With the help of remote sensing, methods for determining recreational suitability can be improved. Analysis and assessment of the recreational suitability of natural systems of steppe lakes using the traditional comparative geographical method, remote sensing methods and GIS technologies, regime control methods. Conducting an assessment of the recreational suitability of the territory on the basis of which the specialization of recreational and tourist activities was assumed. Determination of the natural environment and recreational opportunities of lakes using remote sensing during the study.

Natural and geographical factors in the development of tourism are manifested in the geographical location, relief, climate, banks of rivers, lakes and seas, underground riches (mineral waters, caves, etc.), flora and fauna, beautiful, rich nature. Natural and geographical conditions are decisive when tourists choose a place to visit. The wealth of natural resources, the possibility and convenience of their use have a huge impact on the development, pace and manifestations of tourism. An important role is played by the geographical position of the region or country, proximity to the sea, picturesque mountainous and wooded areas, the nature of the coastline, the position of the country in relation to the main suppliers of tourists, the presence of the region on important transit routes. Tourism geographical research using GIS technology can

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show the current state of tourism factors and what changes have occurred over the years depending on the state of the land (Garbuk and Gershenzon, 1997). One of the components of the general problem of sustainable development of the territory is the problem of conservation of water geosystems, which arose against the background of an increase in anthropogenic load on the territories adjacent to water bodies. In this regard, there is a need to solve the problem of rational and efficient use of this category of land, which can be successfully implemented using reliable and up-to-date information about the state of water systems obtained by remote methods (Burlibayev et al., 2007).

The natural resources of Kazakhstan are unique and diverse. Along with the historical and cultural heritage, water bodies currently provide great opportunities for the recreational potential use, for the tourism development (Dmitriyev et al., 2022). The vastness of the territory, covering several natural zones - from the forest-steppe in the north to the southern deserts, from the landscapes of the Caspian Sea coast in the west to the forests of Altai in the east and the unique mountain systems of the Tien Shan - led to a high diversity of flora and fauna. The fauna of Kazakhstan is represented by a variety of species, both strictly protected and widely used for commercial and economic purposes.

There are 835 species of vertebrates, including mammals – 178, birds – 489 (of which 396 are nesting), reptiles – 49, amphibians – 12, fish 104 and round-mouthed - 3 species. The objects of hunting are 34 species of mammals and 59 species of birds (CBD Fourth National Report - Kazakhstan). Despite the fact that Kazakhstan is located almost entirely in the arid and subarid zone, a significant part of the natural ecosystems are wetland complexes, ranging from the Caspian Sea and large lake systems to thousands of fresh and salt lakes scattered on vast steppe plains. In the dry steppes and deserts of Central Asia, water plays a special role (Bragina, 2007). The uniqueness of the natural resources of Kazakhstan and its historical and cultural heritage provides great opportunities for the study and use of natural and historical and cultural sites, recreational potential, for the development of tourism in the Republic of Kazakhstan (Dmitriyev et al., 2022).The objects of this study are lakes of Western Kazakhstan belonging to the Caspian lowland and the Irtysh natural limnological region, as well as lakes of Central Kazakhstan belonging to the Central Kazakhstan region (Figure 1).

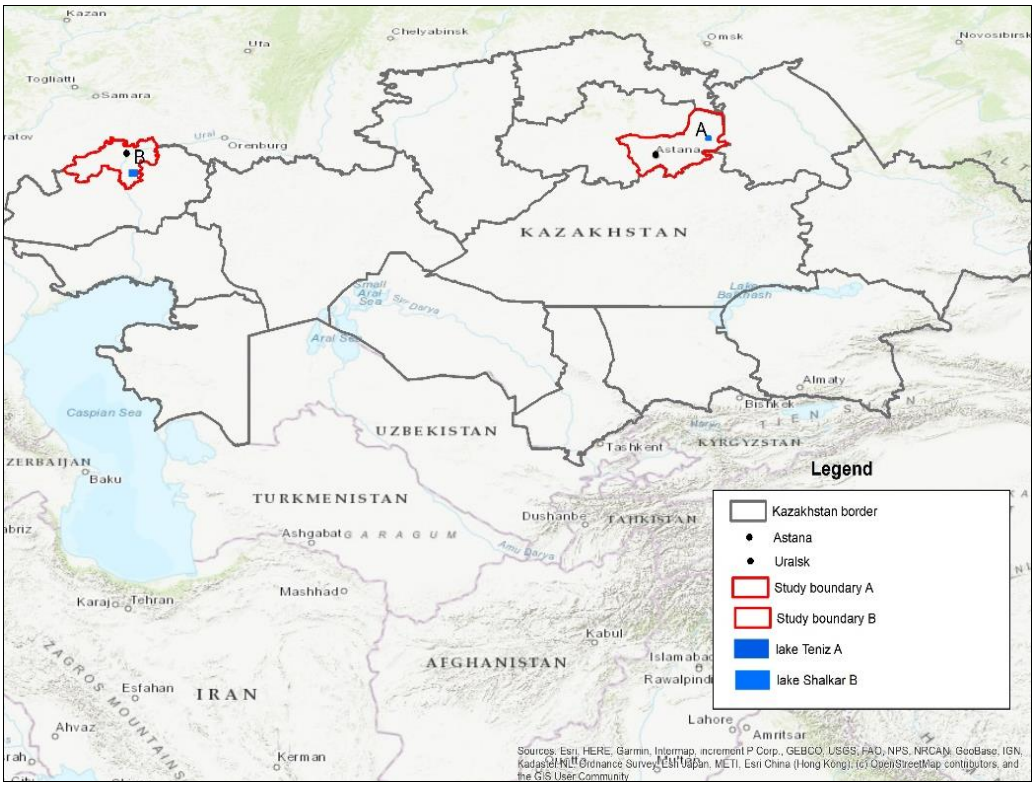


Figure 1. Geographical location of the territories of Western and Central Kazakhstan

The studied territory is located on the North Kazakh plain, bounded by Kazakh uplands from the south and southeast, and gradually merging with the Turgay Plateau in the west. Structurally, the North Kazakh Plain belongs to the West Siberian Plate, the basement of which is composed of intrusive and metamorphic pre-Paleozoic and Paleozoic rocks, is complicated by faults and is characterized by a stepped structure. In the direction of Western Siberia, the thickness of Mesocainozoic deposits does not exceed 300 m, and in the direction of the Irtysh valley, the foundation is submerged to a depth of more than 2 km. According to morphological features, the plain is subdivided into the accumulative plains of the Tobol, Ishim and Irtysh regions. The plains of the Tobol and Ishim regions are dissected by the Torgay hollow and make up the North Torgay or Kostanay plain (Mazhitova et al., 2018). They slightly differ from each other in morphology and developmental history.

In the extreme west of the Republic of Kazakhstan, the vast Caspian lowland extends. It corresponds to the central part of the syncline of the same name of the East European (Russian) platform. The Caspian lowland occupies the lowest hypsometric levels, having absolute marks from 29.6 below the level of the World Ocean (water edge of the Caspian Sea) up to 50 m. The north-eastern part of the North Kazakh Plain is occupied by the accumulative plain of the Irtysh region,

slightly inclined to the north and east. Absolute marks decrease in the same direction from 120 to 110 m. Structurally, the plain was also formed within the Irtysh depression, the foundation of which gradually decreases towards the West Siberian invariability. The thickness of the Meso-Cenozoic deposits reaches 2000 m. The left-bank marginal parts of the plain at the junction with the Kokshetau Upland are complicated by flat-topped remnants (Sagatbayev et al., 2019).

In physical and geographical terms, Western Kazakhstan is located at the crossroads of Europe and Asia and is their connecting link. This location, between the relatively humid Eastern European steppes and the sultry deserts of Central Asia, led to a sharp continental and excessive aridity of the climate, the predominance of deserts and semi-deserts in most of the vast territory. The formation of natural conditions from the north is influenced by the East European Plain with a temperate climate and from the south - by Central Asia with a dry and arid climate. The territory of the region covers a significant part of the Caspian lowland, the southern spurs of the Zhalpy Syrt and the Ural Mountains, completely occupies the Mugodzhar Mountains and the Mangyshlak peninsula, the western desert part of Ustyurt.

Geographical and tourism bases allow or directly influence the development of tourism in the region. The environmental conditions of the region allow to develop certain types of tourism such as water, ecological, scientific, and other types of tourism. As a result of the topographic and bathymetric surveys, reliable morphometric data were obtained, which are presented in the articles of Muravlev (1973). These works represent the studies of the lakes of Western, Northern and Central Kazakhstan.A significant number of lakes belonging to the southern lake belt of the Northern Hemisphere are scattered over the vast expanses of Kazakhstan. According to Muravlev (1993) there are 48,262 lakes, of which 45,248 are small lakes with an area of less than 1 km². Lakes are especially numerous in the northern part of Kazakhstan, where there are many closed depressions. The Caspian lowland and Irtysh natural limnological area is characterized by a high amount of lakes (Table 1). The largest lake is aboutTeniz, located between the rivers Esil and Yertis. Its area is 3104 km². Central Kazakhstan's natural-limnological region is distinguished by a large number of lakes, but a smaller number of lakes (Table 1). The largest lake is Teniz with an area of 3104 km², the river flows into it.

Table1.The lake character of the territories located in the Central Kazakhstan Caspian lowland and the Irtysh natural-limnological area

Natural limnological areas	Number of lakes			total area lakes, km²	Area of regions km² as of 02/01/1967	Lakes territories,%
	Less than 1 km²	More than 1 km²	Total			
Caspian low land	3176	84	3260	908	151339	0.6
Irtyshskaya	2252	238	2490	1458	44 948	3.24
Central - Kazakhstan	4 879	327	5 206	3 104	155 001	2.0
Total:	7131	565	7696	4562	199949	5.24

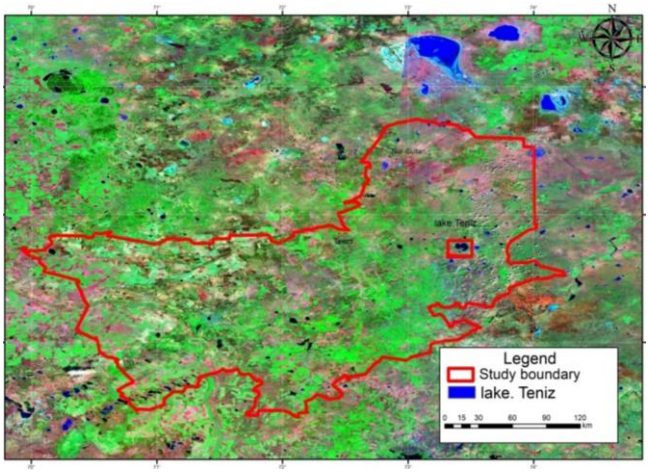


Figure 2. Geographical location of Lake Teniz.The Landsat-5 satellite image was used, https://www.usgs.gov/landsat-missions/landsat-5

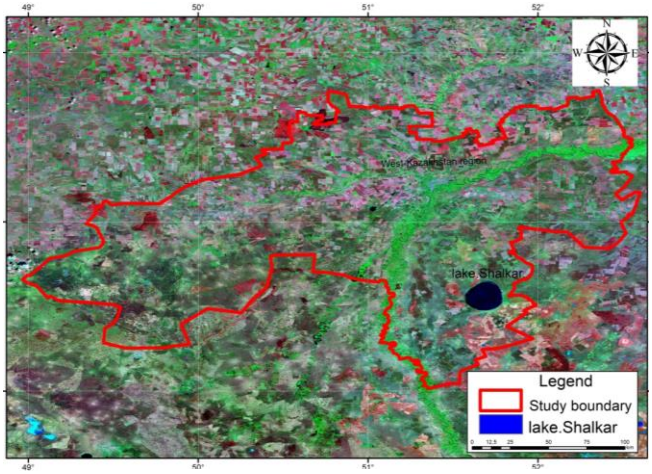


Figure 3. Geographical location of Lake Shalkar (Landsat-5 https://www.usgs.gov/landsat-missions/landsat-5)

Lake Shalkar is located 100 kilometers from the city of Uralsk in the West Kazakhstan region. This natural reservoir is very ancient, it is a remnant of the former Caspian Sea (Figure 3).

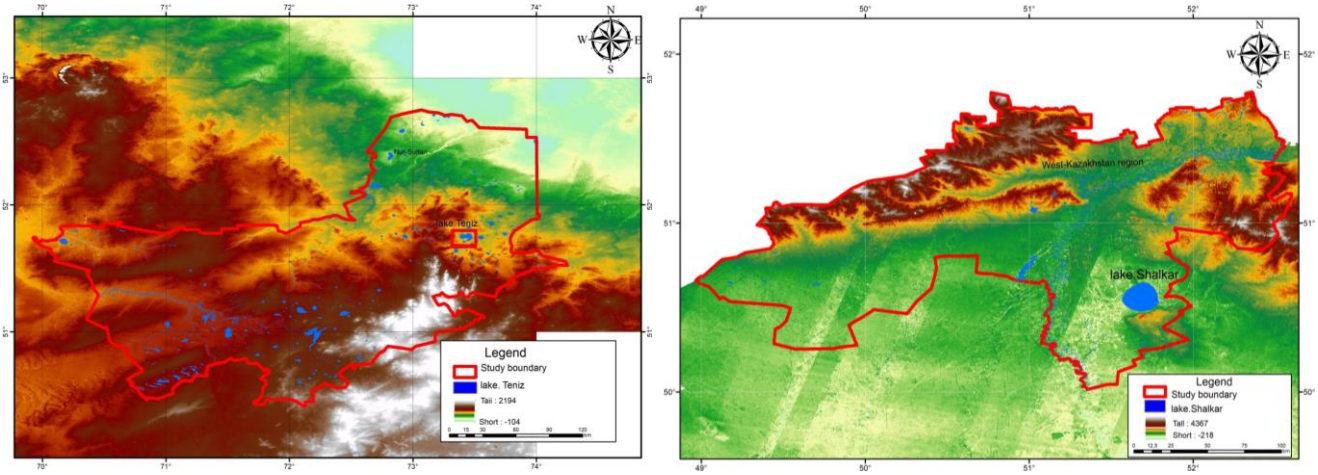
The number and area of lakes are given without taking into account ponds, reservoirs and lakes. There are 2491 Plyosovye lakes with a total area of 49.79 km^2 (Muravlev, 1993). Lake basins belong to different genetic groups, which causes a wide variety of lakes in size, shape, depth, regime, and hydrochemical features. Differences in the genesis of basins depend both on endogenous factors - the latest tectonic movements, seismicity, rock lithology, and on exogenous factors – the action of river erosion, wind, ice, karst, suffusion, and gravitational processes. At the same time, one cannot ignore the changes caused by human activities and climate fluctuations (Seliverstov, 1990). Currently, these lakes are mainly used in agriculture, some are considered as a recreational areas and for the protection of aquatic life. The study of the tourist opportunities of these lakes and other objects without the use of remote sensing causes difficulties, since the vast territory, the complex morphostructure of the relief, and the lack of knowledge for the development of tourism. Lake Teniz is located in the Akmola region in the Korgalzhyn district of Central Kazakhstan, southwest of the country's capital city of Nur-Sultan (Figure 2) (Dzhanaleeva, 2014). The total area is 304 m (Sagatbayev et al., 2019). In recreational geography, recreational limnology is engaged in the study of natural-territorial complexes consisting of a reservoir and adjacent

territory, for the purpose of recreation, health promotion and restoration of physical and psycho-emotional forces of a person (Akhmatov, 2005).The assessment of the recreational potential of lakes for organizing recreation in general is usually based on 4 main aspects: functional, sanitary-hygienic, psychological-aesthetic and technological (Kalov, 2012).

RECREATIONAL POTENTIAL OF LAKES

The lake is characterized by relatively shallow depths, in windy weather, it is completely covered with waves with white caps, it resembles a real sea with the sound of the surf, which is especially noticeable near the shore. The slightly saline waters of the lake, with their rich food, create excellent conditions for the reproduction of fish and waterfowl, so it has long been a recognized place for fishing and hunting. It has great potential for recreation and tourism.

Scientific research on Lake Shalkar started at the beginning of the 20th century. It was scientifically substantiated that the lake was formed on the site of a destroyed salt dome, the edges of which are considered to be Mount Santas. Chalk Mount Santas is located on the northern shore of Lake Shalkar (Sarsenov, 2004). It has an elongated shape, from south to north, with a length of 7-8 km. The height of the hill is small, about 20 km, but it noticeably rises above the water surface of the lake and the flat surrounding steppe. From the south, the mountain is adjoined by a saline plume covered with saline. Lake Shalkar is a natural monument; it is protected by the state. The Shalkarbiohydrological reserve was organized by the decision of the regional administration in 1992. It occupies 260.0 thousand hectares, including the water area of the lake. Shalkar, Alzhan and their immediate surroundings within the Akzhaik region. Lake Shalkar occupies up to 242 sq. km. With a length of 18.4 km, a width of 14.7 km and a depth of up to 18 m, it collects about 1.1–1.4 billion cubic meters liters of water. The water is brackish - various salts contain up to 4.6 grams per liter, of which 2.5 gram are chlorides. It has a therapeutic and health-improving effect. The lake is fed by river runoff - Yesenankaty, Sholakankaty and by a channel from the river Ural. In high-water years, part of the water is discharged through the Solyanka canal to the Urals. The geographical location of lakes causes differences in the factors of the formation of their hydrological regime. The altitudinal position of the studied lakes is also manifested in the peculiarity of the course of long-term changes in their characteristics. Therefore, all metric measurements were carried out taking into account three-dimensional terrain models (Figure 4).



a) The territory of Central Kazakhstan b) The territory of Western Kazakhstan

Figure 4. Digital model of the relief of the studied territories

The digital model of the studied territories relief demonstrates the Lake Teniz and the Nura River at 300–500 m above sea level. The Shalkar lakes have been formed in the alluvial sediments of the high terrace of the Caspian lowland at altitudes from 100 to 300 m above sea level (Sagatbayev et al., 2019). At altitudes from 100 to 300 m above sea level in alluvial deposits of a high terrace Caspian lowlandselongated lakes formed (Lake Shalkar). On lacustrine-alluvial plains with a height of 100 to 300 m, the largest reservoirs are located, surrounded by lake terraces (large and small Teniz).

As a result of our cartographic measurements, the following data were obtained on the size of the largest lakes in Western and Central Kazakhstan (Table 2). For individual lakes in Western and Central Kazakhstan, there is other information about the size (Muravlev, 1993).

Table2.Morphometric characteristics of the studied objects

Lake	Catchment area, thousand km²	Absolute height, m	Lake area, km²	Length, km	Width, km	Maximum depth, m	Water volume, km³
Shalkar	20	16.7	242	19	15	18	1.1
Teniz	94.9	304	1162	74	40	8	0.6

Earth remote sensing (ERS) methods were used to study the dynamics of lakes. In the framework of this study, the area of lakes is understood as their size at a specific point in time (at the time of satellite imagery). In the framework of this study, the area of lakes is understood as their size at a specific point in time using satellite imagery. Square kilometers are used as the area unit, since this unit of measurement is most often used to work with areal objects in various geographic information systems (GIS). The method of aerospace sensing is based on the use of images, which, as practice shows, represent the greatest opportunities for a comprehensive study of the Earth's surface. DZ methods are based on the use of sensors that are placed on spacecraft and register electromagnetic radiation in formats that are much more

adapted for digital processing, and in a much wider range of the electromagnetic spectrum. Most DZ methods use the infrared range of reflected radiation, thermal infrared radiation and the radio range of the electromagnetic spectrum. Satellite images were used to study the condition of lakes, for example, the area of the water surface. In the course of the study, such an indicator of the state of lakes as the area of the water surface was estimated-thisareal characteristic that constantly changes with time. In our studies, the water surface area is about lake surface F (km^2) excluding islands. The most important morphometric parameters should also includethe length and width of the lakes, as they allow you to determine the area of the water mirror, the length of the coastline, the volume of water in the reservoir, and other indicators. The length of the lake L (km) is the shortest distance between the two most distant points of the coastline of a reservoir, measured along its surface. Average Width (km) is the quotient of dividing the surface area of the reservoir F by its length; maximum width Bmax (km) – the greatest distance between the banks along the perpendicular to the length of the reservoir.

These indicators are needed not only for the exploitation of lake territories, but also for the development of scientific and recreational tourism. The metric characteristics of the lakes were calculated from satellite images Landsat-5.8 ERS-2, Quick Bird (Smith et al., 2007), whichmade it possible to observe the seasonal and long-term dynamics of lake areas (Figure 3). The choice of images was also determined by the availability of a data archive for more than thirty years, which made it possible to trace the intra-secular cycles of lake level fluctuations. An important task was to identify seasonal fluctuations in lakes (Erokhin and Kopylov, 2002). To solve this problem, we analyzed a series of images taken in different years. To observe the rhythm of the lakesRadar images were used in the Irtysh natural limnological region (Garbuk and Gershenzon,1997), which are not affected by the cloudiness typical for this area, especially in the warm season. Despite their application, special attention was paid to the issues of assessing the accuracy of remote measurement of lake areas using optical and radar images, since it is a difficult task to conduct a quantitative analysis of the dynamics of saline and flowing areas under global climate change (Kashkin and Sukhinin, 2001).

METHODOLOGY

The results of field research, methods of statistical processing, mathematical analysis, and mapping have been used in this research. The integrative indicator, which is calculated by the weighted average method, has been used to assess the level of recreational potential of each district (Semochkina, 2012; Baryshnikov et al., 2019; Dmitriyev et al., 2021). Analysis of the accuracy of remote measurement of lake areas using Landsat-5 and Landsat-8 and ERS-2 images was carried out by comparing the results of measurements of lake areas taken from these images with the data of area measurements on Quick Bird images, which were considered as reference ones due to their rather high resolution (Moiseenko, 1994). In studies of the measurement error of lake areas, images of the same year were selected. Measurements of the areas of lakes on satellite images were carried out using ENVI 5.0 tools.

To determine the boundaries of the lakes and study their dynamics, we used scenes of coverage by Landsat and Sentinel images. The images were selected for the summer, spring and autumn seasons with the lowest possible cloud cover. In combination with images, large-scale topographic maps of the region (1:500,000–1:200,000) were used. Meanwhile, there is a certain specificity of working with this data. So, for example, Landsat TM images are presented in a series of different years, from 1982 to 2018. But between them, there is a certain difference in the structure of the data itself. Landsat 5 has a channel structure – VIS (3), NIR (1), SWIR (2), TIR (1); Landsat 7 – panchromatic, multispectral: VIS (3), NIR (1), SWIR (2), TIR (1) with a horizontal resolution of 15 m for the panchromatic channel and 30 m for the multispectral zone; Landsat 8- panchromatic, multispectral: VNIR (6), SWIR (2), TIR (2) with a resolution of 15 m for the panchromatic channel, 30 m for the near and middle zone of the spectrum and 100 m for the thermal zone.

To identify the boundaries and classify the components of geosystems, all the initial remote sensing data were converted into mosaic coverages developed in the ENVI 5.0 program with a spatial resolution of 30 m (1982–2013).

To collect and process the modern data slice (2014 - 2018), remote sensing from the Sentinel–2 satellites series was used in the studies, whichwere launched into orbit on April 3, 2014, by the European Space Agency (ESA). It became the first in the space constellation of satellites for global monitoring of the environment and safety Copernicus. Sentinel-1A was developed byThalesAlenia Space. C-SAR synthetic aperture radar equipment (developed by Astrium) is installed on board, which provides the all-weather and round-the-clock supply of space images. In the process of thematic processing of images, calculations of NDWI, MNDWI and NDVI indices were applied with the construction of index maps for the studied territories (Tek, 2018). NDWI is an indicator of the moisture content in the soil and leaves of plants. To calculate the index, spectral brightness values in the green (Green) and near infrared (NIR) spectral ranges are usedterritories (Tek, 2018):

$$NDWI = (Green - NIR) / (Green + NIR), \quad (1)$$

where Green is the reflection in the green region, NIR is the reflection in the near infrared region of the spectrum.

NDVI (Normalized Vegetation Difference Index) is an indicator of photosynthetically active biomass on the earth's surface. To calculate it, the values of spectral brightness in the red and near infrared spectral ranges are used (Hanqiu, 2006):

$$NDVI = (NIR - Red) / (NIR + Red), \quad (2)$$

where NIR is the reflection in the near infrared region, Red is the reflection in the red region of the spectrum(Hanqiu, 2006).During processing, the so-called water index is used. The green and middle infrared ranges are used to calculate the index. The modified normalized difference index of water is calculated by the formula (Hanqiu, 2006):

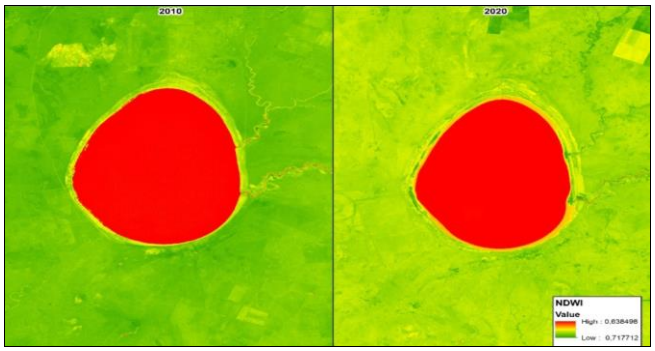
$$MNDWI= GREEN-MIR/GREEN+MIR, \quad (3)$$

where MIR is a middle infrared band such as TM band 5.

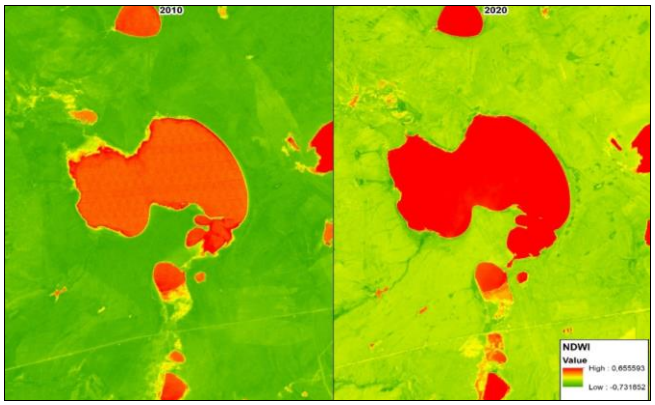
RESEARCH RESULTS AND DISCUSSION

Research in the field of tourism includes articles in the field of tourism geography, tourism management and marketing. Marketing, sustainable development of the territory and natural values are expressed in the following positions. And work in the GIS-technological direction is noticeably absent or is represented to a lesser extent.

The remoteness of tourist and recreational objects of Kazakhstan, the difficulties of research in the field are currently being implemented by remote sensing. This promising approach or method awaits future research. The purpose of the article is to show the possibilities of the remote sensing method in the study of lakes in Kazakhstan (Wendt, 2020).

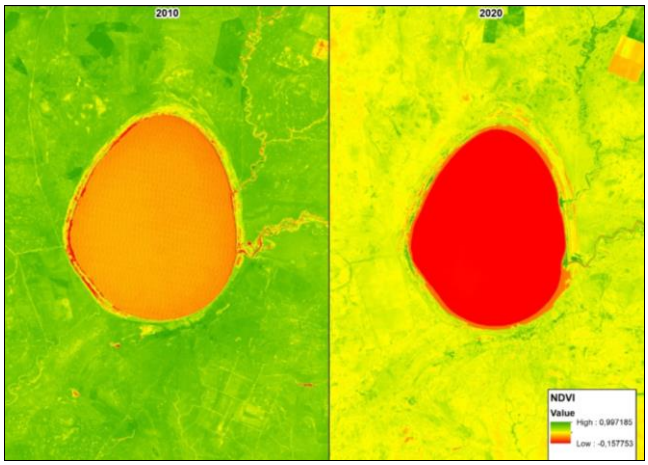


a) Lake Shalkar 2010

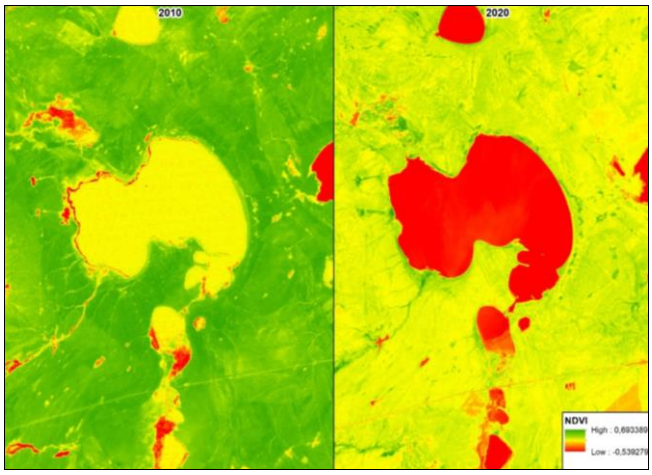


b) Lake Teniz2010

Figure 5. Determination of the area of Teniz lake taking into account the NDVI index in the period 2010-2020



a) Lake Shalkar 2020



b) Lake Teniz 2020

Figure 6. Determination of the area of Lake Teniz taking into account the NDVI index in the period 2010-2020

In the course of the study, calculations of the NDWI, MNDWI and NDVI indices with the construction of index maps for the studied territories were effectively used to highlight water bodies in satellite images (Figures 5, 6). This method of detecting reservoirs based on multispectral data is based on the fact that water largely absorbs radiation in the infrared range. In this case, the index values corresponding to the water surface will take only positive values. This property made it possible to determine the area of water bodies with sufficient accuracy. The analysis of the measurement results showed that the relative error in measuring the areas of lakes, taking into account the MNDWI index, decreases with an increase in their area. Thus, for Lake Shalkar, the error is > 4.11 km²; for Lake Teniz, the error is >2.20 km²; the average error of measuring lake areas in Landsat images does not exceed 3%.

In the images, taking into account the NDWI index, the error in measuring the areas of lakes increases with increasing their area. So, for Lake Shalkar, the error is > 4.09 km²; for Lake Teniz, the error is > 4.49 km²; the average error of measuring the areas of lakes in Landsat images does not exceed 2%. In the images, taking into account the NDVI index, the error in measuring the areas of lakes, taking into account the increase in their area, decreases. So, for Lake Shalkar, the error is > 2.32 km²; for Lake Teniz, the error is > 1.79 km²; the average measurement of lake areas in Landsat images does not exceed 1%. Calculations based on imagesERS-3 and Landsat-5 made it possible to characterize the lakes, an example of which is presented in Table 3. Long-term observations andcalculations based on satellite images for the period from 1975 to 2018 showed thatfrom 1940 to 1982 there was a decrease in the levels of lakes and a reduction in their areas in the Teniz-Korgalzhyn depression Lake Shalkar. From 1986 to 1992, an increase in the area of lakes was observed. From 1992 to 2018 in the Irtysh natural-limnological region lake Teniz – A has increased, and the areas of lakes in the Central Kazakhstan region lakeTeniz – B are declining, which may indicate the beginning of a new climatic cycle similar to the period 1940-1982. We believe that the study approach of using remote sensing is necessary for the development of tourist and recreational infrastructures. Let's compare the measurement error of lake areas on Sentinel and Landsat index images. Table 4 shows the results of measurements of lake areas, taking into account the indices MNDWI, NDWI, NDVI.

Table 3. Characteristics of lakes in the study area

№	Name	Initial data			
		2010	2020	2010	2020
1	Lake number according to the reference book (scheme)	2255		1539	
2	The lake and its location	Shalkar, 1 km W Chalkar village		Teniz, 25 km W of the village. Urkendeu	
3	Inflowandoutflow	The Shell-Ropes and Isenkaty rivers flow in, the Solyanka River flows out		The river Nura flows into it, brook. Espesai, Mal. and Blo.-Tabylgisai and 2 dry	
4	Height above sea level, m	16.7		304,4	
5	Lakearea, km², 1940 y.	**260.00**		**1161.54**	
6	Lakearea, km², 2021 y.	**242**		**1162**	
7	Length, km		18.4	74.1	
8	Maximumwidth, km		14.7	32.2	
9	Coastlinelength, km			488.0	
10	Coastlinedevelopment			4.0	
11	Drying P, non-drying N	P	P	P	P
12	MNDWI	4.11		2.20	
		Measurement errors - **1.9**			
13	NDWI	4.09		4.49	
		Measurement errors – **0.40**			
14	NDVI	2.32		1.79	
		Measurement errors – **0.53**			

Table 4. Areas of lakes calculated taking into account vegetation indexes

Name of indexes	Name of the lake area, satellite system			
	Lake area, km² Teniz		Lake area, km² Shalkar	
	Sentinel	Landsat	Sentinel	Landsat
MNDWI	261.22	263.54	1163.76	1161.97
NDWI	279.07	274.98	1158.48	1154.02
NDVI	261.72	265.83	1154.67	1152.47
Measurementerrors km²	**260.44**	**268.12**	**1162.31**	**1156.16**

Analysis of the obtained data presented in the table showed that the error in measuring lake areas on Sentinel multi-zone satellite images is less than on Landsat-5 images, due to the high spatial resolution of Sentinel images (20 m) compared with Landsat-5 (30 m) (Sagatbayev et al., 2019). As noted above, according to long-term observations, there is an impulse change in the area of lakes associated with a change in climatic conditions in the study areas.

These changes do not depend on the human anthropogenic activity. Therefore, the development of the recreational system and the intensification of resource use will not lead to the degradation of these resources with efficient and rational use.Thus, the territory of the Shalkar and Teniz lakes region has a high tourist and recreational potential, which is explained by the favorable socio-economic situation. The main type of tourism and recreation here can be developed medical tourism and ecotourism, which has both scientific and educational significance.

Determining the area of lakes, taking into account the NDVI index, is necessary for the placement of recreational facilities along the banks. The development of the tourist and recreational system and the intensification of resource use will not lead to the degradation of these territories if they are used efficiently and rationally. We have found that the territory of the region of lakes Shalkar and Teniz has a high tourist and recreational potential, which is explained by a favorable socio-economic situation. The main type of tourism and recreation here can be developed in medical tourism and ecotourism, which has both scientific and educational significance.

CONCLUSIONS

Modern methods and software tools make it possible to take the metric characteristics of lakes. Long-term observations andcalculations based on satellite images for the period from 1975 to 2018 showed that from 1940 to 1982 there was a decrease in the levels of lakes and a reduction in their areas in the Teniz-Korgalzhyn depression and Lake Shalkar. From 1986 to 1992, an increase in the area of lakes was observed. From 1992 to 2018, in the Irtysh naturallimnological region (Lake Teniz-A) increased, and the areas of lakes in the Central Kazakhstan region are declining, which may indicate the beginning of a new climatic cycle similar to the period 1940-1982. The analysis of the data obtained showed that the error in measuring lake areas on Sentinel multi-zone satellite images is less than on Landsat-5 images, which is due to the high spatial resolution of Sentinel images (20 m) compared with Landsat-5 (30 m). This allows the choice of places in the construction of objects of tourist and recreational value. Calculations of the NDWI, MNDWI and NDVI indices with the construction of index maps for the study areas were effectively used to identify water bodies on satellite images.

Depending on the remoteness of the territory of the lakes from settlements, we determined the tourist recreational potential of the lakes using remote sensing. Now it is necessary to improve the methods for determining the recreational suitability of the territory. The determination of the natural environment and recreational opportunities of lakes using remote sensing during the study was confirmed with the results obtained (Figures 6, 7 and Tables 3, 4). The territory of the Shalkar and Teniz lakes region has a high tourist and recreational potential, which is explained by the favorable socio-economic situation. The main type of tourism and recreation here can be developed medical tourism and ecotourism, which has both scientific and educational significance. The most important types of lake activities are swimming, recreational and

professional fishing, various types of leisure by water, sports events, and other types of recreation. The use of remote sensing data allows the use of modern high-tech methods for the analysis and interpretation of actual data, which expands the possibilities of monitoring studies of spatial and temporal changes in the environmental conditions of the territory.

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WHAT DRIVES GEN-Z TO VISIT TOURIST DESTINATIONS USING VIRTUAL REALITY? THE STIMULUS-ORGANISM-RESPONSE APPROACH

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Abstract: The Covid-19 pandemic significantly impacted tourism globally due to international travel restrictions. One of the technological advancements, Virtual Reality (VR), offers the pre-travel experience as an alternative method to alter human existence in tourism destinations. VR has been applied in tourism and hospitality to promote tourist experiences, especially for Gen-Z, a generation born in the technology era. This paper investigates the determinant factors of VR experience impact on Gen-Z's visit intention to Indonesian tourism destinations during the Covid-19 pandemic. This study presents a Stimulus-Organism-Response (SOR) framework to provide a sequential process of the interaction between antecedents and consequences. The model was examined using 199 respondents and employed Smart PLS 3 for empirical analysis to assess the relationship. This study result confirmed that Gen-Z visit intention was derived from their satisfaction as a part of the response stage in the SOR model. Their satisfaction was affected by telepresence, focused attention, and temporal distortion, influenced by the sense and quality of information. This study contributes to digital tourism literature, particularly in VR studies amidst the pandemic. Furthermore, for the managerial implication, this study will give insight for tourism marketers and local or national governments to understand consumer behaviour through the technology approach in order to thrive back in business.

Keywords: Gen-Z, virtual reality, visit intention, the Covid-19 pandemic

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INTRODUCTION

The Covid-19 pandemic, which is considered to have started around January 2020, quickly spread to practically all countries in the world despite severe travel ban restrictions and quarantine procedures enacted by governments. Infected cases surpassed 1 million in April 2020, 5.8 million in late May, and 23 million in August 2020. This ends up in more than 800.000 death globally as of August 23rd, 2020 (Sun et al., 2020). This caused one-third of the world's population to be under stay-at-home orders. This has been impacting tourism operations around the world which the Covid-19 pandemic has severely reduced. According to the United Nations World Tourism Organization (UNWTO), Covid-19 effects on the tourism and hospitality sector included a loss of USD 1.3.trillion and a 74% drop in international visitor numbers in 2020 compared to 2019 (UNWTO, 2021). The World Health Organization (WHO) and national governments implemented border closures due to the kind of travel that facilities the spread of the pandemic, which disrupted tourism activities globally (Lock, 2022; DeCambre, 2020). This caused actual travel limitations. The Covid-19 pandemic has hindered travel and diminished people's willingness to travel (Gursoy and Chi, 2020). One of the main factors preventing travellers is the perceived health danger that the pandemic poses to tourists (Chua et al., 2020).

While some tourists may continue to travel and use risk-reduction techniques, others may choose not to. Travel is only viewed as fulfilling and is relatively likely to happen even during a pandemic when motivation and cleanliness are highly maintained (Aebli et al., 2021). Thus, this pandemic has brought attention to the need for innovative travel options (Lacina, 2020). In stay-home orders under the Covid-19 situation, many tourism and hospitality industry altered their business model with Artificial Intelligence to enhance people's experience in leisure. Airbnb, as the lodging industry, for example, has offered stay-at-home travel and virtual restorative experiences to take people into a new spectrum of realism and interactivity in cyberspace (Wong et al., 2022; Fredman, 2020). In Indonesia, Virtual Reality (VR) has been applied to several tourist destinations in the capital city and secondary. Gen-Z was the dominant market in the tourism and hospitality industry during the pandemic (Choirisa and Rizkalla, 2021).

According to Kim et al. (2022), aside from security seeking, Gen-Z's characteristics significantly impact the preference for contactless service. Additionally, Gen-Z sees new technology as having a higher demand for contactless services. Moreover, Gen- Z are becoming increasingly interested in transformative experiences. They can participate in more exciting and varied interactions with VR (Buhalis and Karatay, 2022; Buhalis et al., 2019). More than 84% of customers worldwide say they would be interested in utilising VR or augmented reality (AR) for travel experiences, and 42% think these technologies will shape tourism in the future (Han et al., 2017). The distinctions between the real and digital experiences of culture and tourism are blurred due to ambient intelligence, ushering in a new era of cultural tourism

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(Buhalis, 2020). However, despite the new opportunities provided by information and communication technology (ICTs), the desire to travel and escape daily life still predominates. Utilising computer-generated images or videos, immersive technologies like Virtual Reality (VR) allow people to travel virtually while imitating real-life experiences and providing an alternative to traditional travel (Guttentag, 2010; Loureiro and Guerreiro, 2020). VR is the technological breakthrough that stimulates reality perception in real scenarios through computer-generated sensory outputs (Gavish et al., 2015).

VR has emerged over the past few decades as one of the most significant innovations in travel and tourism. It offers tourism operators cutting-edge media to improve the customer experience while allowing travellers to experience a destination or site early and quickly (e.g., Buonincontri and Marasco, 2017; Lin et al., 2020). VR experiences are excellent for engaging presentations that raise public understanding of cultural heritage, mainly if developed using web-based technology (Chotrov and Bachvarov, 2021). A study found that spatial presence influences how people feel about places; a stronger sense of spatial presence produces more substantial interest in and preferences for the tourist destination. This demonstrates how beneficial VR experiences are as a marketing tool (Tussyadiah et al., 2017).

The theoretical concept of stimulus-organism-response (SOR), according to Mehrabian and Russell (1974), is appropriate for this study due to its support for the environment can assess pro-environmental behaviour and conceptualise the VR tourism continuance intentions (e.g., Tandon et al., 2021; Kumar et al., 2021). Hence, SOR provides a pertinent framework for grounding our research goals. However, fewer studies have been on utilising VR for tourism destinations in pandemic circumstances. Hence, this study raises the following critical question:

1. How can VR effectively be used by Gen-Z to determine their visit intention?
2. What factors impact Gen-Z visit intention?

Therefore, this study aims to examine the Stimuli-Organism-Response (SOR) framework to explore the VR experience in Indonesia during the Covid-19 pandemic, which can replace actual travel in situations when travel options are constrained due to travel limitations amidst the COVID-19 pandemic. To understand the intricate process governing the interplay of SOR, this study is possibly sustainable for future tourism development (e.g., Wiltshier and Clarke, 2017).

LITERATURE REVIEW

1. Virtual Reality

A computer-generated universe that simulates a natural or manufactured world is what has been referred to as virtual reality (Guttentag, 2010), where humans can live in a place and real situations (Diemer et al., 2015; Loureiro and Guerreiro et al., 2020) using or not using wearable technology (Wei, 2019). VR Technology has been used in tourism since the early 1990s (Hudson et al., 2019) to provide visitors with an immersive experience (Loureiro et al., 2020). This technology offers tourism operators cutting-edge media to improve the customer experience while allowing travellers to experience a destination early and easily (Lin et al., 2020; Buonincontri and Marasco, 2017).

Moreover, to improve the visitor experience before, during, and after visits, several tourism destinations have included VR applications in their experience portfolio (Errichiello et al., 2019). This is due to the possibility that VR is present for removing physical obstacles and reducing distance barriers. The benefits of VR could alter the nature of tourism which are movement and human presence to destination. Otherwise, this technology can create perceptions of users' feelings analogous to how they would in a physical location (Parsons et al., 2017). Since several theories have been applied to several studies on VR in gaming and tourist contexts, understanding the impact of VR utilising flow is a critical aspect of user experience (Kang et al., 2020). Furthermore, it has been demonstrated that flow has many dimensions, each linked explicitly to various psychological and behavioural impacts (An et al., 2021).

2. Stimulus-Organism-Response

This study employed the Stimulus-Organism-Response (SOR) framework as an overarching hypothesis since earlier studies had shown its ability to anticipate how visitors would respond to virtual reality stimuli (Talwar et el., 2022). Marketing researchers have used the S-O-R framework to comprehend environmental elements (Xu et al., 2014). The framework is based on the theories of Mehrabian and Russell (1974), who conceived behaviour as taking place in a setting composed of stimuli. The organism affects consumers' cognitive and affective processes, resulting in behavioural responses. The three-part paradigm has made it possible to create models that incorporate affective and cognitive intermediary layers rather than direct causal relationships between stimuli and action (Xu et al., 2014).

2.1. Stimulus

According to Chen et al. (2019), the sense is a critical component of VR marketing since it elicits visual and auditory inputs and offers an immersive experience. The quality of sense in VR is determined by the VR technological aspects such as vividness and interaction (Shih, 1998; Steuer, 1992). Compared to traditional media, like television and movies, VR's visual and audio stimuli substantially affect information delivery. In Virtual Reality Experiences, the stimuli are the visualisation of Indonesian tourist destinations and the widespread use of online channel sources. VR gives viewers a more realistic and immersive experience than TV or movies because it increases the response time to changes in visual information (Aebli et al., 2021). Several studies supported the favourable association between sense and telepresence (Algharabat and Dennis, 2010; Dinh et al., 1999; Hulten et al., 2009).

Moreover, Lin and Kuo (2016) discovered that telepresence was highly influenced by sense as a visitor experience. The enhancement of telepresence by supplying sense was confirmed by Dinh et al. (1999). According to Mpinganjira (2016), focused attention and temporal distortion are two components of flow influenced by vision. In addition, a significant factor

in determining a satisfying experience is the quality of information (QOL) of VR travel content. Low-quality information distracts users, ultimately lowering the travel experience's value (An et al., 2021; Gao and Bai, 2014). This study involved sense and QOL as a part of stimulus on the SOR framework. Hence, the following hypotheses are:

H1: Sense (SEN) -> Telepresence (TEL)
H2: Sense (SEN) -> Focused Attention (ATT)
H3: Sense (SEN) -> Temporal Distortion (TEM)
H4: Quality of Information (QOL) -> Telepresence (TEL)
H5: Quality of Information (QOL) -> Focused Attention (ATT)
H6: Quality of Information (QOL) -> Temporal Distortion (TEM)

2.2. Organism

Three variables are employed in this study to explain the organism aspect: telepresence, focus attention, and temporal distortion. The word "telepresence" was first coined by Minsky (1980) to describe the phenomenon of humans experiencing a sense of being "transported" through a system. The fulfilling experience of being present in what seems to be a natural setting is also known as telepresence. It results inadvertently from tangibility and imaginative immersion (Beuckels and Hudders, 2016; Hopkins et al., 2004; Hyun and O'Keefe, 2012). Scholars from various disciplines, including tourism, computer science, psychology, and marketing, have studied and examined the telepresence concept in technology due to the initial description as "being transported" (Kim and Ayyagari, 2018, Viput et al., 2020). Sheridan (1992) claimed that sensory stimuli, sensor control, environmental control, task difficulty, and a higher level of automation are the five factors that cause telepresence. People are highly immersed and attentive during telepresence since they imagine firsthand encounters (Cuny et al., 2015; Huang, 2006). Telepresence can also reinforce the link between tourism and destination in VR. In the context of tourism in media such as youtube, the degree to which it depicts reality through the content can be an instance of an out-of-body experience (Lim and Ayyagari, 2018). Website users may have an intense sense of immersion because websites use a variety of multimedia materials and objects (animated graphics, sounds, and movies) (Sukoco and Wu, 2011). According to Kim and Hyun (2016), because of the mediated environment created by the website, telepresence may induce visitors to feel surprised or as though they are in a fantasy world.

Further explanations of how websites operate as stimuli that might affect visitors' emotions and behaviours were provided (Lim and Ayyagari, 2018; Song et al., 2007). Similarly, Mollen and Wilson (2010) claimed that telepresence could be produced by website engagement, which fosters favourable consumer attitudes and behaviours. The ability to allow website users to feel as though they are transported into the reality of the hotel and experiences that they imagine that is near to the actual products and services supplied by the tourism destination, which similar presence-arousing tools would work well in a tourism video in the website. As a result, in the context of the current study, telepresence refers to the experiences that website visitors to tourism destinations have of feeling as though they have been psychologically transported into the world the hotel website has created and are now directly interacting with the goods and services offline. A study confirms that telepresence positively led to a high level of satisfaction (Aebli et al., 2021). However, there a study found that telepresence has no relationship to their purchase intention (Jang et al., 2019). Therefore, this study aims to explore the following hypothesis:

H7: Telepresence (TEL) -> Satisfaction (SAT)
H8: Focused Attention (ATT) -> Satisfaction (SAT)
H9: Temporal Distortion (TEM) -> Satisfaction (SAT)

2.3. Response

Studies related to the satisfaction of online and offline tourism encounters have become a predictor of tourist behavioural intention (Choi et al., 2018; Hudson et al., 2019). According to Wu et al. (2019), attachment to virtual reality (VR) experiences favourably and immediately increased satisfaction and behavioural intentions with the experiences, which were also validated in the context of hotel experiences (Wu and Cheng, 2018). In this definition, visit intention is a person's intention to visit a tourist destination that has already been virtually visited.

At the same time, satisfaction is defined as the overall appraisal of the experience compared to individual expectations (Oliver, 1980; Kim et al., 2020). Although Kim et al. (2020) discovered that VR attachment improves visitors' intentions to visit, their study did not examine how VR attachment affects visitors' enjoyment of the experience. According to studies on VR experiences as well as existing tourism literature (e.g., Prayag and Ryan, 2012; Akhoondnejad, 2016; Ramires et al., 2018), tourists' behavioural intentions are significantly influenced by their level of satisfaction (Hudson et al., 2019 and Lee et al., 2020). Therefore, this study aims to explore the hypothesis as follows:

H10: Satisfaction (SAT) -> Visit Intention (VIT)

RESEARCH METHODOLOGY

This study employed a quantitative research approach with a survey method to collect data by distributing online questionnaires through email. The survey was sent to 215 Gen-Z in Indonesia, with a 92.55% of response rate or 199 participants who participated to be analysed. The questionnaire was designed to measure the tourists' experience in VR simulations. Firstly, respondents were asked to confirm that they had experience in VR for leisure purposes, followed by demographic questions. Then, they were asked to assess their agreement level with the Likert scale (1= strongly disagree; 5= strongly agree). The survey depicted in Table 1, that more than half of the percentage was female, and the male accounted for 43.71%. In terms of their education, more than two-thirds of this study's respondents were at the undergraduate level, and nearly

half of the respondents were students. All respondents have experience in VR, and 78.89% of them also have an experience in tourism purposes with VR. Afterwards, participants were asked to complete the following stages in the questionnaire.

Table 1. Demographic Profile

Variables	Frequency	Percentage
Gender		
Male	87	43.71%
Female	109	54.77%
Prefer not to say	3	01.52%
Education		
Senior High School	23	11.56%
Diploma	19	09.55%
Undergraduate	157	78.89%
Monthly Income		
Below Rp. 2.000.000,-	158	79.39%
Rp. 2.000.100 – Rp. 3.900.000	32	16.08%
Above Rp. 3.900.000	9	04.53%
Occupation		
Student	189	94.97%
Entrepreneur	2	01.00%
Unemployment	6	03.03%
Employee	2	01.00%
Experiences using Virtual Reality		
Yes	199	100%
No	0	0%
Experience use Virtual Reality for Tourism Purposes		
Yes	157	78.89%
No	42	21.11%

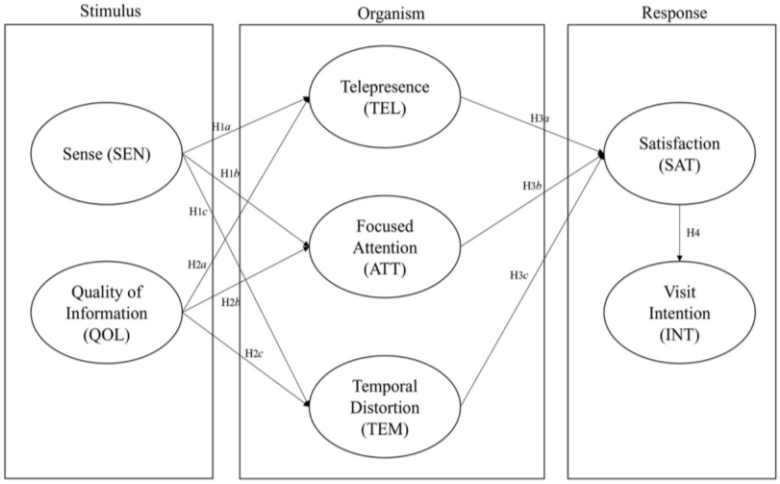

Figure 1. Research Framework (Source: An et al., 2021)
(Virtual travel experience and destination marketing: Effects of sense and information quality on flow and visit intention)

The subsequent questions are for study measurement. The quality of VR travel content was conceptualised as the attributes of sense and information quality. The sense was measured with three items derived and modified from previous studies (Brakus et al., 2009; Lee et al., 2018; Ong et al., 2018). Three items were also used to quantify information quality (Ahn et al., 2007; Gao and Bai, 2014; Hsu et al., 2012; Lin, 2008; Lin and Lee, 2006). Three items were adopted and modified for telepresence by Choi et al. (2018) and Novak et al. (2000). For focused attention, another three items were utilised from prior investigations (Huang, 2003; Mpinganjira, 2016; Novak et al., 2000).

Table 2. Reseach Instruments and Outer Loadings

Variable	Code	Indicator	Outer Loadings
Sense	SEN1	Virtual travel appealed to my senses.	0.893
	SEN2	Virtual travel made a strong impression on my senses.	0.870
	SEN3	I found virtual travel interesting in a sensory way.	0.835
Quality of Information	QOL1	The information provided by virtual travel is accurate.	0.878
	QOL2	The information provided by virtual travel is reliable.	0.863
	QOL3	The information provided by virtual travel is well formatted.	0.806
Telepresence	TEL1	Virtual travel creates a new world for me, and this world suddenly disappears when I stop the VR program	0.801
	TEL2	I felt like I was actually in a real-world location during virtual travel	0.882
	TEL3	During virtual travel, my body is at my current location, but my mind is inside the world created by virtual travel.	0.806
Focused Attention	FCA1	I became absorbed in virtual travel.	0.839
	FCA2	I concentrated fully on virtual travel.	0.900
	FCA3	My attention was focused on virtual travel.	0.920
Temporal Distortion	TPD1	During virtual travel, time seemed to go by very quickly.	0.898
	TPD2	During virtual travel, I forgot the time flow.	0.906
	TPD3	During virtual travel, I tended to lose track of time.	0.900
Satisfaction	STF1	Overall, I was satisfied by my virtual travel.	0.832
	STF2	I possess a positive attitude toward virtual travel.	0.843
	STF3	My virtual travel experience was close to my expectation.	0.859
Visit Intention	VIT1	I plan to visit places that appeared in my virtual travel in the near future.	0.896
	VIT2	I will make an effort to visit places that appeared in my virtual travel in the near future	0.909
	VIT3	I have the intention to visit places that appeared in my virtual travel in the near future.	0.907
	VIT4	I am willing to visit places that appeared in my virtual travel in the near future.	0.878

Conversely, temporal distortion was assessed with three items derived and refined from Mpinganjira (2016) and Novak et al. (2000). To evaluate satisfaction, three items from existing research were applied (Gao and Bai, 2014; Hsu et al., 2012; Lin and Kuo, 2016). Visit intention was measured with four items by Lee et al. (2018). As a result of the aforementioned research instrument, Figure 1 shows the research framework used in this study which adapt derived from An et al. (2021). The online questionnaire was developed in the English language and back-translated into the Indonesian language. This survey was pre-tested on 30 hospitality students to minimise language biases. All participants were aware of the anonymity of the survey and

that the information would only be utilised for academic study and analysis. Indicators were evaluated with outer loading levels to determine how accurately they would measure the variable questions. The individual item reliability was measured using the standardised outer loadings (Roldán and Sánchez-Franco, 2012). For the manifest variable to be approved as a construction element, it must have a loading of at least 0.707 (Carmines and Zeller, 1979; Roldán and Sánchez-Franco, 2012). Table 2 demonstrates that each indicator's measurement is substantially coherent with the minimum demands of outside loadings. In a covariance SEM analysis, the vital signs result in a superior fit (Roldán and Sánchez-Franco, 2012).

FINDING AND DISCUSSION

1. Reliability of the measurement

Hair et al. (2016) and Urbach and Ahlemann (2010) both claim that Partial Least Square Structural Equation Model (PLS-SEM) can be used to analyse complicated research framework that contains several constructs. This can be used for exploratory and predictive analyses of the causal links and effects among variables proposed in theoretical models (Romo-Gonzales et al., 2018). Statistical analysis demonstrates the relationship between latent variables using measurement data from the indicator or latent variable (Williams et al., 2009). A reflective model was used in this study to analyse the data about reliability and validity criteria (Roldán and Sanchez-Franco, 2012). According to Chin (2010) and Hair et al. (2016), PLS is appropriate for researchers that need to employ latent variable scores in the predictive relationship of further analysis. For the two-step analytical process in this study, partial least squares with Smart PLS 3.0 were employed as a variance-based technique (Anderson and Gerbing, 1988). Measurement model analysis begins with evaluating reliability, convergent and discriminant validity. To examine research hypotheses, this study then evaluates the structural model.

Table 3. Convergent Validity and Reliability

Variables	No of Indicators	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Focused Attention (ATT)	3	0.864	0.917	0.787
Quality of Information (QOL)	3	0.807	0.886	0.722
Satisfaction (SAT)	3	0.799	0.882	0.714
Sense (SEN)	3	0.834	0.900	0.750
Telepresence (TEL)	3	0.774	0.869	0.690
Temporal Distortion (TEM)	3	0.885	0.929	0.813
Visit Intention (VIT)	4	0.920	0.943	0.806

Table 4. Discriminant Validity (Fornell-Larcker Criterion)

Variables	Focused Attention (ATT)	Quality of Information (QOL)	Satisfaction (SAT)	Sense (SEN)	Telepresence (TEL)	Temporal Distortion (TEM)	Visit Intention (VIT)
Focused Attention (ATT)	**0.887**						
Quality of Information (QOL)	0.617	**0.849**					
Satisfaction (SAT)	0.716	0.707	**0.845**				
Sense (SEN)	0.610	0.731	0.689	**0.866**			
Telepresence (TEL)	0.745	0.666	0.730	0.583	**0.831**		
Temporal Distortion (TEM)	0.677	0.486	0.598	0.513	0.556	**0.902**	
Visit Intention (VIT)	0.468	0.593	0.620	0.516	0.521	0.359	**0.898**

Table 5. Cross Loading

Indicators	Sense (SEN)	Quality of Information (QOL)	Telepresence (TEL)	Focused Attention (ATT)	Temporal Distortion (TEM)	Satisfaction (SAT)	Visit Intention (VIT)
SEN1	**0.893**	0.628	0.523	0.595	0.486	0.642	0.505
SEN2	**0.870**	0.633	0.503	0.487	0.440	0.603	0.435
SEN3	**0.835**	0.642	0.487	0.495	0.403	0.541	0.394
QOL1	0.656	**0.878**	0.588	0.562	0.470	0.637	0.498
QOL2	0.577	**0.863**	0.567	0.528	0.436	0.571	0.500
QOL3	0.633	**0.806**	0.543	0.477	0.322	0.595	0.518
TEL1	0.471	0.533	**0.801**	0.626	0.526	0.553	0.503
TEL2	0.506	0.625	**0.882**	0.577	0.372	0.639	0.432
TEL3	0.474	0.497	**0.806**	0.662	0.500	0.625	0.369
FCA1	0.513	0.507	0.692	**0.839**	0.599	0.610	0.350
FCA2	0.561	0.566	0.646	**0.900**	0.614	0.629	0.438
FCA3	0.548	0.566	0.648	**0.920**	0.590	0.666	0.454
TPD1	0.475	0.488	0.539	0.637	**0.898**	0.582	0.338
TPD2	0.476	0.449	0.500	0.627	**0.906**	0.541	0.299
TPD3	0.432	0.368	0.457	0.559	**0.900**	0.486	0.334
STF1	0.498	0.533	0.648	0.647	0.594	**0.832**	0.424
STF2	0.662	0.579	0.577	0.568	0.464	**0.843**	0.528
STF3	0.589	0.674	0.624	0.601	0.461	**0.859**	0.613
VIT1	0.480	0.577	0.470	0.449	0.370	0.582	**0.896**
VIT2	0.494	0.540	0.447	0.418	0.331	0.550	**0.909**
VIT3	0.444	0.521	0.469	0.458	0.314	0.561	**0.907**
VIT4	0.434	0.487	0.484	0.353	0.270	0.531	**0.878**

The first measurement of this study analysis is to assess the convergent validity and reliability, which have three criteria given (a) the Average Variance Extracted (AVE), (b) the item reliability of each measurement, and (c) the composite reliability of each construct. Each indicator's AVE and outer loadings were used to test the convergent validity (Fornell and Larcker, 1981). Values for the AVE should be higher than 0.50. Accordingly, at least 50% of the indicator variance must be considered (Roldán and Sánchez-Franco, 2012). As a result, all the variables in Table 3 above 0.50 denote a sufficient convergent validity measurement. The measurement's reliability was evaluated to confirm the items' consistency and stability. The Cronbach alpha should be higher than 0.7 to test a concept (Nunnally and Bernstein, 1994).

The scores were adequate, as evidenced by the Cronbach Alpha values of 0.774 – 0.920). On the other side, Internal Consistency Reliability was calculated using the Composite Reliability (CR) value (Kamis et al., 2020). To maintain sufficient internal consistency, CR scores must be more than 0.7 (Gefen et al., 2000; Hair et al., 2016). Table 2 shows that all values are above the threshold. The Fornell and Larcker, 1981 criterion was also used to corroborate the measures' discriminant validity of the AVE indices for each concept should be higher than the squared between the constructs (Bagozzi et al., 1991). The AVE square root value is compared to the construct correlation value in Table 4, which provides the highest value in any column or row relative to the highest correlation value of any other construct (Hair et al., 2016). Results satisfied the criteria according to the value analysis. The values answered the research question that was put forth on the validity of the research framework (Kamis et al., 2020).

Cross-loading analysis was then performed to determine any correlations between the constructs' values and the indicator-standardized data (Gefen and Straub, 2005). Additionally, by showing the Average Variance Extracted (AVE) value of each indicator that must be larger than the others, it can lessen the multi-collinearity between the latent variables (Fornell and Larcker, 1981; Chin, 1998; Vinzi et al., 2010). The outcomes are displayed in Table 5. The cross-loading values support the construct measurement framework's validity.

2. Hypotheses identification

Results of the proposed hypotheses are reported in Table 6 (Path Coefficient) and Figure 2 (Bootstrapping result in Smart PLS 3). All hypotheses were significant and accepted. In stimulus and organism correlation, findings have shown that the first hypothesis, sense positively impacts telepresence (H1: $\beta = 0.206$, $t = 2.341$, $p < 0.05$), second hypothesis, telepresence directly influences focused attention (H2: $\beta = 0.341$, $t = 3.627$, $p < 0.05$), third hypothesis sense has a significant impact on temporal distortion (H3: $\beta = 0.338$, $t = 3.172$, $p > 0.05$) followed by quality of information positively affect telepresence as a fourth hypothesis (H4: $\beta = 0.516$, $t = 6.487$, $p > 0.05$), quality of information directly impact on focused attention as a fifth hypothesis (H5: $\beta = 0.367$, $t = 4.380$, $p > 0.05$), and sixth hypothesis, quality of information has a significant impact on temporal distortion (H6: $\beta = 0.239$, $t = 2.157$, $p > 0.05$). In organism and response correlation, the path coefficient has depicted that the seventh hypothesis, telepresence has a positive influence on satisfaction (H7: $\beta = 0.422$, $t = 7.541$, $p > 0.05$), focused attention directly affects satisfaction as the eighth hypothesis (H8: $\beta = 0.288$, $t = 3.661$, $p > 0.05$), temporal distortion significantly influences satisfaction as a ninth hypothesis (H9: $\beta = 0.169$, $t = 2.180$, $p > 0.05$), and last hypothesis satisfaction positively influences the travel intention (H10:$\beta = 0.620$, $t = 10.340$, $p > 0.05$).

Table 6. Path Coefficients

	Path	Beta	t value	p values	Result	F2
H1	Sense (SEN) -> Telepresence (TEL)	0.206	2.341	0.020	Accepted	0.037
H2	Sense (SEN) -> Focused Attention (ATT)	0.341	3.627	0.000	Accepted	0.096
H3	Sense (SEN) -> Temporal Distortion (TEM)	0.338	3.172	0.002	Accepted	0.075
H4	Quality of Information (QOL) -> Telepresence (TEL)	0.516	6.487	0.000	Accepted	0.232
H5	Quality of Information (QOL) -> Focused Attention (ATT)	0.367	4.380	0.000	Accepted	0.111
H6	Quality of Information (QOL) -> Temporal Distortion (TEM)	0.239	2.157	0.031	Accepted	0.038
H7	Telepresence (TEL) -> Satisfaction (SAT)	0.422	7.541	0.000	Accepted	0.204
H8	Focused Attention (ATT) -> Satisfaction (SAT)	0.288	3.661	0.000	Accepted	0.074
H9	Temporal Distortion (TEM) -> Satisfaction (SAT)	0.169	2.180	0.030	Accepted	0.040
H10	Satisfaction (SAT) -> Visit Intention (VIT)	0.620	10.340	0.000	Accepted	0.625

DISCUSSION

VR technology has advanced rapidly, allowing tourism and hospitality sectors to improve the tourist experience and allowing the potential visitor to pre-experience a tourism destination and offer easy access. A few research have specifically addressed the significance of the existential VR experience for a tourism destination during the Covid-19 pandemic in Indonesia, especially in determining factors in evoking tourist satisfaction and people's behavioural intention.

Employing the S-O-R framework, this study examined several variables consisting of stimuli (sense and quality of information), organism (telepresence, focused attention, and temporal distortion), and response (satisfaction and visit Through the SEM analysis, this study has assessed the research questions related to the Gen-Z experience using VR for tourism purposes. The first examination of RQ1 concerns how VR can effectively be assessed using the S-O-R framework to determine tourist visit intention. This study result has shown that the sense and quality of information significantly affect telepresence, focused attention, and temporal distortion. In particular market segmentation, Gen-Z in Indonesia perceived VR has appealed to their sense and provided accurate tourism content. Telepresence fosters a favourable attitude toward the platform when users feel they are transported to the virtual world (Lee, 2018). This has influenced their positive effect on their new world. They are fully focused and able to absorb information, although they

tend to lose track of time. Therefore, this study result verifies other research findings that VR fosters a favourable psychological state that results in users' behavioural intentions (Xi and Hamari, 2021; Kang et al., 2020; Jang et al., 2019).

The second examination of RQ2 concerns the factors that influenced Gen-Z visit intention to tourism destinations using VR. The study result explained that satisfaction variables directly influenced their visit intention. This result is similar to previous studies that found that satisfaction directly affects visiting intention (Muensit and Thongmak, 2022; Atzeni et al., 2021); An et al., 2022). VR has given the pre-travel experience to people, which can process their sense and quality of information that provides new experiences. People enrich their organism steps through the stimuli stages to participate in a real-world simulation. This has driven their mind to concentrate on VR tourism content. However, another study found that visitors' formed attachment to VR has a considerable impact on visit intention but is revealed to have less effect on satisfaction (Kim et al., 2020). Therefore, their involvement in technology made them out of the real world and affected their temporal distortion. The relationship between humans and VR technology vividly improves the possibility of travelling in stay-home order as a substitute for human existence in tourism destinations.

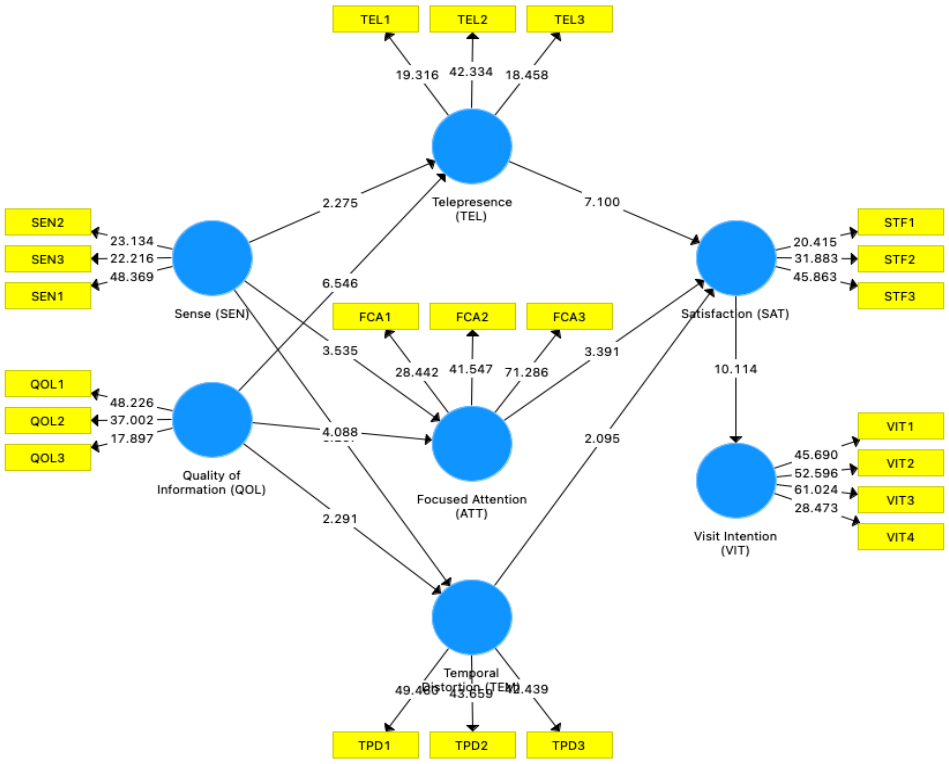

Figure 2. Structural Model (Bootstrapping result – PLS 3)

CONCLUSION AND IMPLICATIONS

This study investigated the VR potential technology utilised by Gen-Z to influence their visit intention during the Covid-19 pandemic. This study aimed to look into the possibility of using virtual reality to substitute actual travel when it is restricted due to external factors. The research questions on Gen-Z VR experiences are answered through SEM analysis. VR plays as a substitute for actual travel when travel is prohibited owing to external and environmental factors by employing the research model with variables such as stimuli, organisms, and response. Satisfaction is the factor that directly affected Gen-Z's visit intention to tourist destinations after the VR experience. This study found that all stimuli impact the organism variables, raising Gen-Z's satisfaction with the technology engagement. Forecasting potential visitors' propensity to visit depended heavily on their enjoyment of the VR experience provided by the site.

Young adults travel more frequently and for more extended periods. They are questioning the established practices of the tourist sector in their pursuit of transformative and meaningful experiences. The tourism and hospitality sector has already been revolutionised by Gen-Z, who demand more engaging experiences across all sectors (Buhalis et al., 2020). In addition, Gen-Z was the profitable market in Indonesia during the pandemic since they contributed more likely to tourism and hospitality in Indonesia than the other generations (Choirisa and Rizkalla, 2021).

This study has several limitations that can potentially be addressed in future research. Determining the generation sample can be beneficial to consider a better understanding of technology implementation. This study only used Gen-Z as a respondent; future studies can mediate diverse generations to seek possibilities in tourism marketing segmentation. In addition, an in-depth interview as a qualitative research method is also suggested to validate the study's finding of VR effectiveness. Subsequently, this study cannot be generalised since the sample was only for Gen-Z in Indonesia. The result might be different in dynamic respondents. This study contributes to the literature as an expansion of the Stimulus-Organism-Response model as a study framework to present a study of human-technology interaction through the Covid-19 pandemic. The findings showed how VR technology could simulate travel experiences and even replace actual travel (Sarkady et al., 2021). Damjanov and Crouch (2019) state that VR experiences go beyond physical representations. It primarily concerns the visitor's subjective experience in the mediated realm, as evidenced by existential authenticity's significant and direct influence on the visitors' cognitive response. This result emphasises the significance of VR technology experiences in conveying the tourism destination in stimulating vivid cognitive and emotional responses. It also consolidates our understanding of the relationships between perceived and tourists' responses.

The research findings and discussion lead to essential managerial implications. Tourism marketers must grasp the opportunity to produce VR content and create a genuine preview of the tourism destination. Planning technologically savvy

activities that keep the appeal of real travel and promote wanderlust while utilising technology to replace actual tourist activities can be difficult. Customers should be able to use the VR platform easily via various devices, including smartphones, tablets, and other mobile devices, in terms of service and system quality (Muensit and Thongmak, 2022).

In addition, enriching media tools, video, music, and animation, can be considered tools that make an experience vivid (Cheng et al., 2014). Moreover, The Ministry of Tourism and Creative Economy in Indonesia should provide at least the Indonesian' tourism destination priority to have 360 videos or VR animation to make people easy to seek tourism content as a pre-travel experience. Although the Indonesian government has offered super-premium destination 360 official videos on social media, the content needs to be emphasised for post-pandemic excitement to sustain their commercial success (Talwar et al., 2022). The immense support from the government for tourism towards technological advancement can significantly enhance potential tourists as a target and boost their willingness to visit Indonesian tourist destinations.

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PERCEPTION OF OVERTOURISM IN SELECTED EUROPEAN DESTINATIONS IN TERMS OF VISITOR AGE AND IN THE CONTEXT OF SUSTAINABLE TOURISM

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Abstract: Overtourism is a modern challenge in many popular tourist destinations. Social networks are also largely helping to spread this phenomenon, where destinations are presented to a large, dispersed, and younger audience of tourists. The aim of this paper is therefore to assess the age perception of overtourism in selected European destinations in the context of sustainable tourism. For the collection of primary data, we used an author's questionnaire, by which we surveyed from selected groups of Slovak respondents the perception of overtourism in our selected ten European destinations of overtourism. The analysis includes the most important findings from the questionnaire survey and the evaluation of research hypotheses. Selected mathematical-statistical methods were used, namely correlation analysis through the Spearman correlation coefficient and regression analysis through a simple linear regression model in the Gretl statistical program. The main findings include that there is a statistically significant association between the number of destinations visited and the age of the respondents, as well as that the number of overtourism destinations visited depends on the age of the respondents. This finding should be considered by destination management organizations when creating products aimed at younger visitors. Through various marketing activities, they could mainly focus on their travel behavior with an emphasis on the development of sustainable tourism.

Key words: overtourism, perception of overtourism, tourist destination, sustainable tourism

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INTRODUCTION

Tourism is one of the fastest growing economic sectors, as there is a growing interest among individuals in visiting those well-known places that are advertised as destinations that one must see at least once in a lifetime. However, the reality in such destinations tends to be very different from what it appears on social media, and beautiful views are alternated by noise, waiting in long queues to buy tickets and souvenirs, garbage or riots, and vandalism. All this is due to a phenomenon that is also technically called overtourism, which represents a situation where there is too high several tourists in a destination, even often it happens that the number of tourists in a destination exceeds the number of the local population. That is why the fact of how very important the position of marketing activities in tourism comes to the fore. These can help tourism on the one hand, but on the other hand, they can also significantly harm it (Matlovič and Matlovičová, 2016). Thus, by searching for answers to the question of how many tourists can be received today to secure the supply for tomorrow, more and more authors are engaged, since the natural but also, to some extent, cultural resources available to destinations are becoming increasingly limited (Butler, 2018). It should also be understood that overtourism is a complex phenomenon and it does not only concern the destinations themselves, which are trying to cope with the influx of tourists, but it concerns every individual in society, since overtourism can affect the cultural, social but also spiritual integrity of a destination. In connection with the ever-growing interest of tourists to learn about new tastes, smells or experiences, the destinations themselves try to adapt to the tourist so much that they displace their local business, their cultural ideals, attitudes, and even local gastronomy, and thus completely lose their authenticity by doing so. That is why the importance of finding a balance between tourism and the so-called slow travel tourist experience, where the tourist experience is not only built on

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tourist expectations but adapts to the local climate in the destination, comes to the fore. For this reason, the best alternative leading from overtourism is a gradual transition to sustainable tourism, not only in thought but also in practical terms.

Theoretical Background

Overtourism is tourism that is above the optimal or permissible rate, as the name itself implies. It represents the overpopulation of tourists in the destination, which is realized in an unsustainable way (Milano et al., 2019; Oklevik et al., 2019). It arises in places where many tourists come in a short period of time (Veiga et al., 2018; Postma and Schmuecker, 2017). Overtourism as a modern phenomenon in tourism is the result of a combination of several factors that lead to the constant interest of tourists to visit certain destinations. Although many influences have existed in destinations for years, the very breakthrough came only with the advent and massive introduction of information and communication technologies in the field of tourism. In connection with the created conditions for intensive promotion of individual destinations, these destinations have become known to tourists and have thus become attractive for potential visitors but also for the tourism industry. Overtourism is also largely supported by the ever-growing world population, which naturally also leads to an increase in the number of tourists themselves (Dods and Butler, 2019; Guillaume et al., 2019). In connection with overtourism, comes to the fore the question of how a given destination is determined to be influenced by overtourism and in what intensity is outlined. There are currently only prediction models to measure overtourism, as this is a phenomenon that cannot be measured accurately. One of the most well-known attempts to measure overtourism is the European Parliament study (2018), produced for the European Parliament's Committee on Transport and Tourism, which proposes 5 indicators for the assessment of overtourism:

1. tourism density (number of beds per km^2) and intensity (number of beds per capita),
2. Share of Airbnb bed capacity from Airbnb and capacity from Booking.com,
3. the share of tourism in regional gross domestic product,
4. air traffic intensity (arrivals/population),
5. proximity to the airport, ports, and UNESCO World Heritage Sites.

These indicators point only to a quantitative approach to the understanding of overtourism, however, since overtourism is a more complex phenomenon and qualitative and subjective aspects such as perception also significantly interfere with it (Bouchon and Marion, 2019). The perception of overtourism can distort the very intensity of this phenomenon. While a high concentration of tourists may be acceptable for a destination due to the proper organization of this phenomenon, tourist expectations about the authenticity of the destination can be completely different with the same intensity of overtourism. That is why all quantitative models of measuring overtourism are only approximate. Bouchon and Marion therefore proceed from the idea of a different perception of overtourism in the destination, which also led them to create a typology of destinations of overtourism based on two pillars, namely the perception of the influence of the urban experience and the perception of tourist concentration. According to this typology, destinations are divided into 4 categories – tourist integrated destinations, tourist destinations, tourist segregated destinations and finally tourist dysfunctional destinations (Bouchon and Marion, 2019). Tourist-integrated destinations are those destinations where residents and tourists seamlessly share urban spaces and fit into urban life. Both parties involved have a mutual interest and there is no tension to such an extent that it needs special attention. In tourist destinations, overtourism has only recently developed and therefore tensions between tourists and residents are still developing there.

The intensity is not yet very high, and it remains to be seen in which direction the situation will develop. In tourist segregated destinations, there is a so-called "tourist bubble", in which visitors are perceived as intruders in some public urban spaces. The main strategy in such cities is that residents avoid tourists in several urban spaces, and tension arises between them in the event of a clash. Tourist dysfunctional destinations have already gone through overtourism in full.

In such destinations, residents no longer perceive their urban space as functional and involuntarily leave it to tourists (Bouchon and Marion, 2019; Seraphin et al., 2018). However, over time, any destination can change from tourist integrated to tourist dysfunctional. This phenomenon is due to the gradual change in the approach of the local population to tourists. This fact is illustrated by the Doxey´s Irridex, which expresses that the attitude of residents towards tourists changes over time in four consecutive phases – euphoria, apathy, irritation, and agony, where the attitude of residents to tourists manifests itself in varying intensity (Martínez-García et al., 2017). We can see this fact in the following Figure 1. In the first phase, residents are enthusiastic about the influx of tourists and the development of tourism, as money flows together with the tourist, in the second phase, the tourist is already taken for granted and a tool for making a profit. In the third phase, however, the destination is already saturating with tourists to such an extent that capacity needs to be expanded. At this stage, the negative effects of overtourism begin to manifest themselves, which leads to the emergence of irritation among residents and tourists, and to the most significant extent this manifests itself in the last phase – a phase of agony in which local residents realize that they have to live with the fact that their ecosystem will never be the same again, and the locals perceive the tourist only as a harbinger of everything bad (e.g., tax increases, prices for food, real estate, damaged

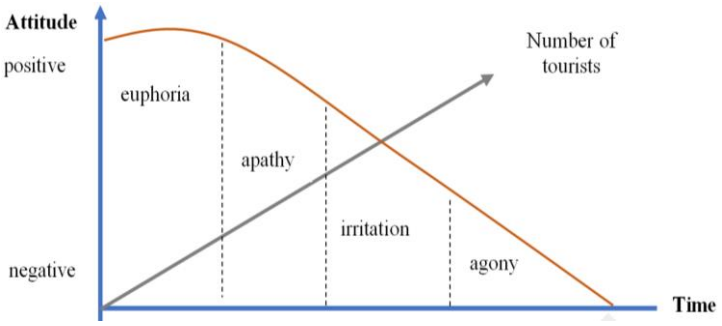

Figure 1. Doxey´s Irridex of the development of resident´s attitudes to tourists (Source: Martinez-Garcia et al., 2017)

environment, etc. (Martínez-García et al., 2017; Szromek et al., 2019; Kyriakaki and Kleinaki, 2022; Kim and Yoon, 2020). In connection with the gradual change of individual attitudes of residents towards tourists, the positivity and negative effects of overtourism are also manifested. For this reason, they come to the fore especially negative impacts that need to be addressed in the most appropriate way. In this regard, Dušek (2020) proposed individual ways to solve overtourism, which we can see in the Table 1 below, along with concrete examples introduced in practice in several world destinations.

Table 1. Ways and examples of dealing with overtourism (Source: Dušek, 2020)

The way of solving overtourism	A concrete example of solving overtourism
Limiting the number of tourists or time, which tourist can spend in the monument	Bojan temple in Sofia – to preserve unique frescoes, entry is allowed only for groups (about 50 tourists) for about 10 minutes.
Regulation of digital platforms	London – private accommodation providers (mainly via Airbnb) can only book a room/facility only 90 days from year for tourists
Restrictions on tourism businesses	Rome – ban on serving alcoholic beverages after 2 o'clock at night
Regulation of tourist behavior	Amsterdam – fines for tourists who are caught drinking alcoholic beverages and urinating in public
Fiscal measures	Balearics – ecological tax for tourists (4 € per person / night); Tourist tax in many tourist-favorite destinations such as Rome, Paris, Berlin and Amsterdam
Restriction of access to certain parts of the destination or closure of part of the destination	Paris, Rome – ban on two-decker sightseeing buses entering the city centre
Regulation of construction and development of infrastructure	Amsterdam – ban on the construction of new hotels and souvenir shops
Changing marketing and behavior on social media	Bruges – radical reduction in spending on destination marketing and management
Concept Smart City or Smart Region	Many destinations introduced a specific model, but only 4 were awarded – Gothengurg (Sweden), Ljubljana (Slovenia), Karlsruhe (Germany) and Breda (Netherlands)

Another of the authors who deals with the issue of solving overtourism is also Frajer (2020) who talks about 3 concepts to respond to overtourism – finding the bearable capacity of a destination, creating a resilient destination and, finally, contributing to the sustainability of the destination. In addition to studying overtourism, he names specifically the modern causes of the emergence of overtourism, which are constantly exacerbating this phenomenon, such as Airbnb, Uber, and low-cost airlines. It also talks about the many impacts of overtourism that have become known worldwide and cast a negative light on the destinations themselves – such as the Venetian syndrome, which means that residents, because of overtourism, leave the city center and move to the suburbs, but in some destinations the suburbs are already affected by overtourism. According to him, over time, destinations can reach the stage of a "tourist ghetto", when the destination permanently loses its national identity. Lukáč et al., (2020) look at the solution of overtourism from a pragmatic point of view. According to the authors, many solutions are often only of a theoretical nature, and therefore it is necessary to propose appropriate ways of solving this situation through so-called soft and hard measures. In soft or gentle measures, the authors mainly include educational and educational activities, temporal and spatial dispersion of the visiting mass and improvement of the capacities of the tourism industry. As harsh means of action, the authors include entry bans, fines, and other punitive measures. The basic difference between soft and hard measures is that the results of soft measures are felt by the destination only after a certain period, while hard measures produce results immediately, which is crucial for overtourism in the destination, and it is better if individual measures are taken as soon as possible. That is why the authors propose that destinations should now focus more on sustainability and sustainable tourism. The best alternative to overtourism is to apply sustainability principles in tourism in the long run (Štefko et al., 2018). Sustainability in tourism according to the UNWTO (2014) is a form of travel that takes full account of its current and future economic, social, and environmental impacts, addressing the needs of visitors, industry, the environment, and host communities. From the above, sustainable tourism is strongly time-oriented, as it plays a significant role in the present, but all its activities must also be future-oriented (WTTC, 2018). That is why many studies (for example, study of Szromek et al., 2019; Jover and Díaz-Parra, 2022; Butler and Dods, 2022; Mihalič and Kuščer, 2022) are currently focused on finding ways to increase the level of sustainability in destinations that are burdened by of tourists, which we want to also explore trough this study

MATERIALS AND METHODS

The aim of the paper is to evaluate the perception of overtourism in selected European destinations in terms of visitors age in the context of sustainable tourism. To find out the perception of overtourism from an age perspective in selected European destinations, a questionnaire survey was constructed by us and used from selected groups of respondents who visited selected destinations of overtourism and evaluate the perception of this phenomenon based on their own travel experience. The respondents came from Slovakia and anyone who visited selected European overtourism destinations could take part in the questionnaire survey, as the questionnaire was accessible on Facebook in a fun page of travel supporters.

The questionnaire research was conducted between 9 December 2021 and 28 February 2022 and involved a total of 267 respondents but not all responses were included in the subsequent analysis. The main criterion for filling out the questionnaire was to visit at least one of the overtourism destinations selected by us, therefore it was possible to use from the total number, the answers of 110 respondents who fulfilled this criterion and thus their answers could be included and used in the subsequent analysis. A total of 110 respondents participated in the questionnaire inquiry, of which 94 were women (85.45%) and 16 were men (14.55%). In terms of age, the largest number of respondents were aged 18-28 (37.27%). This may be due precisely to the fact that the collection of individual opinions from respondents has been carried

out on Facebook. Respondents aged 29–39 years were 30%. 24.55% respondents were between 40-50 years old. The fewest of our respondents were between the ages of 51-61 (8.18%). This fact can be seen in the following Figure 2.

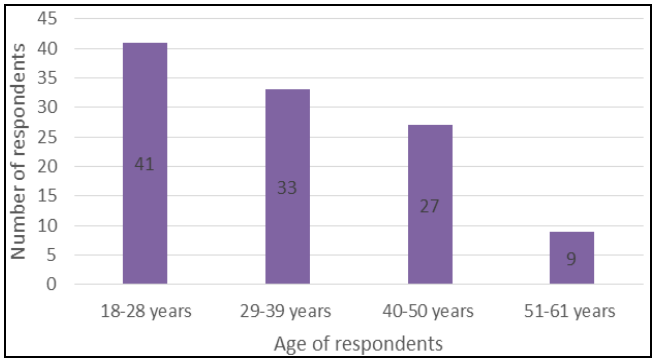

Figure 2. Age of respondents (Source: authors´ processing)

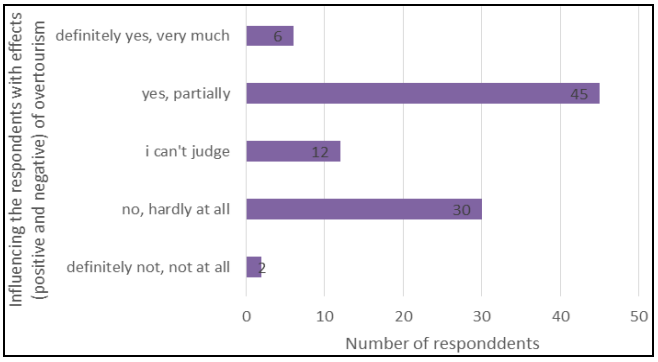

Figure 3. Influencing the respondents with effects of overtourism

Figure 2 shows that the largest group of respondents were respondents aged 18-28 years, the assumption about the existence of a statistically significant link between the age of the respondent and the number of overtourism destinations visited may come to the fore, given that younger respondents may travel more often than older respondents precisely because of the abundance of free time or social networks where individual respondents can get faster information about overtourism destinations than respondents who are older. Based on this assumption, the following research hypotheses have also been established, which we will try to verify using correlation analysis:

H_0: There is no statistically significant association between the number of overtourism destinations visited in terms of respondent's age.

H_1: There is a statistically significant association between the number of overtourism destinations visited in terms of respondent's age.

At the same time, however, we were also interested in whether the number of overtourism destinations visited depends on the age of the respondent, which is already the subject of investigation using regression analysis. The established research hypotheses were evaluated by appropriate mathematical-statistical methods – namely, correlation analysis through the Spearman correlation coefficient and regression analysis through a simple linear regression model performed in the Gretl statistical forecast. To find out the perception of overtourism, 10 European destinations were selected. These destinations are Prague, Venice, Krakow, Amsterdam, Dubrovnik, Malta, Mallorca, Ibiza, Sardinia, and Santorini. The main criterion for the selection of given destinations is their geolocation since all these destinations are located on the European continent. However, we can look at selected destinations from several perspectives within their geography, as we can see in the Table 2 below.

Table 2. Geographical criterion of selected destinations (compiled by the authors)

Geographical criterion	Selected destinations
The region of Europe in which the destination is located	Southern Europe – Venice and Sardinia (Italy), Santorini (Greece), Ibiza and Mallorca (Spain), Dubrovnik (Croatia) and Malta
	Western Europe – Amsterdam (Netherlands)
	Central Europe – Prague (Czech Republic) and Krakow (Poland)
Character of the earth's crust of the destination	mainland destinations – Prague, Venice, Krakow, Amsterdam and Dubrovnik
	island destinations - Malta, Mallorca, Ibiza, Sardinia and Santorini

Results and Discussion

In this part of the paper, we will focus on the evaluation of the questionnaire survey as well as on the verification of research hypotheses using correlation and regression analysis. For this reason, we divide this section into two separate units, where the first part will be devoted to the main findings of the questionnaire survey, and the second will deal with the verification of the findings of the first part using appropriate mathematical-statistical methods.

The main findings of the questionnaire survey:

Of the selected destinations, respondents visited Prague the most, which was visited by 94 respondents (85.45%) out of 110 respondents. After Prague, two destinations were the most visited of the selected destinations – Krakow and Venice, which were visited by 51 respondents (46.4%). This was followed by Mallorca, which was visited by 33 respondents (30%), Amsterdam, which was visited by 24 respondents (21.8%), Dubrovnik, which was visited by 21 respondents (19.1%), Sardinia, which was visited by 20 respondents (18.2%), Santorini, which was visited by 19 respondents (17.3%). The fewest respondents visited Malta, where there were 12 respondents (10.9 %), and Ibiza, which was visited by 9 respondents (8.2 %). In this regard, respondents could indicate one or more destinations that they visited.

From reasons for visiting the destination, respondents enjoyed exploring cultural, historical, and sacral monuments as well as relaxation and recreation for almost every destination, which the respondents chose as an option for almost every of the selected destinations. Other but less common reasons for visiting the destination were work reasons, education as well as visiting relatives and friends. The least common reason was healthcare, which was not mentioned by any of the respondents for either destination. In the questionnaire inquiry, respondents could also express whether they had noticed the

overtourism in the destination, whether it had affected them and to what extent. A total of 95 respondents answered the question, as this question was filled in only by those respondents who also noticed overtourism in selected destinations. Their answers ranged from "definitely not, not at all, to definitely yes, very much" which we can see graphically processed in the following figure. From Figure 3, it is clear, that the most respondents were partly influenced by overtourism (up to 47.37% of respondents). 6.32% of respondents were heavily affected by overtourism. Overtourism hardly affected 31.58% of respondents and did not affect only 2.11% of respondents at all. 12.63% of respondents could not assess the influence of overtourism.

Verification of research hypotheses trough using correlation and regression analysis:

Since in this paper we focus on the perception of overtourism from the point of view of age, established research hypotheses take this fact into account. First, we want to verify the existence of a statistically significant connection between the number of overtourism destinations visited and the age of the respondents. Since we find out the connections between variables, we will use correlation analysis tests. The procedure we used to verify the established hypotheses is shown in the Table 3 below.

Table 3. Verification of established research hypotheses using correlation analysis (compiled by the authors)

Variables	number of visited overtourism destinations
	age of respondents
Hypotheses for normality testing	H_0: variable has a normal distribution
	H_1: variable does not have a normal distribution
Significance level α	0,05
Decision-making rule	If the p-value ≤ α, H_0 is rejected. The variable does not have a normal distribution.
	If the p-value ≥ α, we cannot reject H_0 (we do not reject it). The variable has a normal distribution.
Normality test	Doornik-Hansen test
Resulting p-value	number of visited overtourism destinations (p = 0,0000)
	age of respondents (p = 0,0037)
Conclusion	The resulting p-values are lower than the significance level of the α. Variables do not have a normal distribution
Correlation coefficient	Spearman correlation coefficient
Statistical hypotheses	H_0: $\rho_s = 0$
	H_1: $\rho_s \neq 0$
Descision-making rule	If the p-value ≤ α, H_0 is rejected. The Spearman correlation coerficient is statistically significant. There is a statistically significant link between variables
	If the p-value ≥ α, we cannot reject H_0 (we do not reject it). The Spearman correlation coefficient is not statistically significant. There is no statistically significant association between variables
Coefficient size	0,3172
Resulting p-value	0,0007
The strength of the correlation	medium (see Cohen, 1988)
Type of correlation	direct (relative to the positive value)
Conclusion	The resulting p-value is lower than the significance level of the α. The Spearman correlation coefficient is statistically significant. There is a statistically significant link between the number of overtourism destinations visited and the age of the respondent

From the above table it is clear that when verifying the research hypotheses, we found that the individual variables that stand out in the research hypotheses are quantitative and do not have a normal distribution, due to which the selected correlation coefficient was adapted, namely the Spearman correlation coefficient, which is used in this case and which only confirmed that there is a statistically significant correlation between the number of destinations visited by respondents and the age of the respondents. To determine the strength of the correlation between variables, we used the Cohen (1988) interpretation, which considers the magnitude of the calculated coefficient and is as follows:

• $|r| \in <0; 0.1)$ very small or almost no correlation; • $|r| \in <0.1; 0.3)$ weak correlation,

• $|r| \in <0.3; 0.5)$ medium correlation; • $|r| \in <0.5; 1>$ large correlation.

In this case, according to Cohen's interpretation, the strength of the link between the age of the respondents and the number of destinations visited is medium. The correlation is direct or positive as the correlation coefficient has reached positive values. If we consider that the intensity of correlation between variables is medium, we are also interested in whether the number of overtourism destinations visited depends on the age of the respondent. Thus, we are interested in which variable is dependent in our case and which, on the contrary, is independent, for which it is necessary to use already regression analysis. The procedure that we will use is shown in the Table 4. It is clear from the above table that the number of destinations visited depends on the age of the respondents. The variability of the number of visited destinations of overtourism is 7.42%.

CONCLUSIONS

From the above-mentioned literary search, the results of the questionnaire survey, as well as the results from the correlation and regression analysis, our assumption about the existence of a connection between the number of age-related destinations visited has been confirmed, and therefore there is a statistically significant link between the number of destinations visited and the age of the respondents. At the same time, our second assumption about the dependence of the number of overtourism destinations visited on the age of the respondent was confirmed. This is therefore a significant fact for all destination management organizations, which form key activities in the elimination of overtourism. Since the number of overtourism destinations visited depends on the age of the respondents, it is necessary to focus primarily on

younger tourism participants and offer them the possibility of traveling even to those destinations that are not marked by crowds of tourists, although they may not have such attractive tourist potential as overtourism destinations.

Table 4. Verify the dependence of variables using a simple linear regression model (compiled by the authors)

Variables	number of visited overtourism destinations (NVOD)
	age of respondents (AGE)
Determination of dependent (y) and independent (x) variables	number of visited overtourism destinations = y
	age of respondents = x
General shape of a simple linear regression model (by Markechová et al., 2021)	$y_i = \beta_0 + \beta_i \,.\, x_i + \varepsilon_i \qquad i = 1,2,\ldots,n.$
The specific shape of a simple linear regression model (by Vašaničová, 2021)	$NVOD_i = \beta_0 + \beta_i \,.\, AGE_i + \varepsilon_i \qquad i = 1,2,\ldots,n.$
Assessment of the presence of heteroscodactic	H_0 : residues are homoscodactic
	H_1 : residues are heteroscodactic
Significance level α	0,05
Decision-making rule	If the p-value ≤ α, H_0 is rejected. Residues are heteroscodactic.
	If the p-value ≥ α, we cannot reject H_0 (we do not reject it). Residues are homoscodactic.
Statistical test	White ´s test
Resulting p-value	0,394734
Conclusion	The resulting p-value is higher than the significance level of the α. Residues are homoscodactic.
Statistical hypotheses	H_0: $\beta_0 = 0$ against H_1: $\beta_0 \neq 0$
	H_0: $\beta_1 = 0$ against H_1: $\beta_1 \neq 0$
Resulting p-values	p-value (β_0) = 0,0185
	p-value (β_1) = 0,0040
Decision-makig rule	If the p-value ≤ α, H_0 is rejected. The constant and regression coefficient is statistically significant. Variable y depends on variable x.
	If the p-value ≥ α, we cannot reject H_0 (we do not reject it). The constant and regression coefficient are not statistically significant. Variable y does not depend on variable x.
Conclusion	The constant and the regression coefficient are statistically significant, since the resulting p values are lower than the significance level of the α. The number of overtourism destinations visited depends on the age of the respondents.
Coefficient of determination R^2	0,074225 t. j. 7,42 % variability in the number of visited destinations

It is also necessary to focus on the social networks on which this age group of respondents spends the most time. Destination Management Organizations or even international tourism companies can reach the younger generation on these platforms by promoting the consequences of overtourism. Equally inspiring is the actions of destination management in Amsterdam, where since 2019 they have introduced the Enjoy and respect campaign, which aims to combat the offensive behavior of some tourists. They decided to implement this campaign based on the observations of a group of young men aged 18-34 who visit Amsterdam exclusively for nightlife and parties. As these tourists search the internet for well-known bars in the Dutch capital, this campaign focused on online targeted ads that will also show tourists searching for Amsterdam's famous bars a list of fines they may receive for inappropriate behavior. This campaign became so successful that Venice itself was inspired by it, which introduced it with small variations under the name EnjoyRespectVenezia.

Furthermore, it is important that the issue of overtourism should also be addressed to local authorities, which should monitor tourist traffic and collect data, including qualitative data, in terms of customer expectations and types of activity, which would allow the creation of road maps for sustainable tourism development. This could include, among other matters, encouraging the extension of stays; expanding the possibilities of spending time; and creating new attractions located in less populated areas, which could be less burdensome for residents. It is worth implementing initiatives that would support local businesses run by residents. To counteract the negative impact of overtourism on the environment, it is proposed to implement smart technologies that would monitor the level of traffic in the city and prevent overcrowding in places attractive to tourists. It is also worth using social media to provide information encouraging tourists to respect local culture and the environment, as well as informing them of the negative effects of not respecting these principles. To minimize the negative impact of overtourism on the environment, acceptable levels of tourists' impact on tourist attractions can be defined through a participatory process involving all interested parties. This will make it easier for local communities to reap the benefits, create shared experiences of the city for visitors and residents, and help communicate with residents.

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Limitations and recommendations

The biggest limitation we encountered in drafting this paper is the size of our research sample. The 110 respondents represent a relatively small sample, which is probably due to the short data collection time. At the same time, we also had to deal with a low return on the questionnaire and an uneven distribution of respondents in terms of gender. It should also be noted that the research sample consisted only of tourists coming from Slovakia and therefore the results based on the verification of research hypotheses using correlation and regression analysis cannot be generally valid for

all tourism participants. Therefore, in future research, it is necessary to be wary of the gender distribution of the research sample and to invite more men to the research. At the same time, it is also necessary to consider the extent of the questions that we asked respondents in the questionnaire survey, which may not have been understandable to respondents, which could prevent a low return on the part of respondents in the future. At the same time, we think that in the future, the way the questionnaire is delivered to respondents from online to offline should also change. An analysis extended to the views of respondents from other countries would bring equally interesting results.

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EXAMINING THE STRUCTURAL RELATIONSHIPS OF ELECTRONIC WORD OF MOUTH, ATTITUDE TOWARD DESTINATION, TRAVEL INTENTION, TOURIST SATISFACTION AND LOYALTY: A META-ANALYSIS

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Abstract: The effects of electronic word of mouth on travel intention have been investigated extensively. However, the interrelationships among electronic word-of-mouth communication, destination image, attitude toward the destination, travel intention, satisfaction toward tourist complaints, and loyalty in the tourism industry have yet to be determined. This study tries to extract some informed conclusions about the relationship through a meta-analysis. This study proposed a research framework in which 12 hypotheses were developed, and a total of 44 independent studies were collected and analyzed. The results from the research framework suggest that: (1) e-Word-of-Mouth communication positively influences the destination image, tourist attitude toward the destination, and travel intention; (2) tourist satisfaction is positively influenced by the destination image, tourist attitude toward the destination, and travel intention; (3) tourism satisfaction positively influence tourist complaints and loyalty. The theoretical and practical implications were discussed and applied to destination marketing and management.

Keywords: electronic word of mouth communication (eWOM), destination image, attitude toward the destination, tourist satisfaction, loyalty

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INTRODUCTION

Choosing a tourist destination is an important issue for most tourists. Many factors are related to the impact of travel intentions on the choice of tourist destinations. According to Phau et al. (2010), tourist information sources significantly influence the destination image and travel intentions. Therefore, many different sources of information affect tourists' attitudes and behavior about travel intentions. Baloglu and McCleary (1999) found four important information sources: professional advice, WOM, advertisement, and books/movies/news. Travelers often choose tourist destinations with impressive images that affect their perceptions of the most important. One of the most effective ways to do this is the WOM method. Previous studies investigated the relationship between the destination image and WOM as one of the sources of relevant information. Furthermore, previous studies have not investigated the relationship between WOM and the destination image in the online environment. With the development of information technology, the interaction between travelers in a virtual environment is increasingly popular. Therefore, many have indicated that eWOM plays a very important role in the relationship between travel intention and destination tourist loyalty for the tourist business phase of e-commerce development (Marine-Roig, 2021). Tourists' loyalty measures business success (Li et al., 2021).

According to Reichheld and Sasser (1990), attracting 5% of customers' repeat purchases will result in an 85% profit increase for the service sector. In addition, the costs to maintain for existing customers are much lower than those for new clients. So, managing good customer relationships and improving visitor loyalty are important for every destination. Travelers' experiences of travel destinations are very important for their loyalty, which future affects travel intention, revisit to tourist destinations, and transmission of travel experiences to friends and relatives (Oppermann, 2000). Previous studies have shown that visitors' loyalty is often related to satisfaction.

Especially the purposes of this study are folds:

1. To examine the influence of eWOM, destination image, and attitude toward a destination on travel intention.
2. To investigate the influence of destination image, attitude toward a destination, and travel intention on tourist satisfaction.
3. To verify the influence of tourist satisfaction on tourist complaints and tourist loyalty.

The current study is organized as follows. The literature, including theoretical support for study hypotheses, is discussed and evaluated in the next section. The next section is the methodology, and all results are presented. Furthermore finally, the implications and limitations of the study findings and some directions for future studies are discussed.

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LITERATURE REVIEW

The tourism sector has grown and strengthened over the globe, exerting a greater impact on national economies as a result. Furthermore, it is linked to several different industries, including marketing, public relations, public relations agencies, public relations agencies, and commercial organizations. Millions of people's lives have been improved as a direct result of the tourist industry's efforts to spur growth, generate significant money, create a wide range of employment, and alleviate poverty in countries worldwide. Increased optimism about the future of tourism may be attributed to a confluence of causes, including technology advancements, demographic shifts, and societal and economic development.

Kanwel et al. (2019) examined the direct influence of destination image and the associated effect of destination image on tourist satisfaction and electronic word of mouth on tourist loyalty and intention to visit. Therefore, they investigated the impact of eWOM and visitor satisfaction as mediators of the relationships between perceptions of a destination and intentions to return to that location. The clear correlations between the studied variables - destination perception, word-of-mouth, visitor experience, visitor retention, and future travel - support our hypotheses. Specifically, the authors discovered a clear correlation between eWOM and the perceived quality of a location in Pakistan, directly correlating to the happiness of foreign visitors. It has been established that visitors who have a favorable impression of a destination's image and feel they have some say in their visit like it more. This research also found that the connection between a destination's image and the loyalty of its visitors was somewhat mediated by eWOM and that eWOM and visitor satisfaction entirely mediated the link between a destination's image and the likelihood that someone would go there. Therefore, a fresh approach is examining the connections mentioned above through many mediators. When travelers have a positive impression of a location, it increases the likelihood of going there. Researchers found a positive correlation between eWOM, visitor happiness and loyalty, and future travel intentions. Happier and more loyal tourists have a high opinion of the quality of the services they receive, their independence, and the importance they place on customer values. It is no secret that user-generated content like reviews, comments, and ratings have become an integral aspect of online travel marketing strategies thanks to the proliferation of online travel communities. Recent research in online tourism has concentrated on the practical, social, and psychological aspects of the online travel community to understand the online travel community members better and inspire them to become more actively involved in online travel communities. However, such features may not be sufficient for developing an online travel community settings regarding the processes connecting cyber victimization in online travel communities to the well-being of members at lower tiers. Due to the absence of in-depth inquiry, the topic of how to deal with cyber victimization in Online travel communities might be a promising subject of tourism research. To close this knowledge gap, tourism researchers may need to examine the prevalence of cyber-victimization in online information/knowledge-sharing communities like online travel communities, prompting crucial dialogue about how online travel communities ' operators can best support their members who have been victims of cybercrime.

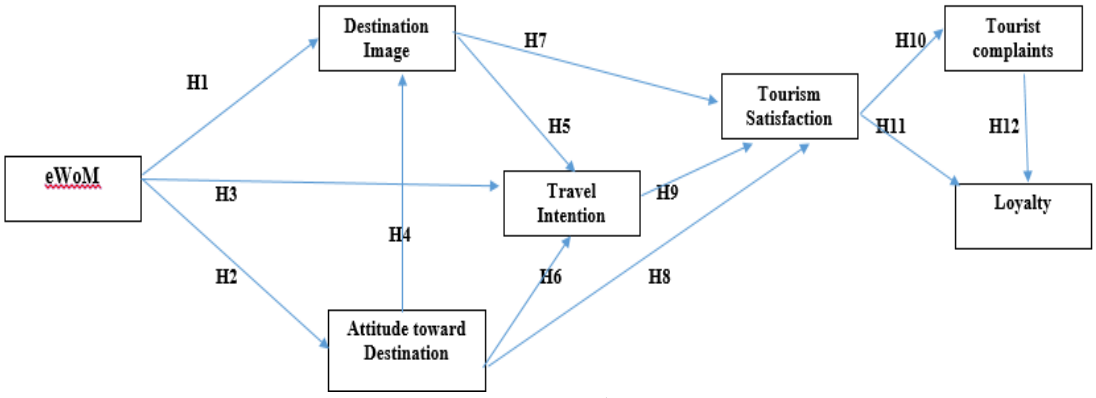

Figure 1. Conceptual Model (Source: Authors)

Several studies have shown how eWOM may help tourists improve trip inspiration and express appreciation for the destination's successes (Chun Wang et al., 2016). Han and Hyun (2015) argued that eWOM is a key aspect in reporting on traveler happiness. Furthermore, these visitors are motivated by the reviews of previous visitors on the destination's impression, significance, and pleasant or calm associations. Multiple researchers contributed to the studies: The destination's image is beneficial for tourism growth and may have a major effect on future visits, as indicated by Deyà-Tortella et al. (2021); Han and Hyun (2015); Nadarajah and Ramalu (2018). Since eWOM sources seem to play an increasingly crucial part in the decision-making process for tourists, they are listed as the most important information source. Most developed nations' electronic travel agency websites now include review areas where customers can voice their opinions on various items. These websites have many reviews written by actual passengers, who rate and comment on anything from specific ships to specific restaurants in major resorts across the globe. However, eWOM has to be significantly enhanced since it directly affects visitor pleasure. Tourism depends on the cooperation of the government and the commercial sector, which must use all available channels, including print media, electronic media, and social media, to gather and respond to the feedback of potential visitors.

To sum up, in the current state of tourism, eWOM and destination image need to be drastically enhanced to increase tourist satisfaction, increase tourist loyalty and decrease complaints (Liu and Li, 2019). It was better proclaimed even if visitors also have accommodating etiquette related to different happiness levels. Tourists who learn the ins and outs of the

services offered at their location with a strong feeling of ownership and a sense of purpose are more likely to return. This study's primary conclusion is that eWOM, destination image, and attitude toward destination directly affect travel intention. Moreover, tourism satisfaction will be the mediator in the destination image, attitude toward a destination, travel intention to the tourist complaints, and customer loyalty. Due to the lack of foresight of past administrations, the tourist sector is ripe with untapped potential. Hence, this study proposed the research model as Figure 1.

Hypotheses Development

The Relationship between Electronic Word of Mouth and Destination Image

According to Gallarza et al. (2002), the image of tangible products is more important than intangible products because visitors do not have much experience of the destination, so they may want to choose a destination with positive images (Makhdoomi and Baba, 2019). Despite the variety of tourist destinations, a positive image is critical for selecting a destination (Khan et al., 2020). Over the years, there have been many studies on WOM in marketing, but research on eWOM in the travel sector is still limited. Destination images originated from exposure to different sources of information (Kuo et al., 2019; Litvin et al., 2008). Therefore, tourists often use media resources and word-of-mouth messages to decide to travel (Govers et al., 2007). From time to time, people would like to collect online customer comments via the internet before traveling. eWOM is "any positive or negative statement made by potential, actual, or former customers about a product or a company which is made available to a multitude of the people and institutes via the internet" (Hennig-Thurau et al., 2004, p. 39). eWOM has been considered a key source of information for online purchasing (Cui et al., 2014; Lee et al., 2011a) and a critical factor in facilitating the diffusion of online information (Sun et al., 2006). Poturak and Turkyilmaz (2018) stated that online customers use eWOM to make decisions, which also affects sales (Bae and Kim, 2013; Chevalier and Mayzlin, 2018). eWOM positively influences customer loyalty. According to (Nelson et al., 2007), if tourists are satisfied with the information they refer to through the internet, they are also satisfied with the destination they visit (Sasono et al., 2021). Because through the internet, visitors can read more and detail the information in more detail from the sharing of the people who have experience in the destination, it is useful for them to make decisions and plan wonderful trips. From the above discussions, this study proposes the following hypothesis:

H1: Electronic word of mouth affects destination image significantly and positively.

The Relationship between Electronic Word of mouth and Attitude toward Destination

Today, the internet is considered the most important and easy way for consumers to find pieces of information, particularly by considering the opinions of other consumers, and consumers easily share their views and opinions about products or services they use or understand of it (Hennig-Thurau et al., 2004). Fronzetti Colladon et al. (2019) identified how online travel communities could influence tourist destinations. Shen (2021) argued that eWOM is identified and discovered during the use or consumption of the product. That is how consumers share the problems they have access to before and after understanding the product and service. e-WOM greatly impacts the market and consumers because it can be positive, neutral, or negative. Previous researchers have discussed that eWOM is considered a powerful and influential tool for consumers and the market compared to many forms of marketing and advertising. Many customers now use eWOM as a reliable information channel to make decisions to use or consume any product or service (Tucker, 2011)

Travelindustrywire.com (2007) showed the results of the survey of travel destination choices; it has been pointed out that over 84% of travelers use online information research to decide on their destination. Yoo and Gretzel (2016) revealed that potential customers tend to trust and enjoy the advice and reviews from tourists rather than the campaigns or programs advertised by tourist destinations. Today's online information is so diverse, which is important to tourists and travel destinations. It is a tool for marketers to understand the customer and the market. From which destinations have the facility to make development strategies suitable for both tourists and the latest market trends. Therefore, market researchers always aim to use the technology applied to market research in an online environment (Ranfagni et al., 2021). Talking about the tremendous impact of eWOM, there were many online studies to assess the impact of eWOM on decision-making (Gosal et al., 2020). Recent studies have also shown that destinations are both positively and negatively affected by eWOM's travel products and services. A review of the online consumer behavior model shows that positive attitudes through retailers will influence attitudes and behaviors of purchasing products and services. For that reason, the attitude of travelers to search engines and exploited information online will have a significant impact (Marine-Roig, 2019). From the above discussions, this study proposes the following hypothesis:

H2: Electronic word of mouth affects attitude toward destination image significantly and positively.

The Relationship between Electronic word of mouth and travel intention

Intention and behavior are used to look at from two different perspectives. Tourist intention was defined as the willingness to visit some destination; the decision to visit is interpreted as a rational calculation of the costs and benefits of a set of alternative destinations which were derived from external information sources, including electronic eWOM or travelers' blogs (Chen et al., 2014). Besides that, travel motivation is an integral part of travel behavior; the need to see what has not been seen and the need to know what has not been known leads people to visit new places and motivates them to go to a new destination (Wijaya et al., 2018). Motivation is the beginning of the decision-making process. It occurs when visitors want to explore the external environment, thus motivating visitors to satisfy their needs; this can be considered one of the most important variables related to travel decisions and satisfaction. Through the internet environment, users can easily share and exchange information, share ideas, and be more easily accessible to many internet users (Dellarocas, 2003). Information about travel destinations, hotels, and tourism services is important for overall reviews.

Regarding the travel industry report, 84% of tourists are affected by online reviews when making their travel plan. The most important sources of information from online reviews are many of interest to customers and business travelers. These studies are aimed at researching, evaluating, and analyzing to build business strategies through modern technologies. Zhu et al. (2020) found that online information systems are provided and exchanged for the highest purpose of affecting tourists' travel intentions. From the above discussions, this study proposes the following hypothesis:

H3: Electronic word of mouth has a positive effect on travel intention.

The Relationship between Destination Image and attitude toward Destination and Travel Intention

Tourism development countries are keen to attract more tourists to visit. In addition to propaganda, advertising and tourism promotion to build the country's image to promote tourist destinations is essential. There are many different concepts about the destination image; Crompton (1979) defined it as "the sum of beliefs, ideas, and impressions that a person has a destination." Customers go to a destination where they developed the pictures and set expectations based on previous experience, word of mouth, journalism reports, advertising, and popular belief. Glyptou (2020) called destination image aggregate expectations and perceptions of travelers. According to Tasci and Kozak (2006), destination image can be affected by the advertising information from destinations, media, and many other factors. Destination image can also directly impact indirect behavioral intentions and satisfaction. The image destination has a significant impact on the satisfaction and future behavior of travelers in coastal resorts in Spain (Bigné et al., 2001), the scenic and coastal regions in Taiwan (Lee, 2009), and Eureka Springs in the US (Chi and Qu, 2008). Marine-Roig (2021) asserted that the destination image directly affects the trip's success and indirectly affects the value perception, satisfaction, and behavior in the future and the intention of the customer sightseeing tour coastal locations. In other words, destination image influences attitude toward a destination. The travel document indicates that the destination's image is the premise of satisfaction and future behavior of visitors. From the above discussions, this study proposes the following hypothesis:

H4: Destination image has a positive effect on attitude toward the destination.

H5: Destination image has a positive effect on traveling intention

The Relationship between Attitude toward Destination and Travel Intention

Attitude is related to permanent and summative stable evaluations of items and is an important variable influencing a wide range of customer behaviors (Nwoke, 2022). Attitude toward a behavior is the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question (Ajzen, 1991). Alipour et al. (2020) suggested that visitor attitudes have cognitive, affective, and behavioral components. Travelers will appreciate behaviors and attitudes through awareness of the problem, from which they will form attitudes and images on related matters, thereby determining the positive and negative wear (Moors et al., 2013). Woosnam et al. (2020) measurement of the affective tourism destination image is based on four affective characteristics. The affective responses model of the physical environment predicts the decision to travel to a certain destination (Reza Jalilvand and Samiei, 2012). Attitude is important because it is the power and ability to predict behavior. In this study, the attitude of tourists relates to the destination and can also predict travel intention. From the above discussion, this study proposes the following hypothesis:

H6: Attitude toward destination has a positive effect on travel intention.

The Relationship between Destination Image and Tourist Satisfaction

Tourist satisfaction is a psychological state tourists feel about a service or product of a destination when their expectations meet or exceed perceived value. Overall, tourist satisfaction has a positive relationship with the quality of the tourist experiences (Suhartanto et al., 2019). Destination image plays an important role in the local tourism industry. The destination has a great image that will help to attract tourists, increase staying and spending (Cham et al., 2020), promote the decision-making process (Bigné et al., 2001), and indirectly to loyalty (Lee, 2009). Lin et al. (2007) suggest that awareness of the destination image is one of the most visible ways consumers perceive the possibility of consuming products and services. In this study, the study of destination images is the overall experience travelers are aware of and satisfied with the destination. Attractive destination images, attracting and meeting visitors' expectations, will make visitors more satisfied with tourist attractions. This result is evidenced by many studies in the field of tourism (Lee, 2009; Marzuki et al., 2012). As such, it is possible to view attractive destination images as a factor in creating visitor satisfaction with the tourist destination. From the above discussion, this study proposes the following hypothesis:

H7: Destination image has a positive relationship with tourist satisfaction.

The Relationship between Attitude toward Destination and Tourist Satisfaction

Trudel (2019) indicated that tourist attitude is the psychological state of visitors expressed positively or negatively when they engage in certain behavior. Based on the theory of planned behavior, tourist attitude influences behavior intention (Ajzen, 1985). Attitude can influence external behavior (Nwoke, 2022). Lee (2009) showed that tourist attitude toward the destination is an important predictor of tourist satisfaction and future behavior of wetlands tourism. Amoako et al. (2020) also showed that travelers' attitudes to destinations affect their behavioral intentions. In other words, visitor satisfaction is significantly influenced by tourist attitudes. From the above discussion, this study proposes the following hypothesis:

H8: Attitude toward destination has a positive relationship with tourist satisfaction.

The Relationship between Travel intention and Tourist Satisfaction

In tourism, travel intention is the possibility of tourists once they go to the destination (Chaulagain et al., 2019); travel intention is considered to be an individual's perception of consumer behavior toward the product or service of

travel at a tourist destination. Many studies indicate that the travel intention of a traveler is the movement of individual perception between motivation and behavior; it is closely related to the Travel Career Ladder model, in which motivation factors will control travel intention. Referring to many studies travel intention of travelers depends on many factors, such as cognitive behavior or attitudes or preferences about products or services. According to Pereira et al. (2019), motivation is determined by psychological factors, and the level of emotion at the intense stage can make immediate travel behavior. In other words, the more tourist intention, the more will be the tourist satisfied with their decision. From the above discussion, this study proposes the following hypothesis:

H9: Travel intention has a positive relationship with tourist satisfaction

The relationship between tourist satisfaction and Tourist Complaints

When a tourist has experienced poor quality service, he/she will try to formulate all the right word expressions for complaining and protecting his/ her benefits. More research has also addressed consumer complaints related to consumer behavior. Liu and Li (2019) explained that the factor that led to the tourists' complaints was dissatisfaction with the destination of their travel products and services. The quality of the supplier's dissatisfaction is the cause of the customer's complaint (Lysenko-Ryba and Zimon, 2021). The quality of the supplier's dissatisfaction is the cause of the customer's complaint. That is why satisfaction is a crucial factor affecting tourists' complaints (Girsang et al., 2020). From the above discussion, this study proposes the following hypothesis:

H10: Tourist satisfaction has negative effects on tourist complaints.

The Relationship between Tourist Satisfaction and Tourist Loyalty

Nowadays, meeting demand and satisfying customers is important for business activities and the tourism industry. The higher the satisfaction, the more will be willing to buy. There have been many studies evaluating customer loyalty. Many previous studies also point out that many customers break their loyalty even though they are satisfied with the quality of their products and services. Customer satisfaction is also the main subject of tourist loyalty. Surveying customer satisfaction and feedback can help managers find strategies to improve services. These feedbacks are very effective in comparing the operation of destinations with others (Fanelli and Romagnoli, 2020). In today's market, the competition is so intense that companies always aim for customer satisfaction to improve tourist loyalty. Visitors' satisfaction levels need to be studied extensively from the first purchase because it greatly impacts the intention to repurchase and provide positive WOM (Meilatinova, 2021). Customer satisfaction is significant in achieving loyalty when visitors intend to return to the same destination (Raza et al., 2020). Consumers' loyalty to the product or service is reflected in repeated consumption behavior, and sharing positive information about the product is also an important criterion for defining consumer loyalty. Therefore, the relationship between satisfaction and loyalty is close and interactive (Asnawi et al., 2019). From the above discussions, the study proposes the following hypothesis:

H11: Tourist satisfaction has a positive effect on tourist loyalty.

The Relationship between Tourist's Complaints and Tourist Loyalty

Customer reviews are important for a company's development in the tourism industry. According to Al Kurdi et al. (2020), attitudes and customer satisfaction can be observed to assess loyalty. Very limited complaints of negligence evidence this. Besides that, the complaint is a consequence of the low quality of service. Tourists' complaints are key as they are part of the custom recovery for their loyalty. Based on the reviews or tourist complaints, the company can improve their service and product significantly, correcting all the activities and solving other matters. Tourist complaints not only can help the company improve its operation but also can make customers satisfied. Hayati et al. (2020), one of the solutions to improve customer loyalty is improving the resolution of complaints and customer satisfaction. From the above discussions, the study proposes the following hypothesis:

H12: The tourist's complaint has a negative effect on tourist loyalty.

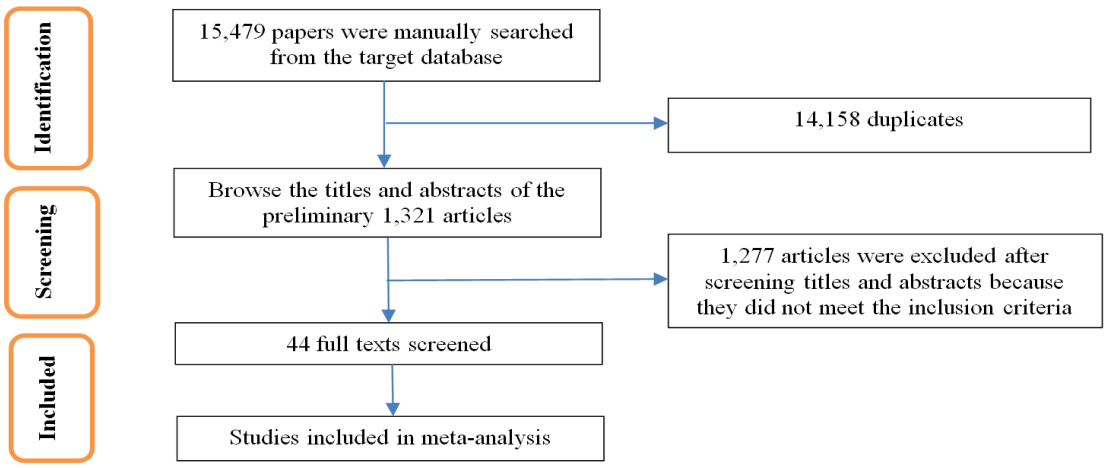

Figure 2. Flow chart of the document retrieval process

Research method

Meta methodology was used to evaluate the correlations of the proposed hypotheses. Meta-analysis was developed in the early 1970s in psychology and was not widely applied in tourism studies. This method requires that the data come from multiple previous studies and extract their effect size. Cohen (2016) has defined effect size as "the degree to which the phenomenon is presented in the population or the degree to which the null hypothesis is false. The larger the effect size value, the greater the degree to which the phenomenon under study is manifested". The effect sizes will be standardized and subjected to null hypothesis testing to identify the correlation between the hypotheses. The document retrieval process is shown in Figure 2.

Sample selection

In this study, the meta-analysis is adopted based on the literature review. In the first step, the primary database was searched for related variables such as eWOM, destination image, attitudes toward a destination, travel intention, tourism satisfaction, tourist complaints, and loyalty, including EBSCO, SAGE, Science Direct, and Taylor & Francis.

The data was collected from many hospitality and tourism management sources, customer behavior, business, and social science for the last 20 years. This research aims to analyze the correlation between all the determinant variables using the database from many tourism journals, including Tourism and Hospitality Research, Journal of Hospitality Marketing & Management, Journal of Sustainable Tourism, Journal of Business Research, Journal of Travel Research, Journal of Travel & Tourism Marketing. There are a total of 44 studies used in the meta-analysis.

Coding

The explanatory variables for the meta-analytical regressions include a set of continuous variables. The variables were described and expressed through the following indicators: the year of publication, the number of variables included in each of the previous studies, the length of the lag inherent in the dependent variable(s) used in each study, the sample size, and the length of the forecasting time horizon. This study used the methods of data analysis (PLS, structural equation modeling, regression analysis, correlation analysis). Using meta-analysis, three criteria complied. First, the average correlation coefficient value was calculated for multiple properties measurements in eWOM, destination image, attitudes toward the destination, travel intention, tourism satisfaction, and tourist complaints and loyalty. Contrariwise, the value of the single reported item has been used. Second, when the report had no significant impact, the current study coded for negligible effects as 0 on the database. Third, total effects cannot surpass 1.

Table 1. Studies Used in Meta-Analysis

Studies Alphabetically by Source and Codes for Hypotheses Tests[a,b]	
Albarq, 30, (AT-TI)	Ramseook-Munhurrun et al. (2015), 36, (TS-TL)
Albarq (2014), 7, (E-ATT),	Do Valle et al. (2006), 38, (TS-TL),
Albarq (2014),12, (E-TI),	Setiawan et al. (2014), 23, (DI-TS),
Abubakar and Ilkan (2016), 11, (E-TI),	Setiawan et al. (2014), 2, (E-DI),
Tsai (2015), 24, (DI-TS),	Rizky et al. (2017), 20, (DI-TI),
Chi and Qu (2008), 35, (TS-TL),	Rizky et al. (2017), 33, (AT-TI),
Chi and Qu (2008), 25, (DI-TS),	Rizky et al. (2017), 4, (E-DI),
Gibson et al. (2008), 19, (DI-TI), 2008	Rizky et al. (2017), 9, (E-ATT),
Loi et al. (2017), 22, (DI-TS),	Rizky et al. (2017),15, (E-TI),
Khuong and Duyen (2017), 28, (DI-TI),	Prayogo et al. (2016), 1, (E-DI),
da Graça Batista et al. (2014), 43, (TC-TL),	Lee et al. (2011b), 39, (TS-TL)
Meysam et al. (2012), 13, (E-TI)	Lee et al. (2011b), 42, (TS-TC)
Meysam et al. (2012), 34, (AT-TI),	Lee et al. (2011b), 45, (TC-TL)
Reza Jalilvand and Samiei (2012), 8, (E-ATT),	Wang et al. (2009), 27, (DI-TS),
Reza Jalilvand and Samiei (2012), 14, (E-TI),	Wang et al. (2009), 37, (TS-TL),
Reza Jalilvand and Samiei (2012), 32, (AT-TI),	Wang et al. (2009), 41, (TS-TC),
Reza Jalilvand and Samiei (2012), 17, (E-TI),	Wang et al. (2009), 44, (TC-TL),
Reza Jalilvand and Samiei (2012), 21, (DI-TI),	Cohen (2016), 18, (DI-TI),
Reza Jalilvand and Samiei (2012), 5, (E-DI),	Chiu et al. (2016), 40, (TS-TC),
Reza Jalilvand and Samiei (2012), 6, (E-ATT),	Zarrad and Debabi (2015), 31, (ATT-TI),
Aliman et al. (2014), 26, (DI-TS),	Zarrad and Debabi (2015), 10, (E-ATT),
Ramseook-Munhurrun et al. (2015), 29, (DI-TI),	Zarrad and Debabi (2015), 16, (E-TI),
Liu et al. (2018), 12, (DI-ATT),	Gosal et al. (2020), 8, (E-ATT)
Liu et al. (2018), 14, (DI-AI),	Gosal et al. (2020), 5, (E-DI)
Liu et al. (2018), 25, (TA-TI),	Gosal et al. (2020), 19,(E-TI)
Yang et al. (2021), 20, (DI-TI)	Gosal et al. (2020), 32, (ATT-TI)
Chaulagain et al. (2019), 21, (DI-TI)	Gosal et al. (2020), 17, (DI-TI)

[a]Codes in parentheses: E:= Electronic Word of Mouth; DI= Destination Image; ATT= Attitude Toward Destination; TI= Travel Intention; TS= Tourist Satisfaction, TC= Tourist Complaints, TL= Tourist Loyalty.

[b]Journals are footnoted in order: 1) Advances in Social Science, Education and Humanities Research; 2) International Journal of Business and Management Invention ISSN; 3,4, 9,15) Russian Journal of Agricultural and Socio-Economic Sciences; 5, 8, 11,14, 17) Journal of Destination Marketing & Management 1 (2012) 134–143; 6) Procedia - Social and Behavioral Sciences, 7) International Business Research; 10, 16, 32) International Research Journal of Social Science; 7,12,30) International Business Research; 13,35) African Journal of Business Management; 19) Journal of Sport Management; 22) Journal of Hospitality and Tourism Management; 23) International Journal of Business and Management Invention; 24) Marketing Review; 26) International Journal of Marketing Studies; 27, 37, 41, 44) Tsinghua Science & Technology, 28) Journal of Marketing Research; 29) International Conference on Strategic Innovative Marketing; 32) International Research Journal of Social Sciences; 36,39,42,45) Tourism Management; 38) Journal of Business Science and Applied Management; 40) International Journal of Culture, Tourism and Hospitality Research; 45)Advances in Management & Applied Economics; 46) Advances in Economics, Business and Management Research, 47) The Journal of Business Perspective, 48) Journal of Destination Marketing & Management

Statistical analysis

Data analysis was performed by meta-analysis software that is Comprehensive Meta-Analysis (CMA). CMA software has brought great efficiency and convenience related to ease of data entry, calculation, and output (Martin, 2008). These analyses generated a fixed-effects model and a random-effects model for the choices. The present study applied the

random-effects model, represented by the Q statistic and consistency across studies (Zhang and Wang, 2012). This study uses a meta-analysis of the general formula. The first, Mean ES ($\overline{ES}$) was caculared as Eq.1. The most basic "meta-analysis" is to find the average ES of the studies representing the population of studies of "the effect". The formula Eq.1 is pretty simple – the sum of the weighted ESs, divided by the sum of the weighting. It is possible to compute a "w" value that takes into account both the random sampling variability among the studies and the systematic sampling variability. The caculation of Eq.1, Eq.2, and Eq.3 was based on Borenstein et al. (2021); Jin et al. (2021).

$\overline{ES} = \frac{\sum(w \times ES)}{\sum w}$ (Eq.1), in which ES: Effect size, w: weightings

The second, sampling error of the Mean ES ($se_{\overline{ES}}$) was pointed: $se_{\overline{ES}} = \sqrt{\frac{1}{\sum w}}$ (Eq.2)

The third, Z-test for the Mean ES is $Z = \frac{\overline{ES}}{se_{\overline{ES}}}$ (Eq.3)

RESULTS AND DISCUSSION

A total of 44 articles and a total sample size is 15.479 from 2008 to 2021 were used to test the hypothesis. This study used a meta-analysis method and obtained these articles using keywords related to eWOM and tourism. Additionally, all the articles related to the hypothesis have been published in a wide academic journal, with a detailed list of these shown in Table 1. Table 2 shows the meta-analysis results for the correlation between independent variables and dependent variables. Based on the mean value of correlation coefficients from previous research as 12 hypotheses have been mentioned in the literature review.

Table 2. Meta-Analysis Result for independent and dependent variables' influence Source: Authors

Hy-ps	Variables		K	Total	Effect size & 95% Confidence Interval			Heterogeneity			
	Independent	Dependent	Studies	N	R	LCI	UCI	p-value	Chi-square	Q-value	I-squared
H1	Electronic word of mouth	Destination Image	5	1772	0.416	0.377	0.454	0.000	18.47	652.195	99.387
H2	Electronic word of mouth	Attitude toward Destination	5	1028	0.718	0.687	0.746	0.000	18.47	229.780	98.259
H3	Electronic word of mouth	Travel Intention	6	1244	0.555	0.515	0.592	0.000	20.52	88.768	94.367
H4	Destination Image	Attitude toward destination	1	264	0.523	n.a	n.a	n.a	n.a	n.a	n.a
H5	Destination Image	Travel Intention	5	1444	0.430	0.387	0.471	0.000	18.47	72.387	94.497
H6	Attitude toward Destination	Travel Intention	5	1028	0.578	0.535	0.617	0.041	9.49	9.985	59.938
H7	Destinaion Image	Tourist Satisfaction	8	4710	0.275	0.249	0.302	0.000	18.47	95.097	92.639
H8	Attitude toward Destination	Tourist Satisfaction	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
H9	Travel Intention	Tourist Satisfaction	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
H10	Tourist Satisfaction	Tourist Loyalty	5	1955	0.712	0.689	0.733	0.000	18.47	340.798	98.826
H11	Tourist Satisfaction	Tourist complaints	3	1119	-0.188	-0.244	-0.130	0.000	18.47	387.681	99.484
H12	Tourist complaints	Tourist Loyalty	3	915	-0.302	-0.360	-0.242	0.000		27.629	92.761

4.1 The effect of Electronic Word of Mouth (eWOM) on Destination Image, Attitude toward Destination, and Travel Intention

Table 2 shows the meta-analysis results for the influence of eWOM on destination image. Based on the mean value of correlation coefficients from previous research, the results show that eWOM positively influences destination image (r = 0.416). The relationship has a medium effect size. Therefore, hypothesis 1 is supported. Table 2 shows the meta-analysis results for the influence of eWOM on attitude toward the destination. Based on the mean value of correlation coefficients from previous research, the results show that eWOM positively influences destination image (r = 0.718). The relationship has a medium effect size. Therefore, hypothesis 2 is supported. Table 2 also shows the meta-analysis results for the influence of eWOM on travel intention. Based on the mean value of correlation coefficients from previous research, eWOM positively influences travel intention (r= 0.718). The relationship has a medium effect size. Therefore, hypothesis 3 is supported. Furthermore, the Q-value for the above three hypotheses are all higher than the Chi-Square value, which means that the effect is significantly heterogeneous

4.2 The Effect of Destination Image on Travel Intention and Tourist Satisfaction

Table 2 shows the meta-analysis results for the influence of destination image on travel intention. Based on the mean value of correlation coefficients from previous research, the results show that destination image positively influences travel intention (r= 0.430). The relationship has a medium effect size. Therefore, hypothesis 5 is supported. Furthermore, the effect is significantly heterogeneous if the Q-value is higher than the Chi-Square value. Table 2 shows the meta-analysis results for the influence of attitude destination image on tourist satisfaction. Based on the mean value of correlation coefficients from previous research, the results show that destination image positively influences tourist satisfaction (r= 0.275). The relationship has a medium effect size. Therefore, hypothesis 7 is supported. Furthermore, the Q-values for the above two hypotheses are all higher than the Chi-Square value, which means that these effects are significantly heterogeneous.

4.3 The effect of Attitude toward Destination on Travel Intention

Table 2 shows the meta-analysis results for the influence of attitude toward a destination on travel intention. Based on the mean value of correlation coefficients from previous research, the results show that variables of attitude toward destination have a positive influence on travel intention (r = 0.578). The relationship has a medium effect size. Therefore, hypothesis 6 is supported. Furthermore, the effect is significantly heterogeneous if the Q-value is higher than the Chi-Square value.

4.4 The Effect of Tourist Satisfaction on Tourist Complaints and Tourist Loyalty

Table 2 shows the meta-analysis results for the influence of tourist satisfaction on tourist loyalty. Based on the mean value of correlation coefficients from previous research, the results show that tourist satisfaction positively influences loyalty (r= 0.689). The relationship has a medium effect size. Therefore, hypothesis 10 is supported. Furthermore, the Q-value is higher than the Chi-Square value, which means that the effect is significantly heterogeneous. Table 2 shows the meta-analysis results for the influence of tourist satisfaction on tourist complaints. Based on the mean value of correlation coefficients from previous research, the results show that tourist satisfaction positively influences loyalty (r = -0.188). The relationship has a small effect size. However, the magnitude of this relationship states that tourist satisfaction negatively influences complaints. This result indicated that higher tourist satisfaction would result in lower tourist complaints.

4.5 The effect of Tourist Complaints and Tourist Loyalty

Table 2 shows the meta-analysis results for the influence of tourist complaints on tourist loyalty. Based on the mean value of correlation coefficients from previous research, the results show that tourist complaints positively influence loyalty (r= -0.302). The relationship has a medium effect size. This evidence shows that high tourist complaints will result in lower tourist loyalty. Based on a thorough literature review, we cannot find enough empirical studies to calculate the mean values H4, H8, and H9. Therefore, this study does not include H4, H8, and H9.

The influence of destination image on attitude toward a destination, attitude toward a destination on travel intention, and travel intention on tourist satisfaction is not applicable because the number of the study did not fulfill the criteria (less than two studies). Therefore, the meta-analysis does not identify H4, H8, and H9.

CONCLUSION

Research on the relationship between eWOM, destination image, tourist satisfaction, and tourist loyalty attracts many researchers in tourism (Chi and Qu, 2008). However there have been many studies evaluating the relationship and interaction between the structures, but also very difficult to conclude with certainty about the link between the factors. The present study compiled 44 published articles to make conclusive statements that each article cannot easily conclude. Based on the results above, this study would like to offer several suggestions. First, eWOM can provide all the necessary information to motivate tourists to make decisions before and during the journey. Therefore, the adoption of traveler about innovation is already valued as an essential element for competitiveness among destinations. It is suggested that tourism applications should improve some aspects related to functionality and information to cover all perspectives offered by online customer reviews, and then it becomes interesting for travelers. Second, this study proposes 12 hypotheses that have been proposed and tested through meta-analysis. All results have shown that the research hypothesis has largely supported the relationships in the research model, except for the destination image and attitudes toward a destination, attitudes toward destination and tourist satisfaction, and travel intention and tourist satisfaction. Therefore, eWOM, destination image, and tourist satisfaction are crucial in achieving loyalty.

In terms of theoretical implications, first, this study uses a meta-analysis method that contributes to basic knowledge about eWOM, the destination image, attitudes toward a destination, tourist satisfaction, travel intention, and tourist loyalty in the tourism area. Although, there are still some hypotheses that do not have much supportive research and clearly show the relationship between factors. Second, in terms of the interaction between factors such as eWOM, destination image, attitudes toward a destination, travel intention, tourist satisfaction, and tourist loyalty, most factors are significant, although the level of impact is different. This proves that these factors play an important role in shaping visitors' loyalty to the destination. In terms of practical implications, first, the factors such as eWOM, destination image, attitude toward a destination, tourist satisfaction, travel intention, and tourist loyalty are considered important factors in the competition between points to tourism Lu et al. (2020). Understand the importance of factors that will help destination managers develop strategies for attracting tourists and managers who need to build plans and effectively manage the image of the destination, manage the effect of communication on the customer and understand the behavior of tourists. Therefore, the research findings provide for destination management and destination marketing.

Second, travelers' loyalty has been assessed as having a close relationship between factors such as eWOM and the destination image. Therefore, research also points out that destination managers must focus on building relationships with customers and building positive images of the destination to attract the visitor's return.

Nowadays, travelers can seek and share much information via the online environment. For travelers who do not have travel experience and do not have experience in selecting a destination, they can base on sharing from those who have experience through the internet. Therefore, it can indirectly support a tourist if destination managers can make a beautiful picture of the destination image and improve the quality, service, and value to satisfy the tourist and further repeated visits. When destination managers can offer various aspects of tourist destinations in terms of entertainment, beverage service, transportation, and accommodation, a sense of satisfaction will be created by tourists as a signal of positive online customer reviews. It would be very useful for them to manage the destination performance. The more tourists receive good service, products, and other attributes, the more the tourism destination will provide a positive attitude. According to Tavitiyaman et al. (2021), the destination can give some prizes to community member if they publish tourist reviews or writes a blog, for instance. Finally, serving companies should pay attention to customers' personalities and not try to judge all customers as a general look. A joyful travel experience with excellent services the destination provides encourages a positive attitude toward the destination and arouses a psychological intention. Travelers to share their experiences with others via eWOM. So the destination. Managers must provide a pleasant experience for tourists as the top priority to attract tourists.

This study emphasized that eWOM is likely to affect tourists' perceptions. Tourists will get comments from other people to make their decision, especially in case of repeat visits, or release some ideas or complaints when they finish their

trip. Besides that, this study shows that eWOM has a positive attitude toward the destination and destination image. eWOM will further affect tourist satisfaction and loyalty. Besides that, the study also examines the strong influence of satisfaction on loyalty, which is in line with previous studies in tourism (Lee, 2009; Yoon and Uysal, 2005). The study recorded the direct impact of the destination image on satisfaction and indirectly on loyalty. This finding is consistent with previous studies that show that destination image is one-factor influencing visitor satisfaction (Marzuki et al., 2012). This study can support the service firm to serve tourists better and increase their experiential value through interaction between tourists and the firm. According to Moscardo (2020), tourism can be considered a good study experience since tourism is a human experience. The results also indicate that a good destination image will influence tourist satisfaction and enlarge the influence of revisit intention. This finding is consistent with previous studies that if visitors have a high level of satisfaction, they tend to do good behavior intention like revisit intention (Chua et al., 2015).

Although meta-analysis is a powerful tool that evaluates the relationship between eWOM elements, destination images, and loyalty, it still has limitations. Firstly, research has selected several related studies but cannot synthesize all relevant ones. Secondly, the research method used to evaluate eWOM, destination image, attitude toward a destination, travel intention, tourist satisfaction, and tourist loyalty still cannot report any differences between the studies as sample characteristics and context in the research model. Third, the quality of meta-dependent data was reported in previously published studies. Research also points to future research on the relationship between eWOM, destination image and attitude toward a destination, travel intention, tourist satisfaction, and tourist loyalty. Future studies may incorporate more published data related to the research topic. In addition, future research can use other methods to assess relationships as structural equation modeling to assess the impact of intermediate variables. Second, the study collected relatively large sample sizes that needed a larger sample to clarify the more specific effects.

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RENEWING THE ECOTOURISM INVESTMENTS' STRATEGIES IN THE KINGDOM OF SAUDI ARABIA: SOCIAL EXCHANGE THEORY PROSPECTS

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Abstract: The present study aimed to assess Saudi residents' attitudes toward tourism destination activities/initiatives using social exchange theory. In particular, we investigated the residents' perceptions of tourism's economic, sociocultural, environmental, and health impacts. A survey-based study was carried out on 190 residents from Saudi Arabia's biggest cities (Riyadh, Jeddah, Dhahran, Jubail, and Yanbu industrial area). Residents positively perceived tourism when it helped preserving the destination environment, economy and health benefits. Additionally, residents encouraged tourism investments and eco-initiatives as long-term projects that benefit residents. Saudi Arabian tourism managers have to consider the residents' living standards while formulating policies, plans, and strategies to improve the tourism industry.

Key words: Ecotourism development; Tourism impacts; Residents' perception; Social Exchange Theory; Socio-cultural Health and Tourism; Stakeholders

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INTRODUCTION

The increase in tourism flow over the previous three decades has led tourism scholars to have attention to tourism's impacts on the environment (Birenboim et al., 2022). Early literature about the adverse effects of tourism on host destination societies has focused primarily on natural environment conservation because of over-tourism (García-Buades et al., 2022). Thus, tourism service providers started emphasizing tourism's adverse impact on societies by investing in social responsibility initiatives to mitigate such effects. For instance, they imposed regulations to measure the emission resulting from tourism movements and introduced new taxation and entrance fee systems, aiming to reduce the tourists' in overcrowded destinations (Birenboim et al., 2022). However, tourism service providers acknowledged that the increasing tourism flow leads not only has negative impacts on the environment but could also lead to conflicts between the host destination residents and tourists' demands (García-Buades et al., 2022). Residents at destinations consider the success engine of any tourism investments. Residents consider the essential destination stakeholders, as research in tourism sheds light on analyzing and understanding residents' behavior (García-Buades et al., 2022).

This research argued that if residents perceive tourism investments as beneficial, they will support them. Also, they significantly like to stay at these destinations, aid and cooperate in developing further tourism investments at destinations. According to Scarpi et al. (2022), residents perceive that tourism is beneficial from three main perspectives: first, an economic outlook, tourism investments can increase jobs, raise residents' income, and add value to host destinations' activities. Second, sociocultural perspective, tourism investments enhance recreational areas of cultural facilities/activities. Third, environmental perspective, tourism investments can attract tourists with preservation ideologies to preserve the place's nature. The perceived impact of tourism on residents' navigate the residents' actual behavior toward tourism engagement. A recent study was conducted by Saluja et al., 2022 to measure the residents' perception of Varkala city and its impact on their actual behavior. They found that Varkala residents perceived that tourism has an economic advantage, so they started to engage in direct and indirect investments related to tourism development. Residents of Varkala are involved in tourism activities when they consider that tourism helped alleviate local unemployment.

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Also, residents' perceptions could be negative; many theoretical approaches predicted that residents' negative perceptions of tourism or tourism investments could develop negative behaviors toward tourism investments (Saluja et al., 2022). The negative perception of residents about tourism also can be an indicator of host destination sustainability and could increase or decrease the number of tourists numbers in destinations (Patandianan and Shibusawa, 2020). The residents' responses to tourism strategies could be shifted from positive to negative if residents haven't received any benefit outcomes from tourism. Residents' behavior could reduce tourism limiting by more than 30 % if they encounter negative perceptions (García-Buades et al., 2022). Thus, while most tourism destinations and residents still don't encounter de facto tourism and environmental hazards because of tourism, the new destinations exemplar need more adoption and devise met to avoid residents' conflict in pre-operation for tourism strategies. In our study, we investigate the residents' perception of Saudi Arabia as a new destination exemplar to predict residents' perceptions about tourism and tourism investments.

This will lead to avoiding and attaining any potential conflict and dubiousness between residents and tourism service providers because of over-toured destinations. Accordingly, Saudi Arabia is one country that doesn't encounter de facto tourism as it is considered an emerging tourism country. Importantly, we will study the perception of KSA residents from the social exchange theory lens (SET). The SET theory is chosen because it is considered the most suitable theory to study residents' perceptions of tourism (Nunkoo, 2016). SET analyzes the core constructs of the network between tourism service providers and residents as an actor in the tourism supply chain for any tourism destination. So, this paper investigated residents' tourism, economsocioculturalural, environmental, and health impacts through the SET lens.

LITERATURE REVIEW

Theoretical Background

Tourism Development Theory

Economic impact, social impact, environmental impact, and cultural impact on tourism development are referred to as tourism development theory (Bianchi, 2018; Yoon et al., 2001). The tourism development theory was proposed by Butler (Butler, 1997). Many researchers have modified this theory based on their perceptions and impacts. This theory also implies that residents' support for developing tourism is in evidence. Tourism development can only be achieved through the help of residents of tourism destinations (Gannon et al., 2020; Woosnam et al., 2018). No component of this theory can be ignored to develop tourism in any destination.

Social Exchange Theory

Thibaut and Kelley (Thibaut and Kelley, 2017) modified the economic theory to formulate the social exchange theory (SET). This theory implies the study of the social psychology of groups and establishes a relationship between the benefits and costs of the socio-economic activity, e.g., tourism. All the connections are analyzed based on a comparison between the standards and perceived values of the individuals and groups. From the perspective of tourism, SET explains individuals' attitudes towards tourism and their subsequent level of support for its development. The support towards tourism development is affected by the evaluation of outcomes for themselves and as a whole for their community (Buckley, 2009; Eslami et al., 2019; Woo et al., 2015; Zheng et al., 2019).

Social exchange theory has framed a concept based on comparing costs and benefits, negative and positive perceptions, and support for developing tourism in the country. However, these perceptions vary among various stakeholders of the tourism industry, e.g., the individuals directly associated with tourism may have more positive perceptions due to the relative benefits associated with their income and economics. Research has validated this theory and has concluded that many factors, i.e., social, environmental, and economic, have been associated with sustainable tourism development due to the positive and negative perceptions of the individual related to the tourism sector directly or indirectly.

Impacts of tourism development

Many countries have considered tourism the primary source of revenue, and its development has expanded worldwide. Besides, rural destinations have been developed as new alternative resources to reinforce the economy and empower traditional industries (Lee and Brahmasrene, 2013). Therefore, tourism has significant positive impacts in different aspects such as government revenue, source of income for the community, foreign money exchange, new job opportunities, infrastructure development, and economic growth (Akadiri et al., 2017; FaladeObalade and Dubey, 2014; Martín et al., 2017; Mbaiwa, 2003; Suhel and Bashir, 2018). Furthermore, according to Sinclair-Maragh et al. (Sinclair-Maragh et al., 2015), tourism has associated positive impacts on the environment and social-cultural practices of the community by improving natural conservation, enhancing culture, and preserving history and heritage sites. Therefore, tourism promotes cultural awareness, identity, and destination image within the community (Le and Le, 2020). Moreover, tourism generates many benefits for the community's well-being and improves the living standard of the community members (Mousavi et al., 2016; Stylidis, 2020). In addition, there are indirect health impacts that affect residents to enhance their well-being in local destinations, such as by participating in sports activities, raising health awareness, and complying with sanitary & hygiene procedures, especially during times with higher health risks such as COVID-19 which directly affects the level of health in local areas (Couto et al., 2020; Duro et al., 2021; Foo et al., 2020).

However, previous studies have alluded that tourism development has associated costs (Gursoy et al., 2018; Sharpley, 2014). Usually, there are some negative impacts such as (e.g., crowding, increased cost of living, environmental destruction, changing family values, prostitution, alcohol consumption openly, and the commercialization of cultural practice) that are associated with tourism development (Archer et al., 2012; Zhuang et al., 2019). In addition, tourism

creates changes among communities, such as business inflation, cultural conflicts, tourism anxiety, local language changes, traditional lifestyle changes, drugs, increased crime, violence, and social conflicts (Eyisi et al., 2021; Ferreira et al., 2020). On the other hand, tourism also stimulates terrible habits of food eating because of international restaurants, and some diseases are brought from other countries to the local community, such as (AIDS and STDs). Hence, the balance between the tourism benefits and cost is essential for the marketing plans to acquire residents' support towards tourism development (Obradović and Stojanović, 2021; Polukhina et al., 2021; Vu and Ngo, 2019).

Therefore, creating sustainable tourism destinations is one of the significant issues of marketing challenge to maintain the tourism impacts by minimizing cost and maximizing benefits to make a positive image of tourist destination (Archer et al., 2012; Nunkoo and Gursoy, 2012; Solberg and Preuss, 2007; Tsai and Bui, 2020). Their findings show that a sustainable tourism destination depends on the host community's satisfaction and positive attitude towards tourism development and tourists. Therefore, residents' perceptions and relationships with their attitudes have become the most critical issue among researchers in identifying factors influencing tourism. In literature, scholars have examined various theories and models to explain host communities' perceptions of tourism impact (Easterling, 2005; Sharpley, 2014).

Resident Perception towards Tourism Development

Various studies have investigated the perception of residents and their attitudes over the past fifty years. The compatibility of costs and benefits in tourism development impacts is essential to satisfy host communities (Easterling, 2005; Fakfare et al., 2021; Sharpley, 2014). In general, the local people have perceived more costs than benefits; they may be inclined to withdraw their support from tourism. As a result, understanding residents' perceptions has to be extensively investigated to successfully create a positive destination image and maximize the positive perception and attitude among the residents. Various theories describe how residents' perceptions can be influenced and how their attitudes can be predicted. Some scholars, including Doxey, 1975; Butler, 1980; Dogan, 1989; Ap, 1992 as cited in Ap (1992), have examined the economic, sociocultural, and environmental impacts on residents' perceptions. For example, Doxey, 1975 explained the residents' attitude towards tourism development in stages; (euphoria, apathy, irritation, and antagonism), and it is identified as "Irritation Index Theory." Moreover, it explained that as the tourism development rate increased, residents' attitudes changed from euphoria to antagonism.

After that, Butler (R. Butler, 2006; R.W. Butler, 2006) suggested the Tourism Area Life Cycle (TALC), which elucidated the lifecycle of the tourism process in the destination from growth to maturity and how residents' perception was affected. Butler (R. Butler, 2006) used the conceptual framework of favorable, unfavorable, and slight acceptance to specify the attitude of residents instead of the terms "withdraws or antagonists." He argued that residents have different degrees of behavior that might be unfavorable but not withdrawn or antagonistic. Furthermore, Ap [58] described the strategies of residents' response to tourism development and tourists as (embracement, tolerance, adjustment, and withdrawal). Despite that, the residents' attitude has changed over time from embracement to withdrawal of tourists based on the influx of tourists. Therefore, Ap (Ap, 1992), had developed the Social Exchange theory (SET) in the tourism sector to evaluate the resident's perceptions of tourism impacts as well as other ideas that were implemented to examine the residents' perception of tourism destinations. This paper discusses the SET to examine residents' perceptions of tourism impacts and their support for tourism development.

The model of the research

Several studies have examined various theories to study the effectiveness of tourism's impact on the host community and determine the relationship between the residents' perception and tourism development. Social Exchange Theory (SET) has been widely used to describe the exchange between residents and tourists (Bimonte and Punzo, 2016; Kattiyapornpong et al., 2021; Rasoolimanesh et al., 2015). Furthermore, it explains the interaction or exchange between individuals in a group to achieve common goals (Tsaur et al., 2018). Hence, a common theory has been applied in evaluating residents' attitudes toward tourism development (S. Chen et al., 2020; Rasoolimanesh et al., 2015).

Although the SET has been used for intergroup and exchange between two groups, it has also examined how the residents perceive the benefits and costs of tourism impacts (Eslami et al., 2019; Lawson et al., 1998). Economically, if the benefits outweigh the price, a positive perception is indicated. Otherwise, the negative perception is supposed to be a consequence of the perceived cost of tourism impacts (Sharpley, 2014). So, the drive of this theory is to balance the benefits and costs to evaluate the resident's perception and predict their attitude towards ecotourism development at the destination (Nunkoo, 2016; Sharpley, 2014). Most scholars have confirmed the validity of (SET) to explain the relationship between residents' perception and their support of tourism development. If the residents perceive more benefits from tourism, they support tourism development. On the other hand, if residents perceive high costs, they will not support tourism development. So, there is a positive relationship between residents' perception of tourism impacts and their support of tourism development (Rasoolimanesh et al., 2015). Collectively, based on the above-mentioned observations, we present below the hypothesized conceptual framework:

In Figure 1, we present the model of stakeholders' perception of tourism impacts on their intention to support investment in ecotourism development. Due to the (SET), if the residents perceive positive impacts of tourism, they will support tourism development in their destination, and the contrary if they perceive high costs of tourism impacts.

The conceptual framework from Figure 1 makes it easier for this paper to easily specify and define the concepts within the problem of the study. The main variables of this paper are the Saudi residents' perceptions of the tourism impact based on the economic, sociocultural, environmental, and health factors. According to the SET, this study was

carried out to determine the relationship between the perception and the behavior of the residents in supporting tourism development. Based on the study conducted by Tsaur et al., 2018, several papers have implied the social exchange theory to exhibit the behaviors of residents towards tourism development, which can be used to explain the interaction or exchange between a person in a group to achieve group goals. In his paper, he stated that the needs and expectations of all stakeholders must be considered to perform the ultimate exchange between groups.

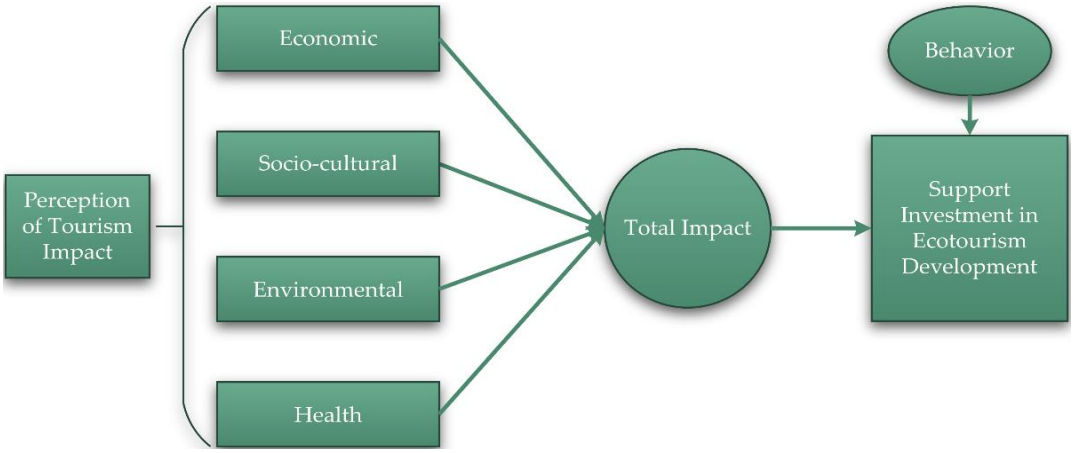

Figure 1. Model of Stakeholders' perception of tourism impacts and support towards investment in ecotourism development in KSA

Hypotheses

A first set of hypotheses deals with the perception of different types of tourism impacts (the dimensions of tourism impact perception). There are four hypotheses as follow:

H1. Saudi residents have positive perception of economic impacts of investment in ecotourism.

H2. Saudi residents have positive perception of socio-cultural impacts of investment in ecotourism.

H3. Saudi residents have positive perception of environmental impacts of investment in ecotourism at major tourism destinations.

H4. Saudi residents have positive perception of health impacts of investment in ecotourism.

The second set of hypotheses refers to the relationship between the Saudi residents' perception of tourism impacts (economic, sociocultural, environmental, and health) and their attitude toward supporting tourism development. According to Social Exchange Theory (SET), the relationship between residents' perceptions and their support of tourism development should be positive. Hence, we articulate the following hypotheses to answer this question by considering the four dimensions of tourism impacts.

H5. There is a direct positive relationship between perceived economic impacts of tourism and residents' support of tourism development.

H6. There is positive relationship between perceived socio-cultural impacts of tourism and residents' support of tourism development.

H7. There is positive relationship between perceived environmental impacts of tourism and residents' support of tourism development.

H8. There is positive relationship between perceived health impacts of tourism and residents' support of tourism development.

Last hypothesis about the difference between stakeholders' perception in urban and rural cities towards tourism development is as following:

H8. There is a difference between urban and rural residents' perception of tourism development.

MATERIALS AND METHODS

Sampling and Data Collection

As in Olya and Galilean's (Olya and Gavilyan, 2016) recommendation to estimate the resident's support and perception toward tourism development and investments, we asked a local tourism authority in Saudi Arabia to introduce us to reach residents and target respondents from different parts of the big cities in Saudi Arabia. These cities are (Riyadh, Jeddah, Dhahran, Jubail, and Yanbu industrial area). Although the Holy City of Makkah and The Holy City of Madinah are among the biggest cities in Saudi Arabia, we don't include them in our study. The reason behind that, according to the local tourism authority that these cities mainly depend on religious tourism, and the residents' perception there are less likely to serve within the general scope of the research.

We then distributed the survey online Due to the restrictions of the Covid-19 virus by ensuring that the respondents would be collected in each borough in the selected cities to reflect its population size and demographics. According to Lee (Lee and Brahmasrene, 2013), this step allowed for an accurate and high response rate. The way we distributed the survey was that the tourism authority called them personally by their phone numbers. The local tourism authority has ensured that the respondents are selected regarding their awareness of the social initiatives and tourism investments. After the potential respondents had been called, a sample 190 respondents was taken from all participants, N1 (rural)= 86 respondents, and N2

(urban) = 128 respondents from those selected cities. Sample characteristics included demographics of the respondents in terms of gender, nationality, region, qualification, age, monthly income, and job (Table 10).

Measures and Analysis

We prepared a questionnaire with 25 items to address our study aims, precisely to capture the residents' perceptions of economic, sociocultural, environmental, and health factors; we also asked them about their perceptions of the service providers' initiatives toward eco-tourism development. The survey was structured to explore the Saudi residents' perceptions of tourism impacts from economic, sociocultural, environmental, and health aspects; the respondents were asked to evaluate the effects of ecotourism development based on a five-point Likert Scale (1-Strongly Disagree to 5-Strongly Agree). To reach our research objectives, i) calculate, quantify and measure the mean perceptions of residents in Saudi Arabia about ecotourism development concerning economic impacts, social and cultural impacts, and environmental and health impacts. As well as meaningful support of tourism development, encouragement of current tourism development, acceptance of additional tourism development, and participation in tourism promotion; ii) Examine the relationships between resident's perception of tourism impact in terms of economisociocultural, environmental, and health and support of tourism development; iii) Examine the significant and insignificant differences between the perception of the residents in urban and rural areas. The Statistical Package for Social Sciences (SPSS) was used to analyze the data. As for statistical techniques, firstly, reliability (Cronbach's alpha) and validity tests were conducted. Based on the results, this study shows a high validity and reliability given the Cronbach Alpha in this study is between 0.6 and 0.8. Next, the results were written based on a descriptive statistical analysis of the stakeholders' average responses.

RESULTS

Reliability Analysis

Reliability is a measure of internal consistency that shows how closely related are a set of items in a group and the extent to which a measure will produce consistent results from the questions built in a survey study. Cronbach's alpha commonly assessed the reliability of this questionnaire. A Cronbach alpha of 0.70 or higher indicates that a perfect measurement scale used to measure a construct is reliable, while 0.6 -.07 is considered acceptable (Ursachi et al., 2015).

Table 1. Shows Cronbach's Alpha values for each dimension in the questionnaire

No.	Dimension	N of Questions	Cronbach's Alpha
1	Tourism Economic Impacts	6	0.650
2	Socio-cultural Tourism Impacts	6	0.637
3	Environment Tourism Impacts	6	0.613
4	Health impacts	6	0.600
5	support tourism development	4	0.741

Descriptive Statistics

There are one hundred ninety (190) respondents in this study wherein the majority are male, i.e., 107 or 56.6%, Saudi nationals reaching 182, 95.8% coming from major cities and having a frequency of 128. Also, 67.4%, most of who are bachelor's degree holders consisting of 94, and 49.7% ranging between the age bracket of 31-35 years with 42 responses, and 22.3% have a monthly income of 10001-15000 Saudi Rials (equivalent to 2500 – 4000 USD) and 28.5% in which most of them are non-tourist sec-tor in both public and private garnering a frequency of 121 or 65.8% (Table 10).

In this paper, the questionnaire was built based on positive and negative items to describe the four factors of tourism impacts that were adapted from previous studies (Andereck and Vogt, 2000; Couto et al., 2020; Frauman and Banks, 2011; Hundt, 1996; Johnson et al., 1994; Jurowski and Gursoy, 2004; Khizindar, 2012; Lawson et al., 1998; Liu, 2013; Nguyen et al., 2020; Nunkoo, 2016; Nunkoo and Gursoy, 2012; Stylidis et al., 2014; Thibaut and Kelley, 2017). At the same time, the four items measured the support of investment in ecotourism measurement as a dependent variable: (1- I support current ecotourism development in my community, 2- I support additional tourism development in my community, 3- I participate in tourism promotion of my society and 4. Overall, I am satisfied with the current ecotourism development) that was adopted from (Gursoy et al., 2009; Jurowski and Gursoy, 2004; J.W. Lee and Brahmasrene, 2013; Rasoolimanesh et al., 2015; Rasoolimanesh et al., 2017). Moreover, we considered the positive and the negative of the perception by mean range, meaning that we consider the perception as positive when it is from 3.5 to 5m and medium when it's from 2.25 to 3.5, and negative if its lower than 2. We argued that it was the same sequence of the survey based on a five-point Likert Scale (1-Strongly Disagree (negative perception) to 5-Strongly Agree (positive perception).

Table 2. Descriptive statistics of perception of economic impacts as a result of investment in ecotourism

Order	No	The Questions	Mean	Std. Deviation	Perception
2	1	Tourism creates more jobs opportunities for our community.	3.92	1.131	positive
4	2	Tourism improves infrastructure and other public services.	3.89	1.071	positive
1	3	Tourism benefits small businesses in my community.	3.99	1.034	positive
5	4	Tourism increases the price of goods and services.	3.49	1.053	Medium
3	5	Tourism increases the price of lands and housing.	3.90	.979	Medium
6	6	Tourism increases the cost of living.	3.33	1.074	Medium
Total			3.75	1.057	positive

From Table 2, the responses show that there are high economic impacts of the tourism sector ranging to a total mean value of 3.75, which is supported by responses through the following: Tourism benefits small businesses in my community (Mean Score = 3.99); Tourism creates more jobs opportunities for our community (Mean Score = 3.92); Tour-ism increases the price of lands and housing (Mean Score= 3.90); Tourism improves infrastructure and other public services (Mean Score = 3.89); Tourism increases the price of goods and services (Mean Score = 3.49), and Tourism increases the cost of living (Mean Score = 3.33). As can be seen in Table 2, the study showed that the economic impacts of tourism are perceived positively by Saudi residents for three components which are that tourism creates more job opportunities, tourism improves infrastructure and other public services, and tourism benefits small businesses in the community. Also, there are negative perceptions among Saudi residents in terms of two different components: tourism increases the price of goods and services and increases the price of lands and housing; meanwhile, the last component that tourism increases the cost of living is perceived as a medium. Yet, overall, the result for the perception of the economic impacts of the tourism sector among Saudi residents is positive.

Table 3. Descriptive statistics of perception of socio-cultural impacts

Order	No.	The Questions	Mean	Std. Deviation	Perception
2	1	Tourism preserves the cultural and historical sites.	4.07	.960	Positive
1	2	Tourism promotes Saudi culture and identity.	4.09	1.001	Positive
3	3	Tourism provides the availability of recreational facilities.	3.63	1.104	Positive
6	4	Tourism disturbs Saudi social values, norms and tradition.	2.89	1.013	Medium
4	5	Tourism creates overcrowded of tourists in recreational, outdoors and hiking trails which disturbs local's privacy.	3.17	1.156	Medium
5	6	Tourism creates culture's conflict with tourists.	2.90	1.032	Medium
Total			3.46	1.044	Positive

Table 3 shows that the social and cultural impacts of the tourism sector are high, with a computed mean value of 3.46 that generates support with the following items: Tourism promotes Saudi culture and identity (Mean Score = 4.09); Tourism preserves the cultural and historical sites (Mean Score = 4.07); Tourism provides the availability of recreational facilities (Mean Score = 3.63); Tourism creates over crowdedness of tourists in recreational, outdoors and hiking trails which disturbs local's privacy (Mean Score = 3.17); Tourism make cultural conflict with tourists (Mean Score = 2.90); and Tourism concerns Saudi social values, norms, and tradition (Mean Score = 2.89). In Table 3, three items of socio-cultural impacts of tourism are perceived positively by Saudi residents: tourism preserves the cultural and historical sites, promotes Saudi cultures and identity, and provides recreational facilities availability. Meanwhile, the other three items are tourism disturbs Saudi social values, norms, and tradition, creating the crowdedness of tourists in recreational, outdoor, and hiking trails, which disturbs local privacy, and tourism creates cultural conflict with tourists is perceived in the medium range within the Saudi residents. Though Saudi society is much protective of its socio-cultural settings, it has always welcomed other cultures. Therefore, it is no surprise that the population views tourism favorably, as it facilitates social exchange and creates opportunities to learn about other people and cultures. So, based on this result, it can be said that, in general, the development of the perception of the social-cultural impacts of the tourism sector among Saudi residents is positive.

Table 4. Descriptive statistics of Environmental impacts

Order	No.	The Questions	Mean	Std. Deviation	Perception
2	1	Tourism preserves the natural protection areas and geological sites.	3.44	1.110	Positive
1	2	Tourism improves community appearance.	3.62	1.105	Positive
3	3	Tourism development in our community promotes positive environmental ethics.	3.43	1.040	Positive
6	4	Tourism causes pollution (water, air, and noise).	2.93	1.064	Medium
4	5	Tourism has led to traffic and congestion.	3.37	1.141	Medium
5	6	The quality of the environment has deteriorated because of tourism.	3.04	1.166	Medium
Total			3.30	1.104	Medium

From Table 4, it can be seen that there are medium environmental impacts of the tourism sector, having a mean value of 3.30. Responses from the respondents supported this result through the following items: Tourism improves community appearance (Mean Score = 3.62); Tourism preserves the natural protection of areas and geological sites (Mean Score = 3.44); Tourism development in our community promotes positive environmental ethics (Mean Score = 3.43); Tourism has led to traffic and congestion (Mean Score = 3.37); The quality of the environment has deteriorated because of tourism (Mean Score = 3.04); and Tourism causes pollution (water, air, and noise) (Mean Score = 2.93).

This statement is by Malik et al., 2017 study, which revealed that a considerable number of respondents were skeptical about the tourism impacts on the natural environment, with 34% (Mean Score = 2.79) of the respondents stating that tourism activities damage the natural environment in the long run. The result shown in Table 4 reflected that generally, the environmental impacts of tourism are perceived medium, which can be considered both negative and positive by Saudi residents. The findings are positive perceptions for the first three components: tourism preserves the natural protection of areas and geological sites, tourism improves community appearance, and tourism development in the community promotes positive environmental ethics. Meanwhile, for the other three, the results are displayed as medium perceptions within the Saudi residents: tourism causes pollution (water, air, noise), leads to traffic and

congestion, and the quality of the environment has deteriorated because of tourism. The findings are justified by previous studies, which stated that environmental impacts such as traffic congestion, noise pollution, and competition between tourists and residents in recreational venues and spaces were the impacts that were observed in the community. Thus, overall, the result for the perception of environmental impacts of the tourism sector among the Saudi residents came out as medium level, and it is a clear indication to invest more in the development of ecotourism in KSA.

Table 5. Descriptive statistics of health impacts

Order	No.	The Questions	Mean	Std. Deviation	Perception
3	1	Tourism improves local's health (increase of income leads to better wellbeing and health.	3.42	1.182	Positive
1	2	Tourism encourages locals to engage in sports activities with tourists (e.g., running marathons, adventure, hiking, biking, snorkelling and other sports.	3.78	1.014	Positive
2	3	Tourism complies the promotion of sanitary & hygiene procedures for tourists to protect residents during health risk (e.g., H1N1, Covid-19 pandemic).	3.53	0.930	Positive
5	4	Tourism stimulates the bad habits of food eating because of international restaurants and café which lead to malnutrition.	3.03	1.059	Medium
6	5	Tourism might bring back diseases already disappeared in my community.	3.02	1.159	Medium
4	6	Tourism can cause increases in diseases in my community (e.g., AIDS, STDs)	3.19	1.189	Medium
7	7	Tourism impacts the general level of health conditions (mortality, morbidity, reduction in life expectancy, etc.)	2.87	1.138	Medium
Total			3.26	1.096	Medium

The results in Table 5 show that that health impacts has medium effects in tourism industry garnering a computed mean value of 3.26 which is supported by the fol-lowing items such as tourism encourages locals to engage in sports activities with tourists (e.g. running marathons, adventure, hiking, biking, snorkelling and others sports (Mean Score = 3.78); Tourism complies with the promotion of sanitary & hygiene procedures for tourists to protect residents during health risks (e.g. H1N1, Covid-19 pandemic) (Mean Score = 3.53); Tourism improves local's health [increase of income leads to better wellbeing and health (Mean Score = 3.42)]; Tourism can causes increases in diseases in community (e.g. AIDS, STDs) (Mean Score = 3.19); Tourism stimulates the bad habits of food eating because of international restaurants and café which lead to malnutrition (Mean Score = 3.03); Tourism might bring back diseases that have already disappeared from the community (Mean Score = 3.02); and Tourism impacts the general level of health conditions (mortality, morbidity, reduction in life expectancy, etc.) (Mean Score = 2.87).

The findings in Table 5 show that tourism's health impacts are generally perceived as medium level among Saudi residents. The components are tourism improves local health (an increase in income leads to better well-being and health); tourism encourages locals to engage in sports activities with tourists (running marathons, adventure, hiking, biking, snorkeling, and other sports), and tourism com-plies with the promotion of sanitary & hygiene procedures for tourists to protect residents during health risks (e.g., H1N1, Covid-19 pandemic) are stated to be of positive perception. Moreover, as COVID-19 is spreading globally, this will directly or indirectly affect the community, as stated by Uğur & Akbıyık (Uğur and Akbıyık, 2020). In contrast, the indirect effects can also arise from changes in behavior, for example, when consumers forego shopping or tourists avoid traveling to regions that appear risky to evade the risk of infection. During the corona crisis, worldwide travel traffic has come to a standstill, and many countries have prohibited foreigners from entering the country and closed their external borders. The restrictions include all other sectors related to the tourism industry, such as restaurants, domestic tourism, visits to cultural events, and trade fairs.

The other components which are stated as medium perceptions among the Saudi residents are tourism stimulates the bad habits of food eating because of international restaurants and café which lead to malnutrition, tourism might bring back diseases that have already disappeared in the community, tourism can cause an increase in diseases in the community (e.g., AIDS, STDs) and in contrast, the destinations they travel to, they often come into contact with pathogens, bacteria, parasites, viruses that are not or no longer to be found in their home countries; therefore, their immune system does not have an adequate defense against the specific diseases. According to Uğur and Akbıyık (Uğur and Akbıyık, 2020), common diseases associated with travel activities are differentiated according to the type of transmission options. These include pathogens that are transmitted through body fluids (e.g., HIV / AIDS, hepatitis C) and droplets (e.g., SARS, flu viruses, tuberculosis) or aerosols (e.g., anthrax, fungal spores) which simultaneously impact the general level of health conditions (mortality, morbidity, reduction in life expectancy, etc.). Overall, the perception of the health impact is medium among Saudi residents. Based on these findings, the economic, sociocultural, environmental, and health factors significantly affect Saudi residents' perceptions while residents and tourists use resources at the destination. However, the study has shown that Saudi residents perceived benefits from tourism from four factors (economic, Sociocultural, Environment, and health impacts). Saudi residents have perceived the cost of the economic effects, but they are still unaware of the adverse effects of other factors, such as sociocultural, environmental, and health issues. Therefore, the study shows that Saudi residents positively perceive tourism impacts and supports hypotheses H1, H2, H3, and H4. The results meet the essence of the Tourism Area Life Cycle (TALC) wherein, in the early stage of tourism development, residents are more welcome to embrace the destination's development.

Results shown in Table 6 indicate a high descriptive statistic regarding Saudi citizens' support of tourism development, garnering a computed mean value of 3.68. This result is supported by responses from the respondents with the following sub-variables: I believe tourism should be actively encouraged in my community (Mean Score = 4.05); I support additional

investment in ecotourism development in my community. (Mean Score = 4.00); I support current ecotourism development in my community (Mean Score = 3.78); overall, I'm satisfied with the current level of investment in ecotourism development in our community (Mean Score = 2.89). In general, Saudi residents do have a positive attitude towards tourism development. Only one component of the questionnaire came out as a medium: 'Overall, I'm satisfied with current investment in ecotourism development in our community, whereas the others are positive. This shows that Saudi residents in the study area are highly supportive of tourism development in their area.

Table 6. Descriptive statistics of Saudi residents' support for tourism development

Order	No.	The Questions	Mean	Std. Deviation	Attitude
3	1	I support current ecotourism development in my community.	3.78	0.972	Positive
2	2	I support additional investment in ecotourism development in my community.	4.00	0.976	Positive
1	3	I believe ecotourism should be actively encouraged in my community.	4.05	0.999	Positive
4	4	Overall, I'm satisfied with current level of investment in ecotourism development in our community.	2.89	1.286	Medium
Total			3.68	1.058	Positive

Table 7. Relationship between perception of tourism impacts and support ecotourism development

Variables	Computed R-value	Quantitative Linear Relationship	Sig. (2 tailed)	Decision/Interpretation
Economic Impacts	0.320**	Low positive correlation	0.000	Accept Ha/ Significant
Social and Cultural Impacts	0.232***	Negligible positive correlation	0.001	Accept Ha/ Significant
Environmental Impacts	0.192**	Negligible positive correlation	0.008	Accept Ha/ Significant
Health Impacts	0.229**	Negligible positive correlation	0.002	Accept Ha/ Significant
**. Correlation is significant at the 0.001 Level (2-tailed)				

Table 7 above shows that the economic impact of the tourism sector has a low positive correlation with Saudi's residents' support for tourism development, reaching a computed Pearson correlation value of 0.320** that is statistically significant at 0.01 Level of significance of the two-tailed test. As such, the other tourism sectors are considered as a negligibly positive correlation with a Pearson correlation value of 0.320**, 0.232***, 0.192**, and 0.229**, respectively, with this test acclaims that there is a significant relationship in terms of economics, social and cultural, environmental and health impacts using 0.01 level of significance in a two-tailed test form.

Therefore, the study shows a weak positive relationship between perceived tourism impacts and support of tourism development. Hence, this study confirms the assumption of Social Exchange Theory (SET) from H5, H6, H7, and H8 that there is a direct positive relationship between residents' perception of tourism impacts and support of tourism development. By the result of table 8, it generated that there is a low positive correlation between the effects of the tourism sector on the local community and Saudi residents' support for tourism development having a computed Pearson correlation of 0.342, which stands as statistically at the 0.01 level of significance in two-tailed test form.

Table 8. Relationship between the effects of tourism impacts on their attitude towards support tourism development

		The effects of the tourism sector on the local community
Saudi residents' support for tourism development	Pearson Correlation	.342**
	Sig. (2-tailed)	.000
	N	189
** Correlation is significant at the 0.01 level (2-tailed)		

Table 9. Differences between the perception of the Saudi residents in Urban and Rural areas based on support to invest in ecotourism development

VARIABLES			Levene's Test for Equality of Variances		t-test for Equality of Means						
			F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
										Lower	Upper
Q1	I support current tourism development in my community.	Equal variances assumed	1.626	.204	1.526	187	.129	.229	.150	-.067	.526
		Equal variances not assumed			1.467	109.677	.145	.229	.156	-.080	.539
Q2	I support additional tourism development in my community.	Equal variances assumed	4.791	.030	2.970	187	.003	.440	.148	.148	.732
		Equal variances not assumed			2.698	95.849	.008	.440	.163	.116	.764
Q3	I believe tourism should be actively encouraged in my community.	Equal variances assumed	4.537	.034	1.919	187	.057	.295	.154	-.008	.598
		Equal variances not assumed			1.749	96.643	.083	.295	.168	-.040	.629
Q4	Overall, I'm satisfied with current tourism development in our community.	Equal variances assumed	2.269	.134	1.459	187	.146	.291	.199	-.102	.684
		Equal variances not assumed			1.429	114.826	.156	.291	.203	-.112	.694

Through the use of Levene's test and t-statistics in table 9, it is overviewed that there is a significant difference between the variances of the mean responses of urban residents and residents of rural areas in Q2 (I support additional tourism development in my community) and Q3 (I believe tourism should be actively encouraged in my community).

In support of tourism development, having an F value (i.e., Sig.) of 0.030 and 0.034, respectively, is less than or equal to 0.05. This result is intended to project the computed t-values of 2.698 and 1.749 comparable with computed Sig(2-tailed) of 0.008 and 0.083, shown in equal variances that are not assumed. On the other hand, there is observed greater F value (i.e., Sig.) in Q1 (I support current tourism development in my community) and Q4 (Overall, I'm satisfied with recent tourism development in our community) to 0.05, which means that there is no significant difference between the mean responses of major cities' residents and residents of rural areas in Q1 and Q4 for the support tourism development having a computation of 0.204 and 0.134 respectively. By equal variance usage, it is assumed that the computed t- values are 1.526 and 1.459, having a Sig (2-tailed) of 0.129 and 0.146, respectively.

However, this study shows that there is no difference between those who live in urban cities and rural in terms of support for tourism development. However, the results confirmed that residents who live in rural areas are more accepting of additional tourism development in their local destinations than those who live in urban cities.

DISCUSSION

The study investigated the effects of the significant impacts of tourism (economic, socio-cultural, environmental) and health issues, which have become more critical due to COVID-19 and its vast impact on the tourism industry and economics of any country or tourism destination. This study found that tourism impacts affect Saudi residents' perception of tourism development. However, other studies have confirmed that tourism impacts influence residents' opinions and perceptions of tourism development (Gursoy et al., 2018; Nunkoo, 2016; Nunkoo and Ramkissoon, 2010; Peters et al., 2018; Sharpley, 2014; Stylidis et al., 2014; Williams and Lawson, 2001), whereas tourism impacts are the main predictors of residents' perceptions. As for the economic impacts, this study has found that Saudi residents in urban and rural areas have perceived negative perception of the economic effects.

They have noted that the price of land, goods, services, and cost of living have increased. According to (Malik et al., 2017), Saudi residents in AL Dhakhaliya had a positive perception of tourism impacts and perceived benefits from tourism development. However, this study found that the attitude of Saudi residents in Al Jabel Al Akhader, a part of the Al Dakhaliya region, is perceived as having negative economic impacts on tourism. (Gursoy et al., 2018) exhibited that due to the increase in tourism development and the number of tourists, the attitude of residents will change accordingly. However, Saudi residents in urban and rural areas have perceptive, positive opinions of economic impacts, which is similar to many previous studies, and they confirm that tourism has significant positive effects in different aspects economically (Fayissa et al., 2008; Gnanapala and Sandaruwani, 2016; Gursoy et al., 2018; Khayrulloevna, 2020; Lee C.C. and Chang, 2008; Lee J.W. and Brahmasrene, 2013; Pratama, 2020; Stynes, 1997).

With regards to socio-cultural impacts, this study found that Saudi residents have a positive perception of socio-cultural impacts, so tourism has a significant positive effect in promoting cultural and historical sites, providing recreational areas, and promoting Saudi identity and culture among tourists, which is consistent with previous studies (Aman et al., 2019; Mbaiwa, 2003; Piuchan et al., 2018; Zamani-Farahani and Musa, 2012). (Tsaur et al., 2018) have found that cultural conflicts lead to a negative attitude of residents even though they are working in the tourism industry.

However, this study has found that Saudi residents are still not aware of or have a neutral perception of the negative impacts of tourism, which means that tourism is still at the beginning level. The number of tourists is still low, and no mega events are held at the destinations. Therefore, Saudi residents have not yet experienced any negative impacts of socio-cultural aspects such as changes in Saudi social values, norms, and tradition and overcrowdedness of tourists in recreational, outdoor, and hiking trails, which may disturb locals' privacy and cause cultural conflict with tourists.

Regarding the environmental Impacts, the ecological impacts of tourism are the main concern for the local community, and it directly influences residents' perceptions. Once there is more traffic, human activities at a tourism destination may raise some environmental issues that may affect the residents (Amuquandoh, 2010; Brida et al., 2011; Peters et al., 2018; Ren et al., 2019; Sharma et al., 2008). However, Saudi residents perceive the benefits of tourism on the environment, where tourism has significant positive effects on the local community for both destinations.

On the other hand, Saudi residents have not yet experienced the negative impacts of tourism due to the early stage of tourism development, and there are no adverse effects on the natural environment. The perception of Saudi residents is supported by (Pramanik and Ingkadijaya, 2018; Zhao and Li, 2018). Regarding the health impact, the novelty of this study is that it has investigated a new critical factor in the tourism industry, especially during the Corona Virus (COVID-19), which has had substantial adverse effects on the tourism industry (Akbulaev and Aliyev, 2020). However, some studies have confirmed that sanitation and other health issues affect residents' perception of tourism impacts (Kim, 2002; Mensah and Enu-Kwesi, 2018; Sari and Nazli, 2020; Zhang et al., 2022).

In this study, Saudi residents positively perceive health impacts such as [tourism, raising awareness of the importance of joint health, and improving Saudi residents' health and well-being. adheres sanitary & hygiene procedures for tourists to protect residents during health risks (e.g., COVID-19 pandemic), encourages locals to engage in sports activities with tourists, and tourism impacts the general level of health (mortality, morbidity, reduction in life expectancy, etc.] On the contrary, negative health impacts are still not known among Saudi residents in terms of whether or not tourism stimulates the bad habits of food because of international restaurants and café which lead to malnutrition; health risks create anxiety and xenophobia from tourists of catching a disease in the community and can increase the

stress of life events. Therefore, Saudi residents have a neutral perception of the negative impacts on health in the destination. However, the mean of adverse effects is about 3.0-3.5, which is more for the negative perception of health impacts. Frent (Frent, 2016) confirmed that tourism might provide negative health impacts on the local community.

Next is the support of tourism development; the current study has found that Saudi residents support tourism development although they perceive the cost of economic impacts of tourism which is similar to the results of (Andereck and Vogt, 2000), who asserted that residents perceive adverse effects of tourism but still support tourism development. Furthermore, the essence of SET is that there is a positive relationship between residents' attitudes and their perceptions; however, we found no positive relationship in this case. SET shows a positive relationship between residents' perception and support of tourism development. However, this study generally confirmed that SET is still valid and there is a positive relationship in terms of support of tourism development when the respondents perceived benefits from tourism development in destination. The findings ensure and contradict some previous studies. For example, the previous studies confirmed that SET validates the relationship between the perception of tourism impacts and support of tourism development. However, some limitations of (the SET) theory have arisen to measure residents' perception that SET had considered the residents as homogenous in one group regardless of the heterogeneousness of individuals (J.W. Lee and Brahmasrene, 2013). Lawson et al. (Lawson et al., 1998) argued that (SET) has described the residents' support of tourism development while enduring the cost over time. Similarly, C. Chen and Raab (S.C. Chen and Raab, 2009) confirmed that individuals' behavioral responses towards tourists and tourism differ. Accordingly, SET reflects only the significant positive relationship between the benefits and cost of tourism impacts and residents' perceptions.

On the other hand, some results were contradictory to the (SET); although there is a negative perception among residents, they still support tourism (S.C. Chen and Raab, 2009). Andereck and Vogt, 2000 confirmed that residents perceived a negative impact and still supported tourism development. This study has slightly confirmed that even though residents perceive the cost of the economic effects, they still support tourism development.

Furthermore, the resident's perception has changed over time, and the variance of people cognitively and geographically should be considered (Andereck and Vogt, 2000). Despite the wide use of social exchange theory to predict the behavior of residents towards tourists, it is still insufficient (Ward and Berno, 2011).

Finally, the difference between rural and urban areas - there is no difference between Saudi residents who live in rural areas and urban areas regarding their perceptions. Both destinations have positive perceptions of tourism impacts, which means that tourism in both destinations is in its early stage, and residents welcome the improvement of infrastructure and projects to attract tourists to enhance their small businesses (J.W. Lee and Brahmasrene, 2013). Therefore, there is no significant difference between residents in urban and rural areas in their perception of tourism impacts. On the contrary, Rasoolimanesh et al., 2017 showed a significant difference in Malaysia, where the size of areas affected the perceptions, as the urban cities had more positive perceptions than the rural areas.

However, there is a difference between residents in rural and urban areas in accepting additional tourism development in destinations; residents in Al Jabel Al Akhader are willing to take more development in their community than those who live in urban cities, which is contrary to previous studies where the residents in rural areas were more concerned about any development due to the environmental issues (Almeida-García et al., 2016).

CONCLUSION

Our study has investigated the investigated residents' perceptions of tourism's economic, sociocultural, environmental, and health impacts through the social exchange theory lens (SET). We contributed to the current literature by exploring residents' Saudi Arabian perceptions of tourism activities on their attitudes using the SET theory. Our findings help predict residents' attitudes toward the kingdom's tendency to invest in tourism projects. We found significant positive relationships between all the domains of perceived impacts and residents' support of development. Hence, in conclusion, all the hypotheses are accepted. Eventually, the residents are willing to take more development at the destination unless there are threats to the community's social, cultural, health, and environmental perspectives. Furthermore, we find a crucial result: the difference between those who live in urban and rural cities in terms of support for tourism development. We found that residents in Al Jabel Al Akhader are willing to take more development in their community than those who live in urban cities. Thus, we contribute to the current studies that investigated the residents' perception toward activities by ensuring that residents have perceptions toward destination activities from urban and rural valences.

Moreover, the findings also contribute toward a deeper understanding of the "exchange" process specified by the SET by considering the distinct effect of each perceived impact domain (economic, socio-cultural, and environmental) on residents' attitudes toward support of tourism development. This study may assist policymakers and planners of the tourism industry, including the government, to enhance residents' quality of life alongside a projection and preservation of what the Saudi residents value the most. For instance, the promotional messages designed to support tourism could be derived from the resident's perception of their quality of life and how and in what way they wanted to improve it. Empowering residents by providing information on the potential implications of tourism could facilitate residents' support by enhancing their trust in local authorities and leading to more effective and sustainable development plans. The government should consider the opinions of residents. It should maximize the benefits of developing tourism in the destination to mitigate any adverse impacts as much as possible by facilitating the residents and tourists.

This study does, however, help in setting the direction for future research in the tourism sector of the Kingdom of Saudi Arabia. Regarding residents' perceptions, there is a need for more qualitative studies on the tourism sector. Also, covering other cities in the Kingdom of Saudi Arabia will contribute to the research in this field.

Limitations and Implications

The study was conducted in major tourist destinations of the Kingdom of Saudi Arabia (urban and rural areas), especially the cities of Riyadh, Jeddah, Dhahran, Jubail, and Yanbu industrial area, and collected more samples. Therefore, we recommend further studies to study other cities in KSA to have a holistic overview of the tourism industry in the country. Moreover, we recommend further studies use a different scale with different items to ensure and increase the reliability of the research ideas. Notably, the perception of residents doesn't maintain a real action from them. Therefore, further research should consider an action behavior (word of mouse, destination attachment, destination recommendation, etc.) along with perception to maintain positive tendencies from residents. Moreover, the current study debates use categorical variables (e.g., age, gender, etc.) to show the respondents profiles because categorical variables are more likely to attributed to nonlinearity assumptions (Nunkoo and Gursoy, 2012). Therefore, we recommend the further study to employ independent sample t-test and one way ANOVA to test the mean differences of such categorical variables through an interval or ratio scale.

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Table 10. Demographic characteristics of respondents

Variable		Frequency	Percent
Gender	Male	107	56.6%
	Female	82	43.4%
Total		189	100.0%
Nationality	Saudi	182	95.8%
	non-Saudi	8	4.2%
Total		190	100.0%
Region	Urban	128	67.4%
	Rural	62	32.6%
Total		190	100.0%
Qualification	Secondary School and Lower	57	30.2%
	Diploma/Degree	94	49.7%
	Postgraduate	21	11.1%
	Other	17	9.0%
Total		189	100.0%
Age	20 year or less	20	10.6%
	21 - 25 year	19	10.1%
	26 - 30 year	37	19.7%
	31 - 35 year	42	22.3%
	36 - 40 year	33	17.6%
	41 - 45 year	29	15.4%
	46 - 50 year	7	3.7%
	more than 50 years	1	0.5%
Total		188	100.0%
Monthly income	less than 500 rial	31	16.7%
	501 -1000 rial	44	23.7%
	1001 - 1500 rial	53	28.5%
	1501 - 2000 rial	13	7.0%
	more than 2000 rial	8	4.3%
	Not Fixed income.	28	15.1%
	Student without income	9	4.8%
Total		186	100.0%
Job	Non-tourist sector (public or private)	121	65.8%
	Tourism sector (public or private)	13	7.1%
	Job seeker	9	4.9%
	Unemployed	39	21.2%
	Retired	2	1.1%
Total		184	100.0%

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ANALYSING THE RESIDENTS' FOOD (EATING OUT) BEHAVIOUR IN THE PRE & POST COVID-19 PERIOD: A STUDY OF DHARAMSHALA REGION, INDIA

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Abstract: The first epidemic of the modern world that has changed the course of the current civilization & turned out to be a pandemic (i.e. COVID-19) has tremendously affected several industries including that of tourism & hospitality. Due to the multilevel impact, the whole world struggled to overcome this situation but with almost two years of its co-existence, people have now managed to change their style of living & social habits including that of the food habits. One of such food habits i.e. 'Eating out/ Dining out' was bound to change in the post-pandemic period due to the health advisories & closure of several hotels, restaurants and food outlets. The present research tries to find out the changes in the Eating out behaviour of the residents of Dharamshala (H.P.) in the pre & post-pandemic period. Further, it tries to identify the factors which affect the eating out behaviour of the residents & measure their importance in different periods (pre &post pandemic). The data were collected from 286 residents of Dharamshala region, through a structured questionnaire & analysed through reliability checks (Cronbach's Alpha-α), KMO & Bartlett's test, factor analysis, paired sample t-test and analysis of frequency & mean values. The results showed a significant decrease in the frequency of visits, purchasing/ordering, percentage of outside meals consumed, average spending etc, whereas the level of priority given by the residents to hygiene, food safety, quality, service & distribution etc has increased in the post-pandemic period. Hence various strategies were suggested for the restaurants/local eateries like, (1) Use of technology (automatic doors, sensor & timer enabled soap & sanitiser dispenser, online payments), (2) cost reduction tactics (controlling of food wastage, reduction in menu items), (3) training of employees (sanitisation rules, HACCP rules) etc which were if adopted will certainly help them revive from the crisis slowly & steadily over the period.

Key words: pandemic, Co-existence, eating out, HACCP, COVID-19

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INTRODUCTION

With the arrival of the first Pandemic of the 21st Century i.e. COVID-19, several industries including that of tourism have been severely affected (IMF, 2020; UNWTO, 2021; Chan, 2022). One of the primary segments of tourism that is undergoing a critical situation is the Hospitality industry. With the closing of several hotels and restaurants numerous people have lost their jobs and struggled to survive after the first & second wave of the pandemic (Krishnan et al., 2020; Deloitte, 2020; Aldao et al., 2022). Today after almost two years of the arrival of this pandemic the economic slowdown is still being felt in every sector of the world. Specifically, the Indian foodservice sector, which was the most affected one amidst the pandemic (Sujood et al., 2022). According to one of the surveys of the National Restaurant Association of India, the loss is estimated to be ₹4, 23,865 Crores leaving around 700,000 employees helpless (ETO, 2020). Due to the unexpected shutdown of the hospitality industry & prolonged lockdowns, hotels & restaurants are still struggling in many parts of the world including that of India. But it is the need of the hour to motivate the entrepreneurs to take small efforts keeping in mind the present business scenario, which will help them survive in this adverse situation (Yang and Smith, 2022). If we consider Restaurants, they have always been an integral part of any modern civilization (Lang, 2021) as there are multitudes of factors that draw people closer to this embodied establishment called restaurants. Some of these factors are; Food n' drinks, Ambience, Taste, Aroma, Meeting spots, Local vibes etc (Zymeri, 2020). It is being the global pandemic scenario that has adversely impacted the restaurants and forced them to shut down for quite a long period, the question now hovers over the heads of hospitality entrepreneurs, how are they going to maneuver.

Moreover, change in residents' food behavior i.e. eating & hanging out (in their choice of restaurants) during the post-pandemic situation is certainly going to increase their challenges manifold. It is because we all view the world a little differently now (Chandwani, 2020). Things that people were earlier resistant to (like purchasing pre-packaged foods online) prefer the same nowadays. It's primarily due to the risk involved in ordering freshly prepared food from local

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restaurants, roadside vendors, fast food outlets etc. Hence the catering establishments' focus will be primarily on reinventing the business strategies to revive from this crisis. What measures have to be taken and the shifts to be made, so that a whole new approach can be developed throughout this phase to synchronize with the changing behavior and perception of residents, could be the best possible alternative (Norris et al., 2021). So it is necessary to understand the various factors (which will be considered by the consumers before eating out or ordering from a local food outlet in this pandemic situation) such as quality of food n' drinks, surroundings areas of food outlets, hygiene standards followed in those outlets, crowd management, seating arrangement (complying with the social distancing norms), etc.

India being a land of varied food culture and culinary amalgamations, people of this country possess different food habits. Such an aspect that fulfills their gastronomic satiety is "Eating Out" that may be in roadside eateries (street foods), local restaurants, fast food centers, fine dining outlets or gastro bars etc (Nusra, 2013). But due to the ongoing pandemic situation (COVID-19), it will certainly bring out several changes in the food behaviour (eating out practice) of the local people as food & water are one of the primary carriers of this deadly virus. In the above context, the present research tries to analyse the 'Eating Out' behaviour of the residents of Dharamshala in the Pre & Post COVID-19 period. Dharamshala is the winter capital of Himachal Pradesh state as well as an ecstatic Hill station situated in the lap of Dhauladhar Valley in Kangra district. This hilly region primarily consists of three different tiers: a rustic lower town, the Dalai Lama's exiled home and the busy traveler town of McLeod Ganj at the top. All are connected by steep paths, with monkeys hiding in dense trees. Mountain air and exercise combine to make a healthy appetite, which is perhaps why the highest tier boasts such a selection of restaurants and eateries. It is a very popular hangout for the residents, backpackers, foreigners and students of Buddhism (Padda, 2020).

There are dozens of restaurants and cafes to excite and sustain the locals and outsiders. Ranging from local cuisines to western, Israeli, Chinese, Indian, Punjabi and Tibetan food restaurants which itself contributes huge economic support to locals as well as government. One of the best restaurants is the simply named Tibet Kitchen which offers a wide variety of ethnic dishes like steamed vegetable dumplings, called momo; soupy noodles, called Thupka; and the golden fried baby corn. Among the others are, Woeser bakery, Namgyal Café, Jimmy's Italian Kitchen, Pizzeria, Café Illiterati, Aman Restaurant, Fast food outlets like Pizza Hut, Dominos, KFC etc (Gautam, 2015). Hence apart from hanging & dining out, the residents also have a habit of ordering food from these outlets via phone calls or online apps. But due to the ongoing pandemic situation, most of the restaurants were shut down completely though few of them have recently started their operation. These food outlets are trying to revive the crisis but one of the major challenges is the non-availability of sufficient orders from direct and online consumers. It is primarily due to the change in the 'eating out behavior' of the residents due to the COVID-19 Pandemic situation. So, the present research tries to find out the changes in the general 'Eating out' behavior of the residents of Dharamshala in the Pre & Post pandemic period, such as frequency of visits to restaurants, frequency of ordering, percentage of meals consumed, amount of money spent, types of food and meals consumed etc. Apart from this, the factors which affect their 'Eating out' behaviour was also compared (in the Pre & Post pandemic period) to find out any significant difference among them. Based on the findings certain relevant suggestions were also given for a steady revival of the food outlets in the near future.

LITERATURE REVIEW

Consumer preference & determinants of restaurant selection:

Bojanic (2007) stated that the selection of a restaurant by a consumer is dependent upon various attributes pertaining to hygiene & food safety. This includes the cleanliness of the restaurant & food preparation area, personal hygienic level of the food handlers, sanitization of crockery, cutlery and kitchen equipment etc (Aksoydan, 2007). Apart from this, several other factors affect the consumers' preference towards food outlets like; architecture, internal ambience (Aubert-Gamet, 1997; Auty, 1992), type of food outlet (Auty et al., 1999), occasion & values (Blose and Litvin, 2005), demography (Aksoydan, 2007), psychology etc. Similarly, another important factor taken into consideration by the consumers while choosing a restaurant is 'Menu Price' followed by foodservice and hygiene-related factors (Baek et al., 2006). Later Bekana (2010) during his study found that the determinants which affect the consumer preferences while selecting restaurants in Ethiopia includes food safety, hygiene standards, price of the dishes, variety of items on the menu, quality and geniality of the staffs. Further Akbar and Alaudeen (2012) while analysing the factors influencing residents' selection of restaurants in Perak, Malaysia, observed that the major factors were quality of food, service standard, location, surrounding environment and trustworthiness. Another similar study by Fidan et al. (2018) in Plodiv, Bulgaria stated 'quality of food' and 'locally grown vegetables' are the two primary factors for restaurant selection by the consumers. Chua et al. (2020) tried to rank the factors in terms of 'importance given by the residents' of Klang region, Malaysia and found that "Menu Price" was given the top most priority followed by WOM publicity, past experience & menu variety etc. Further they stated that restaurant selection is also affected by 'eating out occasions' like business related dining, festivals & social occasions. In a recent research by Sarkodie et al. (2022) determined the several factors that affect the choice of the consumers in Ghana as quality & taste of food, menu varieties, price, quality of service, location of the food outlet, dining environment, popularity, speed of service, parking etc.

COVID-19 & Changes in consumer behaviour:

Consumer behaviour strongly depends upon time, location, culture, geographies etc. But the COVID-19 pandemic has made it a bit complex to understand the exact change in consumer behaviour and the extent to which it will persist. As the change in habits and behaviour is also dependent upon the 'period of exposure' to the new situation hence it requires deeper analysis of consumer behaviour. According to research, people usually take 18 to 254 days (66 days on average) to develop a new habit. Moreover, they quickly adapt those habits which fit their routines. Hence consumers are bound to develop new habits/behaviour due to the prolonged lockdowns as a result of multiple waves of COVID-19 (Puttaiah et al., 2020).

Residents' Food consumption behaviour & impact of the pandemic:

As from the above research, it is evident that COVID-19 will certainly bring out several changes in the food behaviour of the people, Janssen et al. (2021) studied the "changes in the food consumption pattern of the individual consumers in Denmark, Germany and Slovenia during the first lockdown of COVID-19". The online survey of 268 residents focused upon analysing the change in consumption frequencies, (of non-perishable & fresh foods), food-related shopping & lifestyle modifications. They found that there is a substantial reduction in fresh food consumption and the frequency of food-related shopping during this pandemic. A similar kind of study was also carried out by Wachyuni and Wiweka (2020) who analysed the changes in the resident's food consumption behaviour in the pre, during & post-pandemic periods. They found that the three primary factors which affected the food behaviour of the residents of Jakarta, Indonesia are related to health, psychology & societal factors. Further, they stated that organic food consumption & self-cooking practices have increased considerably due to the increase in food safety, health & quality-related awareness among the residents.

Further Di-Renzo et al. (2020) investigated the "changes in the eating habits and lifestyle of the Italian population" due to the COVID outbreak. They surveyed around 3533 respondents (above the age of 12 years) and found that around 15% of them have started consuming organic fruits /vegetables and people from the age group of "18 to 30 years" have adhered more strictly to the Mediterranean diet in comparison to the other age groups. Among the other lifestyle changes are an increase in physical activity and quitting smoking. Again Daus et al. (2020) in their research paper "The New Normal for Restaurants: Consumer behavior in a world after COVID-19 lockdowns" compared the trends affecting the restaurant industry before & after the pandemic. They surveyed 647 consumers (visiting several restaurants) in the US through a structured questionnaire and found that "in the post-COVID period residents prefer to have 37% of their meals at home as against 33% before the pandemic". Further when they go for eating out, most frequently visited outlets are the 'high-quality restaurants' serving 'healthy foods'. Another finding was that 25% of the meals are ordered through online apps by the residents in the post-pandemic period which is 4% higher than that of pre-pandemic time. Similar kind of studies was also carried out by several researchers in various cities of India like Delhi, Chennai and Hyderabad (Karimikonda and Sankala, 2020). But as there are hardly any studies related to the change in 'eating out' behavior of residents of Dharamshala in the pre & post-pandemic situation, hence the present study tries to investigate the same along with the factors affecting such behaviors. So the objectives of the research are;

OBJECTIVES

1. To compare the eating out behaviour of residents of Dharamshala during the Pre & Post Pandemic period.
2. To analyse the factors affecting the residents' eating out behavior in the Pre & Post COVID-19 era.
3. To provide suggestive measures for the revival of the food outlets from the current crisis.

RESEARCH METHODOLOGY

As the pandemic hasn't come to a complete end so for the purpose of research we considered the period before 27th January 2020 (when the first COVID case was cited in India) as the 'pre-pandemic period' and the time between '15th November to 18th December 2021' as the 'post-pandemic period' because during this period COVID cases were steeply decreasing in India and were at all-time low on 18th December 2021. So in order to achieve the desired results for the above-mentioned objectives, a total of 286 residents of the Dharamshala region were surveyed through a structured questionnaire between November and December 2021. The primary data were collected via the 'convenience sampling' method. The questionnaire used for collecting the data had 3 major sections. While the initial section collected the demographic variables of the residents the second component measured the general eating out behaviour of the residents in the Pre & Post Pandemic period. It had a total of 09 parallel (comparative type) questions which recorded various eating out behaviours like frequency of eating out & ordering via phone call/ application, percentage of food ordered, amount of money spent, types of food/meals preferred, type of restaurants visited etc. The third and final section of the questionnaire measured the factors affecting residents eating out behaviour' during the Pre & Post Pandemic period. It had a total of 13 questions (statements) related to factors like brand / popularity of the restaurant, location, online rating, taste, flavour, price of the food preparations, serving/ distribution methods, cleanliness & Hygiene factors etc. The responses were measured through a Likert scale based on the priority given by the residents to the above factors while eating

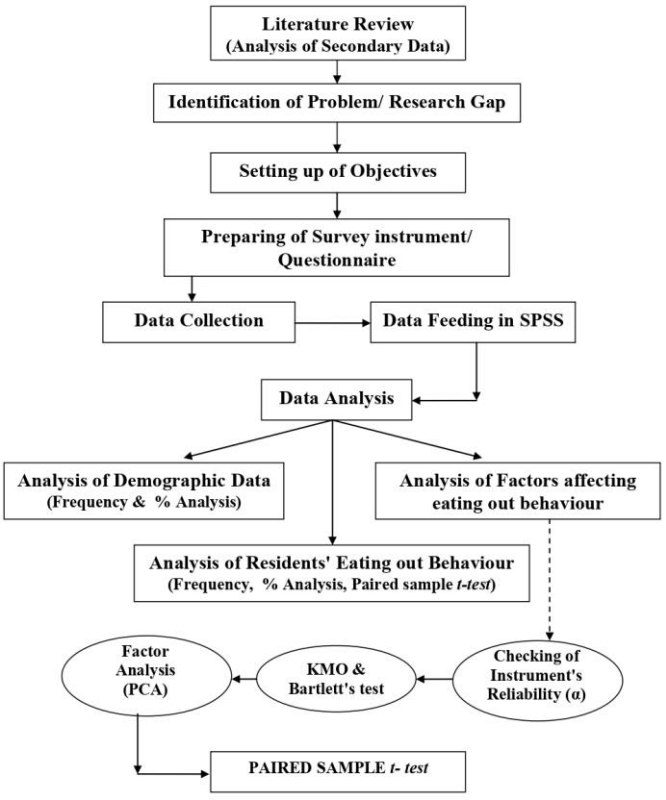

Figure 1. Flow chart of the research methodology adopted for the study

out. While '1' denoted 'not a priority'/least priority, '5' represented as the 'highest priority/ essential' requirement. The collected data were then entered into the statistical software of SPSS-20 & analysed by the use of various statistical tools like frequency & percentage analysis, reliability tests (α), sample adequacy test, factor analysis and paired sample *t-test* (Figure 1).

DATA ANALYSIS & INTERPRETATION

To find out the eating out behaviour of residents of Dharamshala (H.P.) a total of 286 people were interviewed through a structured questionnaire and the collected data were analysed and presented below (Table 1). Initially, the demographic profiles of the respondents were given followed by their eating our behaviour and the factors affecting them.

Table1. Demographic profile of the respondents

Demographic Variables		Frequency (N)	Percentage (%)	Cumulative Percentage (%)
Age	0-20 years	22	7.7	7.7
	21-30 years	110	38.5	46.2
	31-40 years	71	24.8	71.0
	41-50 years	67	23.4	94.4
	51-60 years	14	4.9	99.3
	61 years and above	2	0.7	100.0
	Total	286	100.0	
Gender	Male	182	63.5	63.5
	Female	104	36.5	100.0
	Total	286	100.0	
Religion	Hindu	273	95.45	95.45
	Others (Islam, Christian Buddhist, Sikh)	13	4.55	100.0
	Total	286	100.0	
Marital Status	Single	152	53.15	53.15
	Married	134	46.85	100.0
	Total	286	100.0	
Education	Matriculation (10th)	10	3.50	3.50
	Intermediate (+2)	33	11.54	15.03
	Graduate (+3)	109	38.11	53.15
	PG & above	134	46.85	100.00
	Total	286	100.00	
Income per Annum in Rs.	Less than 1 lakh	113	39.51	39.51
	100000 to 300000	55	19.23	58.74
	300001 to 500000	55	19.23	77.97
	500001 to 1000000	39	13.64	91.61
	1000001 & above	24	8.39	100.00
	Total	286	100.00	
Source of Income	Agriculture	20	6.99	6.99
	Government Service	57	19.93	26.92
	Private Job	46	16.08	43.01
	Own Business	49	17.13	60.14
	Others	114	39.86	100.00
	Total	286	100.00	

Objective 1: Eating out behavior of residents of Dharamshala during the Pre & Post Pandemic period

For analysing the difference in the eating out behaviour of residents there were a total of ten questions out of which the initial three questions measured their frequency of visiting local restaurant/ eateries, frequency of purchasing food (physically) for home consumption and frequency of ordering via phone/ application. The responses were recorded with the help of 6 units' measuring scale namely (a) every day, (b) 2-3 times a week, (c) weekly once, (d) once in a fortnight, (e) monthly once, (f) not regularly/occasionally. The rest seven questions had different measurement scales according to the behavioural characteristics measured. The results of the analysis were presented below.

1.1 Frequency of visits to local restaurants (outside eateries)

From the analysis of the collected data it was found that while 20.8% of the residents used to visit the local restaurants '2-3 times a week' in the pre-pandemic period, the number has reduced to a mere 12.1% in the present time (Figure 2). Similar is the case for weekly once goers & fortnight travelers as there is a decrease of 8.1% & 4.5% respectively. On the contrary, the number of residents who used to visit outside restaurants, 'once in a month' or 'occasionally' has increased by 9.6% and 11.2%. From the above, it can be interpreted that due to the fear of pandemic & to avoid the chances of contamination people have reduced their frequency of visit and choose to dine out only when it is very necessary or during a special occasion.

1.2 Frequency of purchasing food (physically) for home consumption

Unlike the above, it was also found here that the percentage of residents who used to purchase food from local restaurants for home consumption 2-3 times a week/ weekly once / once in a fortnight, in pre-pandemic period has reduced considerably in post-pandemic time. Whereas the number of residents purchasing outside food for home consumption 'monthly once' has increased from 24.9% to 28.4 % and there is a steep increase in the number of occasional purchasers from 29.4% to 42.1% (Figure 3). This clearly depicts that, their reliance on outside food had decreased up to a great extent.

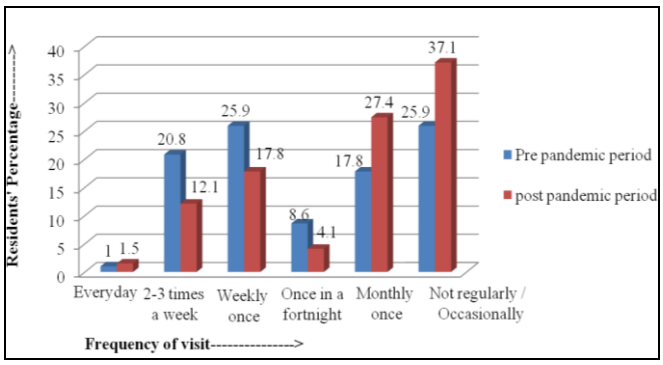

Figure 2. Frequency of visits to local restaurants / outside eateries (Source: Primary Data)

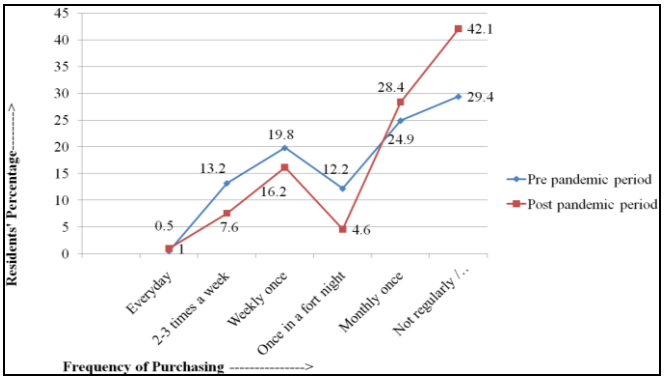

Figure 3. Frequency of purchasing food (physically) for home consumption (Source: Primary Data)

1.3 Frequency of ordering food from local eateries via phone call/ Apps

When the residents were enquired about their practice of ordering food from local eateries via phone call or Food Delivery Applications, similar patterns were observed just like the above two eating out behaviour (frequency of visiting & purchasing for home consumption) i.e. there has been a decrease in the frequency of ordering in post-pandemic period by the residents who used to order 2-3 times a week / weekly once / once in a fortnight. Further, though the number /percentage of the monthly practitioners hasn't changed much the percentage of people who order occasionally has increased from 43.7% to 51.3% (Figure 4). This shows the clear shifting in the behaviour of the residents while ordering via phone call/ Apps in the post-pandemic time.

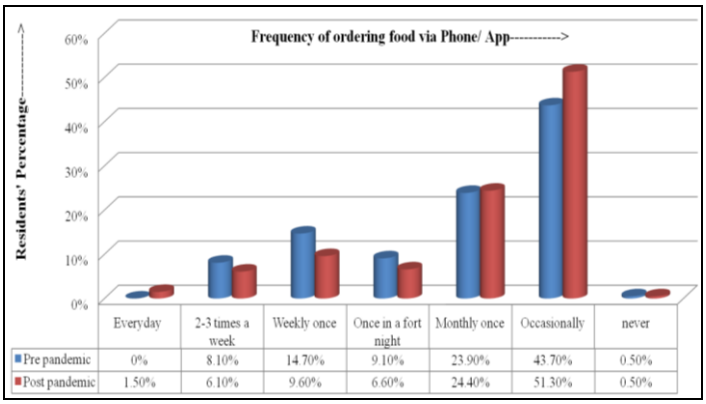

Figure 4. Frequency of ordering food from local eateries via phone call/ Apps (Source: Primary Data)

1.4 Significant difference in the percentage of meals consumed from outside eateries in a month (Source: Primary Data)

In order to measure the above, there were a total of two questions i.e. (1) percentage of meals consumed by the residents from outside eateries in a month & (2) percentage of meals ordered by the residents via phone call/ Apps in a month. For analysis initially, a reliability test was conducted for the above two variables & the value of Cronbach's alpha (α) was found to be 0.754 making the instrument a reliable one. Later the significant difference in the percentage of meals consumed from outside eateries (by the residents in a month) in the pre & post-pandemic period was analysed via paired sample *t-test.* From the above analysis (Table 2) it can be observed that the average (mean) percentage of meals consumed from outside in a month in the pre-pandemic period was 26.58, whereas it has reduced to 22.85 in the post-pandemic period. This difference was found to be significant as the *p-value* is 0.005 i.e. less than 0.05.

Hence it can be concluded that there is a significant decrease in the percentage of meals consumed from outside in the post-pandemic period. But no significant difference was observed in the percentage of meals ordered via phone call/App in the pre & post-pandemic period (as the *p-value* is 0.717 i.e. greater than 0.05). So from the above analysis, it can be interpreted that in post-pandemic time the residents of Dharamshala have reduced their visit to the local restaurants for dining out as well as decreased their food purchases from restaurants for home consumption.

Table 2. Paired sample *t-test* for the significant difference in pre & post pandemic period (Source: Primary Data)

Paired Samples Statistics, *N= 286*						
		Mean		**Mean difference**	**t-value**	***Sig.* (2-tailed)**
		Pre-Pandemic period	Post-Pandemic period			
Pair 1	Percentage of meals consumed from outside in a month? (Pre Vs Post Pandemic period)	26.58	22.85	3.732	2.849	**0.005**
Pair 2	Percentage of meals ordered via phone call / App in a month? (Pre Vs Post Pandemic period)	20.82	20.37	0.452	0.364	0.717

1.5 Average amount of money spent while eating out / ordering from outside eateries

When the residents were asked about the average amount of money spent by them over a single order while eating out or ordering from outside restaurants, the maximum number of people (33.92%) stated the amount to be between Rs. 101/- to Rs. 300/- during the pre-pandemic time. (Table 3) Further 31.12% of the residents mentioned that they spend between Rs. 301/- to Rs. 500/-, followed by the highest spenders (Rs. 501/- & above) i.e. 22.37%. Upon comparison of the above with the money spent in post-pandemic time, it was observed that there is a sharp increase in the percentage of low spending

group (less than Rs.100/-) from 12.59% to 20.63%, whereas the residents' percentage has decreased in case of the rest. Hence it can be clearly stated that due to the effect of COVID-19 pandemic the average amount of money spent during eating out / while ordering from outside eateries has decreased up to a great extent.

Table 3. Average amount of money spent during eating out / while ordering from outside (Source: Primary Data)

Average amount of money spent	Pre-pandemic period		Post-pandemic period	
	Frequency	Percentage	Frequency	Percentage
Less than Rs.100/-	36	12.59	59	20.63
Rs.101—Rs. 300/-	97	33.92	87	30.42
Rs.301—Rs. 500/-	89	31.12	86	30.07
Rs.501 & above	64	22.37	54	18.88
Total	286	100.00	286	100.00

Table 4. Type of meal preferred by the residents while consuming from outside eateries (Source: Primary Data)

Type of meal	Pre-pandemic period		Post-pandemic period	
	Frequency	Percentage	Frequency	Percentage
Breakfast	9	3.15	9	3.15
Lunch	80	27.97	61	21.33
Dinner	83	29.02	67	23.43
Snack./ Tea/ Coffee	114	39.86	149	52.09
Total	286	100.00	286	100.00

1.6 Type of meal preferred by the residents while consuming from outside eateries

Upon analysing the change in the eating out behaviour of the residents in terms of the meal preferred by them it was cited that the percentage of people preferring to have breakfast from outside has remained unchanged at 3.15%. But the number of people who used to consume lunch & dinner from outside eateries has decreased in the post-pandemic period (Table 4). Further, it was also noticed that there is a 12.23% increase in the residents choosing to have snacks/tea/coffee from outside eateries in the present time. This clearly indicates that people of Dharamshala have reduced their habit of consuming major meals (lunch & dinner) from outside and restricted themselves only to hot beverages & light snacks as the chances of contamination are lower in case of the latter.

1.7 Type of food preferred by the residents while ordering from local eateries

From the analysis of collected data, it can be seen that in the post-pandemic period residents have reduced their ordering of freshly prepared foods (cooked immediately & served hot) as their number has reduced from 71.1% to 64% (Figure 5). In contrary to this the percentage of residents ordering semi-perishable/packed foods (cooked & frozen curries, bread, snacks that can be reheated & eaten at home) has increased from 2% to 8.6%. Similar is the case for non-perishable foods (Oatmeal, Cornflakes, Chocó flakes, broken wheat, Porridge), where 4% of residents preferred it during post-pandemic time as against 1.5% of the pre-pandemic period. But the percentage of residents choosing 'all of these' has reduced from 25.4% (pre-pandemic time) to 23.4% in the current time. Hence from the above analysis, it can be interpreted that there is certainly a shift/ change in the buying behaviour of residents due to the pandemic situation & 'hygiene and food safety factors' associated with the ordered food material.

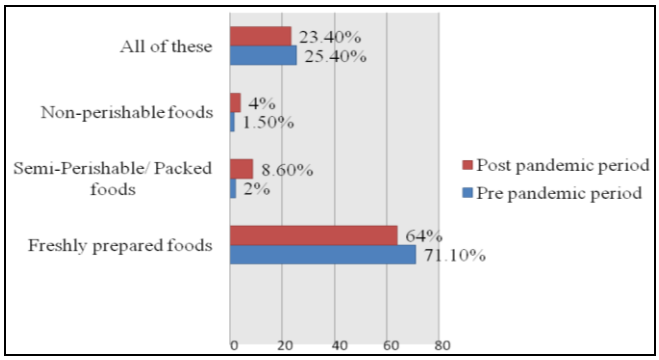

Figure 5. Type of food preferred by the residents while ordering from local eateries (Source: Primary Data)

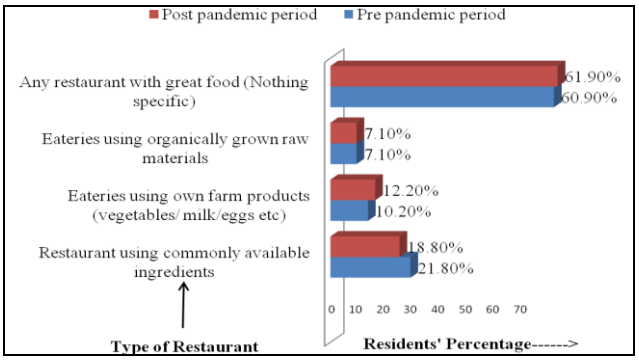

Figure 6. Type of restaurant/ eateries preferred by the residents to visit or order from (Source: Primary Data)

Table 5. Category of food preferred by the residents while consuming from local eateries (Source: Primary Data)

Category of food	Pre-pandemic period		Post-pandemic period	
	Frequency	Percentage	Frequency	Percentage
Fast food (Momo, Chowmein, Burger, Fries, Samosa etc)	141	49.30	103	36.01
Healthy food (Salads/ Cut fruits/ fruit juice/ tender coconut water etc)	35	12.24	58	20.28
High-calorie diet (consisting of fat, sugar, milk & milk-based products)	7	2.45	10	3.50
High protein diet (meat/ poultry/fish-based preparations)	29	10.14	32	11.19
General diet (Rice, Roti/Bread, Dal/Pulses, Vegetables etc)	74	25.87	83	29.02
Total	286	100.00	286	100.00

1.8 Type of restaurant/ eateries preferred by the residents to visit/order from

The graph (Figure 6) clearly indicates that there has not been a significant change in the eating out behaviour of residents (in the post-pandemic time) as far as selection of restaurants is concerned. That is, people still prefer 'any restaurant with great food' while eating out or ordering for home consumption. But there is a decrease in the number of residents going to restaurants using commonly available ingredients (from 21.8% to 18.8%). Similarly, there is a 2% increase in the number of residents visiting eateries using their own farm products.

1.9 Category of food preferred by the residents while consuming from local eateries

When the residents were asked about the change in their eating out behaviour (in the post-pandemic period) in terms of the category of food consumed by them it was observed that there is a sharp decrease in the consumption of 'fast foods' i.e. from 49.3% to 36.01% (Table 5). On the contrary, the percentage of residents consuming healthy foods has increased from 12.24% to 20.28% and similar is the case for general diet consumption. Hence it can be interpreted that, the residents have reduced their fast-food consumption in post-pandemic time & restricted themselves to healthy and general diets.

Objective 2: Analysing the factors affecting the residents' eating out behavior in the Pre & Post-Pandemic period

Table 6. Reliability statistics and KMO & Bartlett's test results (Source: Primary Data)

1	**Cronbach's Alpha (α)**	**0.880**
2	**Kaiser-Meyer-Olkin Measure of Sampling Adequacy**	**0.896**
3	**Bartlett's Test of Sphericity (Significance)**	**0.000**

To identify and analyze the factors affecting the eating out behaviour of the residents, initially, the reliability of the questionnaire (the scale used for the survey) was checked by taking out the value of Cronbach's alpha. The obtained value of (α) was 0.880 hence it was accepted for further analysis (Tavakol and Dennick, 2011). As there were 13 items/ variables for measuring the factors affecting the eating out behaviour in the pre & post-pandemic period, factor analysis was carried to reduce the variables. But prior to that KMO &Bartlett's Test was conducted to check the samples' adequacy for factor analysis. As the value of KMO was above 0.600 (Table 6), the significance of Bartlett's Test of Sphericity was less than 0.05 hence the sample was considered adequate for factor analysis (Dumitrescu et al., 2013). Upon the application of factor analysis, the 13 items/variables resulted in 4 factors (dimensions) that affect the eating out behaviour of the residents (Table 7). The above factors explained a total variance of 61.92%. While the maximum value of factor loading was 0.834, the minimum value stood at 0.522. As the factor loading values were within the accepted range, the extracted factors were subjected to further analysis (Walker and Maddan, 2013). The four factors/dimensions which were obtained as a result of factor analysis are (a) Hygiene & food safety factors, (b) Quality of restaurant & food preparations, (c) Sale, service & distribution aspects & (d) Psychological factors.

Table 7. Extracted factors/ dimensions through PCA (Source: Primary Data)

Factors/ Dimensions	**Items/ Variables**	**Factor Loading**				**Composite reliability (α)**
		1	2	3	4	
Hygiene & Food safety	Hygiene standard of the food serving/ delivering employees	.834				0.901
	Hygiene level maintained while serving/home delivering food items	.822				
	Cleanliness & Hygiene standard of the food outlet	.786				
	Hygiene standard of the cooks/chefs (cleanliness/ uniform/ gloves/mask etc)	.747				
Quality of restaurant & food	Name / Brand/Popularity of the restaurant/ food outlet		.659			0.857
	Taste & flavour of the food preparations		.647			
	Appearance & presentation of the food items		.536			
Sale, service & distribution	Price of the food preparations on the menu			.737		0.890
	Serving temperature of the food preparations			.589		
	Food packaging & delivery methods adopted by the restaurant			.574		
Psychological factor	Higher Crowd level of the restaurant/ eateries				.807	0.873
	Online rating of the food outlet & their dishes				.539	
	Location of the restaurant/ eateries & their surroundings				.522	
* Note: KMO- 0.896, Bartlett-1105.665, p<0.001.Total Variance Explained 61.92 percent						

The first factor comprehended four variables whereas the rest three factors depicted three statements (variables) each. Residents giving more priority to the 'first factor' are very much aware of the importance of '**hygiene and food safety'** and feel that it is of utmost importance while eating out in the present scenario (COVID-19 pandemic). Similarly, the people of Dharamshala who give a higher response to the 'second factor' are considered to be keener about the '**quality of restaurant & food'** preparations while eating out. Further residents who give a higher priority to the 's**ale, service & distribution'** aspects while eating out are very much affected by the price of the food, serving temperature and 'packaging & delivery methods'. Finally, the respondents who valued the '**psychological factors'** more while eating out are considered to be more particular about the crowd level of the restaurant, online ratings & location of the restaurant, as they feel it is an inevitable requirement for keeping them healthy & safe amidst this pandemic.

Priority given by the residents to the resultant factors in the pre & post-pandemic period:

To find out the priority given by the residents to the above factors while eating out or ordering from outside, their grand mean values were analysed. There it was found that, while eating out in the post-pandemic time residents are giving more priority to the hygiene and food safety factors as the mean value increased from 3.81 (in pre-pandemic time) to 4.33 (Table 8). Similarly, the level of priority for the quality of restaurant & food preparations increased from 3.62 (medium to high priority) to 3.86 (high priority). As far as sale, service & distribution aspects are concerned it too resulted in similar findings i.e. increase in the mean values from 3.65 to 3.92. Lastly, the psychological factors were also found to play a pivotal role as the resultant mean of the post-pandemic period (3.42) was higher than the pre-pandemic time i.e. (3.21). Hence to analyse that whether there is any significant difference among the mean values of the above four factors in the pre & post-pandemic period, paired sample *t-test* was carried out. The result shows that there is a significant difference in the priority given by the residents to the resultant factors in the pre & post-pandemic period as the significance value is below 0.05 (Table 8). Hence in a

nutshell it can be stated that the "Residents of Dharamshala are giving more priority to the hygiene and food safety, quality of restaurant & food preparations, sale, service & distribution aspects and psychological factors in the post-pandemic period".

Table 8. Paired sample *t-test* for significant difference among the resultant factors in the Pre & Post pandemic period (Source: Primary Data)

FACTORS / DIMENSIONS		Grand Mean		Grand Mean difference	t-value	*Sig.* (2-tailed)
		Pre-Pandemic period	Post-Pandemic period			
Pair 1	**Hygiene & Food safety factors** (Pre Vs Post Pandemic period)	3.81	4.33	-.519	-9.073	**.000****
Pair 2	**Quality of restaurant & food preparations** (Pre Vs Post Pandemic period)	3.62	3.86	-.249	-5.019	**.000****
Pair 3	**Sale, service & distribution aspects** (Pre Vs Post Pandemic period)	3.65	3.92	-.267	-5.884	**.000****
Pair 4	**Psychological factors** (Pre Vs Post Pandemic period)	3.21	3.42	-.210	-3.473	**.001***
*Note: Priority given by the residents to the above factors was measured on a five-point scale, (from the lowest value of 1= Not a priority to 5= Highest priority/ Essential) Sample size (N)=286, *p<0.01, **p<0.001*						

Objective 3: Suggestive measures for the revival of the food outlets from the current crisis

It is clearly evident from the above analysis that there is a substantial decrease in various eating out aspects (like frequency of visit, frequency of purchasing/ordering, percentage of meals consumed from outside eateries, the average amount of money spent etc) and an increase in the level of priority given by the residents to hygiene, food safety, quality, service & distribution etc in the post-pandemic period. Hence now it will be a great challenge for the local restaurants to revive from this crisis. Therefore various strategies related to hygiene and conscious practices have to be adopted by them for a speedy recovery such as;

- ✓ Compulsory face mask for the guests and service staff in the restaurant;
- ✓ Thermal checking of temperature at the entry points of restaurants;
- ✓ Installation of automatic doors and sensor-enabled sanitizer dispenser at the entrance;
- ✓ Glass cabins in the restaurants / creating separate seating pods;
- ✓ Reducing the number of tables & keeping maximum gang space as possible;
- ✓ Glass separation between the cashier & guests and acceptance of online payments;
- ✓ Thermal checking of staff while entering the restaurant for duty;
- ✓ Compulsory wearing of mask and face shields by the cooks/chefs;
- ✓ Training of employees regarding latest sanitization procedures of the unit;
- ✓ Prohibition of cloths in kitchen & restaurant, instead use of only paper towels;
- ✓ Frequent cleaning & effective sanitization of kitchen, dining area& sales counters;
- ✓ Maintaining of daily sanitization chart with the time, area, disinfectant used etc;
- ✓ Purchasing of locally grown fresh farm vegetables preferably organic ones;
- ✓ Keeping track of raw materials procurement places for tracing it out during emergency;
- ✓ Prohibiting unauthorized entries in raw material receiving area, kitchen, dining area etc;
- ✓ Sanitisation of raw materials before entering them into the store/ kitchen;
- ✓ Date & time stamps on each of the stored goods (raw/cooked/fresh/dry etc);
- ✓ Reduction of Menu items & strict check on food wastages from time to time;
- ✓ Installation of automatic soap dispenser with the timer at the hand washing units;
- ✓ Marking on the grounds wherever necessary to ensure social distancing;
- ✓ Compulsory use of pedal operated dustbins which should be cleaned very frequently;
- ✓ Regular checking & replenishment of the sanitisers, liquid soaps & paper towels;
- ✓ Displaying of directional & interpretive signboards around the outlet for guests & staff;
- ✓ Regular sanitization of food delivery vehicles & carrying accessories used by them;
- ✓ Use of delivery sticks while handling food by home delivery men;
- ✓ Strict adherence to HACCP rules throughout the food supply chain process.

CONCLUSION

Covid-19 has affected every segment of society in one way or the other. Be it the compulsion to stay at home, following social distancing norms, use of protective gears, or simply the loss of job, business, mental peace, or getting infected and struggling with life, each of them has brought out several changes in the human behaviour.

The above study tried to analyse the change in the behaviour of residents of Dharamshala (H.P.) during one of their most popular activities of the day i.e. "eating out". The inferential result shows that frequency of visit, frequency of purchasing/ordering, percentage of meals consumed from outside eateries, the average amount of money spent etc has decreased in the present times (referred to as post-pandemic period). Further, the residents have also started giving more priority to several factors during eating out like hygiene, food safety, quality of food items, sale, service & distribution aspects. Hence if the local restaurants & eateries quickly adapt to the suggested measures keeping in mind the new business case then it will certainly help them revive from the current crisis faster.

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ACCESSIBILITY BARRIERS IN THE SECOND-TIER TOURISM CITIES OF THAILAND FOR PEOPLE WITH VISUAL IMPAIRMENTS

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Abstract: This research in tourism of people with visual impairments who travel regularly in the Second-Tier Tourism Cities of Thailand used purposive sampling to study 1) behavior; 2) accessibility barriers; and 3) attraction factors. Interviews with 8 people and questionnaires with 40 people. The results found that different behavior, but similarity of vision levels had similarities results in opinions and problems. The highest score is attraction (= 4.60), followed by accessibility (= 4.50), accommodation (= 4.48), activity (= 4.48), and amenities (= 4.41). Opinions differed between groups at a statistically significant level of .05 in 4 questions. The public transportation system in Thailand especially in the second-tier cities is still unable to meet the needs of the visually impaired. They are lacking suitable and accommodating facilities. There is also lack of facilities for the disabled at the tourist attraction, especially, in the second-tier cities in Thailand.

Key words: Accessible Barriers, Visual Impairment, Tourism, Second Tier Cities, Accessible Technology

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INTRODUCTION

Tourism is an activity that is very important to all groups in society that in addition to creating happiness and experiences for those who travel also generates income for tourist attractions and local people. The availability of facilities and services attracts and accommodate all groups of tourists therefore various agencies and related parties must be given priority (Chatchakul, 2014). Tourism is an integral part of human quality of life. In many countries there is a policy to encourage all citizens to have the opportunity to travel including people with disabilities (Ounvijit et al., 2014). Farkas et al. (2020) revealed that the top five reasons why people do not travel were lack of money, followed by lack of time, lack of language skills, lack of company, and health condition. The main limitations on rural tourism growth are local government corruption and mismanagement issues resulting in poor basic services and critical infrastructure maintenance, particularly power supplies, water and roads (Giddy et al., 2022). In Thailand, tourism, and recreation for people with disabilities are still of little interest to people with disabilities themselves and agencies that support people with disabilities because all parties still see that the factors used in daily life, daily activities, such as fundamental needs and career promotion as more. Siriwong and Sengdaeng (2011) said that tourists with physical limitations such as disabled, elderly, want to travel but face problems and obstacles in information for planning travel so needs the establishment to recognizes their importance and provide facilities for them in terms of information for tourism planning.

Establishment of a transportation service system that is favorable for people with disabilities, hotel accommodation, including providing services that meet the needs of such people in a systematic and comprehensive manner would make them interested in travelling, including people with disabilities from foreign countries. Gonda (2021) stated that 10% of the population of Europe are affected by the issue of accessible tourism, and therefore this segment is significant for its market value as well as societally and socially. With regard to equal access to services and appropriate tourism supply development it is essential to understand stakeholder expectations and their habits as consumers.

The Thai population in 2022 consists of 66,171,439 people which is 0.91% of the total world population (Ratchakitcha, 2021). The Department of Promotion and Development of Disabled Persons reported on 31 December 2021 that 2,102,384 Disabled Persons in Thailand have an Identification Card, or approximately 3.81% of the population. The greatest percentage of disabled people in Thailand have mobility impairment (50.17%), followed by hearing impairment (18.69%) and visual impairment (8.92%). The percentage of people with disabilities is getting higher. More than 1.1 million people with disabilities are elderly people aged 60 years and over because Thailand is an aging society affecting physical disabilities (Department of Promotion and Development of Disabled Persons, 2017). All people with disabilities are eligible to access their rights without discrimination as prescribed laws and policies which provide for human rights and community participation to enhance the quality of life for people with a disability in Thailand since 1997 and 2005. The

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present interim constitution in 2014 provides all with human rights and dignity. The Thai government allows more budget allocation. However, there is a lack of representatives and implementation of plans and rehabilitation services for disabled people (Cheausuwantavee, 2015). The number of complaint cases have increased including education issues, health issues, accessing information issues, and travelling issues. Sawangkong and Siriwong (2017) found that there are various problems for visually impaired people in traveling, especially in the second-tier cities in Thailand. Firstly, transportation issues are very important. Secondly, there are lack of suitable and accommodating facilities. Thirdly, there is a lack of staff knowledge and understanding in caring for visually impaired people. Fourthly, there are some problems happening with visually impaired people at restaurants. Fifthly, there are lack of facilities for disabled people at tourist attractions, especially, in the second-tier cities in Thailand. Finally, the negative attitude towards disabled travelers is seen by most staff as a burden that takes longer to supervise and explain information. This paper focuses on tourism of people with visual impairments who travel regularly in the Second-Tier Tourism Cities of Thailand**:** 1) their behavior; 2) accessibility barrier**s**; and 3) attraction factors. The results of this research may help enhance visually impaired people travelling in the Second-Tier Tourism Cities of Thailand.

Research Objectives

1. To study the tourism behaviour of the visually impaired people in the Second-Tier Tourism Cities of Thailand;
2. To examine barriers in accessible tourism of people with visual impairments in the Second-Tier Tourism Cities of Thailand;
3. To study attraction factors in tourism of people with visual impairments in the Second-Tier Tourism Cities of Thailand

LITERATURE REVIEW

Information about Visual Impairment

A. Definition of Visual Impairment: The Individuals with Disabilities Education Act (IDEA) (2022) defines the term of visual impairment as “impairment in vision that, even with correction, adversely affects a child’s educational performance. The term includes both partial sight and blindness.”

B. Level of Visual Impairment: Duffy (2015) reveals that the term "Visual impairment" generally describes the visual function range, from total blindness to low vision. Visual Impairment levels are defined by The World Health Organization as: Snellen visual acuity 20/70 to 20/160: Moderate Visual Impairment; Snellen visual acuity = 20/200 to 20/400 or visual field of 20 degrees or less: Severe Visual Impairment; Snellen visual acuity = 20/500 to 20/1000 or visual field of 10 degrees or less : Profound Visual Impairment; Light Perception and Light Projection: A person with severe visual impairment may notice light and dark, or where light comes from ;Total blindness means no light perception (NLP)

Accessible Tourism

Darcy and Dickson (2009) describe Accessible Tourism as traveling by increasing the need for accessibility in various dimensions such as movement, vision, hearing, and perception to provide individuals with equality and equal dignity through products, services and environments designed for all (Universal Design). This definition includes those traveling with a child in a wheelchair, elderly and disabled.

Accessibility and Useability Guideline

The concept of usability, accessibility and user experience (UX) was discussed by Petrie and Bevan (2014) as a way to evaluate a system by developers. They mentioned that there was a lack of agreement about whether accessibility means usability or universal design for disabled and elderly people among the definitions from Web Accessibility Initiative WAI, ISO usability and accessibility, and World Wide Web Consortium (W3C). Their discussion also mentioned about UX which will be more and more important as it is a person’s responses and perceptions that result from the use of produce, system or service. They also discussed t UX evaluations in a design process under headings: experts, automatic checks, users, usage data, and model and simulation. In addition, there are extensive guidelines for accessibility and usability concerned about the interactions between people and technology: Shneiderman’s 8 golden rules, Neilsen’s usability heuristics, WCAG 2.0 etc. However, these guidelines do not consider the interactions between people and people or people and objects. Universal Design has seven principles: flexibility in use, equitable use, perceptible information, simple and intuitive use, low physical effort, tolerance for error, size and space for approach and use (Mace, 1985). It helps decrease discrimination in the society. Although, there is not every accessible design considered as universal design such as a control panel with large membrane switches may not be suitable for blind people but may be suitable for people with limited manual dexterity (Story, 1998).

Related work

There are not many research studies that focus on accessible tourism for visually impaired people in the second-tier cities of Thailand. Sawangkong and Siriwong (2017) found that issues in traveling for the visually impaired can be divided into the following areas: First, a lack of amenities such as audio equipment or application to tell where the public transportation is now and where are the extra seats for the visually impaired people. They should be seated near the ascent or near the driver for the convenience of getting in and out of the vehicles and route inquiry. Second, there are lack of suitable and accommodating facilities. The needs of the visually impaired, such as braille sound equipment in elevator corridors. For the visually impaired people, they cannot find things in the room; forgetting where to put the key; cannot find

thing by themselves so they need to call staff for help, etc. Third, there is a lack of staff knowledge and understanding in caring for visually impaired people. Most of the employees have never attended training in caring for people with disabilities. Forth, there are some problems happening with visually impaired people at restaurants. In a case of A La Carte: The visually impaired people need staff to read the menu to hear what's included and many times they had to ask the staff to read the menu again. For a Chinese Table: The problem encountered is not knowing where the food is placed, causing the visually impaired to ask other people all the time, including when turning or switching food from the original point. It makes visually impaired people not know the location and not dare to scoop food often. For a case of a buffet, the visually impaired must rely on others to navigate to the Line Buffet and explain what food is served before taking it back to eat, which makes visually impaired people feel afraid that they may have to bother others many times.

Fifth, there are lack of facilities for the disabled at the tourist attractions, especially, in the second-tier cities in Thailand such as guideposts or braille maps of walkways for the visually impaired people, alarm sounds at various points to enable visually impaired people to travel on their own without disturbing others. Finally, the negative attitude towards disabled travelers who are seen by most staff as a burden who take longer to supervise and explain information. Many times, the help is wrong and creates other problems for visually impaired people. Small et al. (2007) revealed that the majority access issues for visually impairment include clear edging steps, suitable lighting, good color contrast of surfaces, clear signage, and good contrast handrails. Visually impaired people also had problems in accessing information. They had difficulties reading travel information signs, screens, and holiday publicity. Therefore, planning a holiday trip with visually impairment takes more time and consideration. RNIN (2009) stated that according to the Disability Discrimination Acts of 1995 and 2005, taking a holiday in the UK has become easier, whereas travelling in oversea destinations still have challenging issues. Sawangsuk (2017) conducted research on tourism management for tourists with mobility disabilities and found there should be service areas in tourist attractions especially for disabled people, such as dining areas, area for tourism activities, etc. while tourism should be organized for tourists with mobility disabilities regarding the process of environmental education, the tourism business, travel marketing tourism, tourism participation of local communities and tourism consciousness. Khiaopraphasorn and Sawangsuk (2020) conducted research on the development of tourism personnel for tourists with mobility disabilities. Gonda (2021) found that the main difficulties travelling faced by 89 people with disabilities in Hungary are communication difficulties (2%), difficulties when doing sports (15%), difficulty in finding tourist attractions (12%), difficulties in accommodation (18%), difficulties in the catering industry (20%), and transport difficulties (30%). No everyday life difficulties were encountered by only 4% of respondents.

Similar results were found by the other four partners, with most responses being transport difficulties. Followed by finding attractions, accommodation and catering industry. Suksutdhi (2022) stated that small hotels in Nakhon Rachasima, Thailand should implement the use of self-service technology (SST) which should realize the efficient connection of SST, i.e. the signal should be stable and not slow and perceived usefulness and ease of use which could reduce time and transaction. From the information above it can be concluded that people with disability still lack accessible amenities. There are a lack of suitable and accommodating facilities and also a lack of staff knowledge and understanding in caring for visually impaired people. There are some problems happening with visually impaired people in various situations especially, in the second-tier cities in Thailand. The negative attitude towards disabled travelers is seen with most staff. Therefore, it is necessary to study visually impaired people's behavior in travelling and their accessibility barrier**s** in order to know their information that could help entrepreneurs to improve their businesses. After knowing the information then the entrepreneurs could plan to improve attraction factors to satisfy people with disabilities.

MATERIALS AND METHODS

This research aims to: 1) study behavior of those with visual impairments who travel regularly in the Second-Tier Tourism Cities of Thailand; 2) study their accessibility barriers; and 3) evaluate attraction factors for those with visual impairments. This research used a mixed method research approach consisting of qualitative and quantitative methods. The triangulation technique was used to confirm results. For objectives 1 and 2 data were collected from literature reviews and interviews with 8 visually impaired people who had been travelling in the Second-Tier Tourism Cities in Thailand. For objective 3, forty visually impaired people who had been travelling in the Second-Tier Tourism Cities in Thailand were asked to answer a questionnaire. The questionnaire was divided into four sections and validated by three experts and tested with 30 participants. The rating scale was calculated to determine the confidence of the reliability using the alpha coefficient analysis method and showed a value of .814.

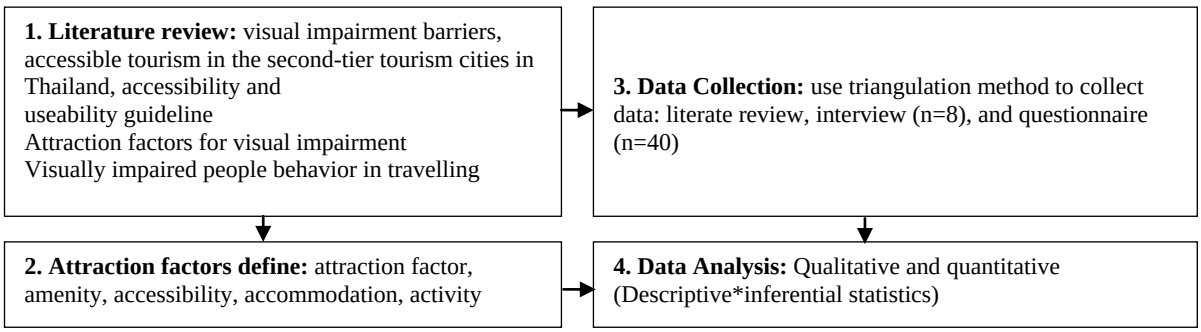

Figure. 1 Research Methodology Steps

Statistics used in data analysis

The calculation of the personal status of the respondents from the questionnaire part 1 with a check list style was used to find the frequency and summarized as a percentage for the calculation of data on tourism behavior of visually impaired people in the secondary tier cities of Thailand. The questionnaire part 2 has a check list style, summarized as percentages, which addressed objective 1. An analysis of the relationship between the tourism behavior of visually impaired people in the secondary tier cities of Thailand and their personal status in terms of gender, age, level of vision, and education level used Chi Square value with Pearson's method to analyze the correlation of variables calculating information on travel problems and barriers for visually impaired people in the secondary tier cities of Thailand. From the questionnaire part 3 that has a check list style, the frequency method was used and summarized as percentages, which answered objective 2.

An analysis of the relationship between problems and barriers in tourism of visually impaired people in the secondary tier cities of Thailand and their personal status in terms of gender, age, level of vision, and the educational level used the Chi Square value with Pearson's method to analyze the correlation of the variables which addressed objective 2. An analysis of visually impaired people's opinions in the secondary tier cities of Thailand from the questionnaire part 4 using the rating scale, mean and S.D. values for addressing objective 3. A comparison of opinions of visually impaired people in the secondary tier cities of Thailand classified by personal status in terms of gender, age, level of vision and education level used differential analysis with t-test for gender status. one-way analysis of variance (ANOVA) was used to analyze individual variable differences for ages, level of visions, and educational levels. The group differences were analyzed and compared by pairs using Scheffe Analysis, which addressed the objective 3 calculating information on the opinions and other suggestions of people with visual impairment in tourism in the second-tier cities of Thailand. From the open-ended questionnaire part 5, the content analysis method was used and the frequency was summarized and sorted in descending order.

RESULTS

Participant's profile

There were forty participants who participated in answering questionnaire questions. They were more male (65%) than female (35%). Most were in the age range of 20-30 years old (62.50%), followed by 31-40 years old (17.50%), and 51-60 years old (5%). Most had low vision (32.50%), followed by blindness (42.50%) and mild vision (5%) and moderate vision (5%). Most had a bachelor's degree (70%), followed by secondary school (27.50%), and primary school (2.50%).

1. **Research Question 1:** What are tourism behaviors of the visually impaired in the Second-Tier Tourism Cities of Thailand? The results are shown in Figures 2 – 8.

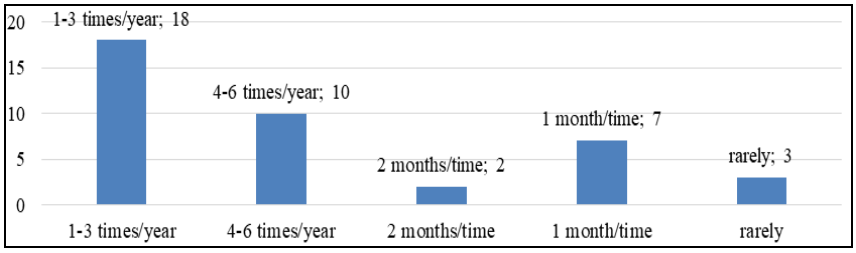

Figure 2. How often do you travel?

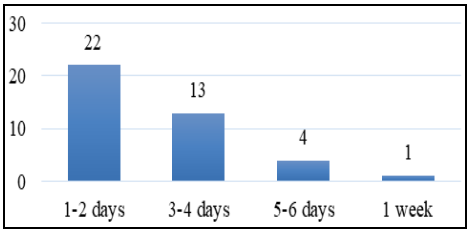

Figure 3. How long do you spend time in traveling?

From Figure 2, most participants traveled 1-3 times/year (45%), followed by traveled 4-6 times/year (25%), and the least they rarely traveled in the Second-Tier Tourism Cities of Thailand (5%). From Figure 3, most participants had spent their time in travelling 1-2 days per time (55%), followed by 3-4 days per time (32.50%), and the least they had spent a week in travelling in the Second-Tier Tourism Cities of Thailand (2.50%).

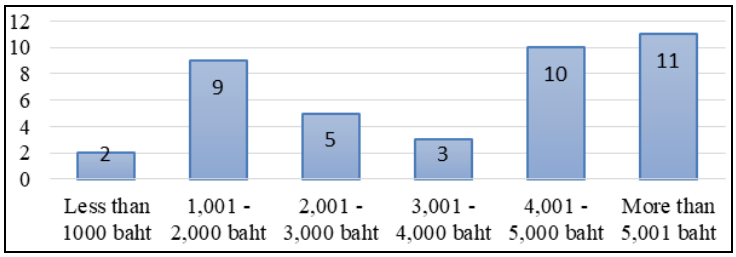

Figure 4. Travel expenses per trip

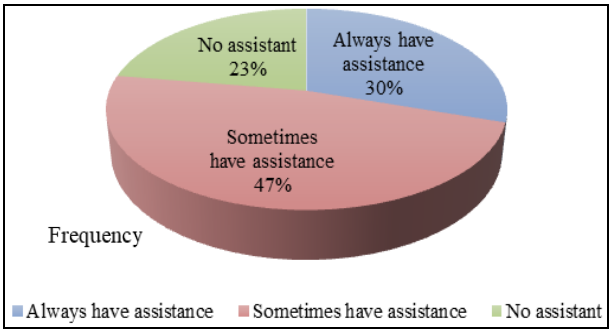

Figure 5. Do you have a travel assistant for most of your travels?

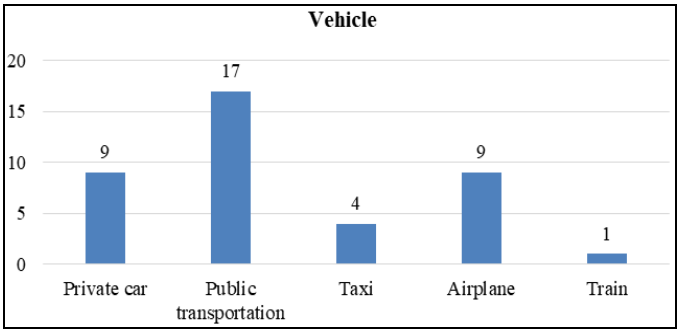

Figure 6. What type of vehicle do you use most for your travels?

From Figure 4, most participants had spent more than 5,001 baht (27.50%), followed by 4,001 - 5,000 baht (25.00%), and the least less than 1000 baht in travelling in the Second-Tier Tourism Cities of Thailand (5.00%).

From Figure 5, most participants sometimes have assistance in travelling (47%), followed by always have assistance (30%), and the least no need assistant in travelling (22.50%). From Figure 6, most participants sometimes travelled by public transportation (42.50%), followed by airplane and private car and airplane (22.50%), and the least no need for assistant in travelling.From Table 7, most participants sometimes used the app to make room reservations (40.63%), followed by asking someone else to book the accommodation (34.38%), and the least booked by walking into the accommodation (1.56%). From Figure 8, most participants sometimes had experience in booking through Traveloka (49%), followed by Agoda (29%), and the least had no experience in using the application(5%).

2. Research Question 2: What are barriers in accessible tourism of people with visual impairments in the Second-Tier Tourism Cities of Thailand?

Most visually impaired people have problems accessing buttons in a travel booking application (22.40%), followed by problems with the lack of image descriptions (18.40%), problems scrolling arrows to book a room (12.80%), problems accessing data links and the system payment pending issue cannot be processed (11.20%), Payment issues accessing data in form (9.60%), Login problem by asking about the images seen (8.00%), and the least is data sorting problem (6.40%). There were eight visual impaired people who took part in the experiment: 2 with moderate visual impairment, 2 with severe visual impairment, 2 profound visual impairment, and 2 with blindness.

They were selected by those having experiences in travelling in the Second-Tier Tourism Cities of Thailand. The participants were asked to do the experiment on booking airplane flight from the three platforms: Air Asia, Lion Air and Traveloka. They also were asked to do the experiment on booking accommodation from three platforms: Agoda, Booking.com and Traveloka. The results found that all participants agreed platform Traveloka is the easiest platform for booking the airline flight through mobile application (all participants mentioned). However, Air Asia and Lion Air had some problems in accessing button, scrolling arrows to book a room, and payment method while using the accessibility function on IOS and Android platforms. When tried on web browser, it is easier for booking and payment processes (moderate visual impairment mentioned). For accommodation booking, they found that Booking.com and Traveloka are easier for them to booking the accommodation. Agoda had some problems in booking by jumping the information order especially when using a frame in designing the application (moderate visual impairment mentioned).

Sometimes, it needed double taps then the tab will move to next tab and give a problem in accessing data links. It was found it is difficult to navigate (blindness mentioned). Moreover, all participants agreed on login problems by asking about the images seen. This issue needs to be solved as soon as possible.

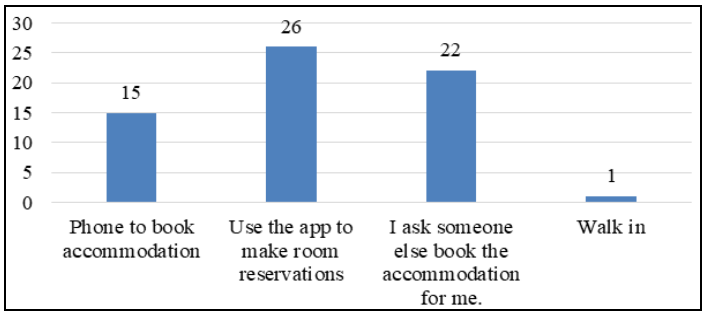

Figure 7. What channels do you mostly use to book accommodation?

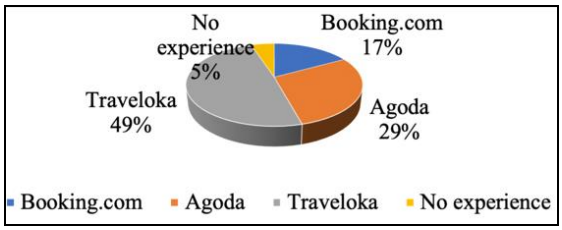

Figure 8. What apps do you have experience with booking?

3. Research Question 3: What are attraction factors in tourism of people with visual impairments in the Second-Tier Tourism Cities of Thailand?

Forty participants were asked to rate the tourism factors of people with visual impairments in the Second-Tier Tourism Cities of Thailand. The participants used 5-point Likert rating scales of 1 (very poor) to 5 (very good) in answering a questionnaire about perception on tourism in the Second-Tier Tourism Cities of Thailand of people with visual impairment. From Table 1, the overall average score for attraction tourism in all aspects is 4.60. Most participants often decide to travel to a particular place because of attraction e.g., good atmosphere, good food ($\bar{X}$ = 4.78).

The second requirement is participants will talk about tourist attractions that provide good facilities to other people with disabilities ($\bar{X}$ = 4.73). The least are participants always travel in places that have not been before and participants travel in places that provide new knowledge with accessibility ($\bar{X}$ = 4.45).

Table 1 The average score for attraction factor

Attraction	Mean	Std. Deviation
1.You always travel in places that have not been before.	4.45	.677
2.You travel in places that provide new knowledge with accessibility.	4.45	.749
3.You will talk about tourist attractions that provide good facilities to other people with disabilities.	4.73	.452
4.You will tell other people with disabilities about tourist attractions that don't have good facilities.	4.57	.636
5.You often decide to travel to a particular place because of his attraction e.g., good atmosphere, good food.	4.78	.423
Average	**4.60**	**0.587**

From Table 2, the overall average score for amenity in all aspects is 4.41. Most participants told others about accommodation, restaurants, transportation, and tourism services that facilitate tourism to others ($\bar{X}$ = 4.68). The second requirement is the participants travel to places with restaurants near tourist attractions ($\bar{X}$ = 4.57). The least is participants use the tourist information service from the public relations point at the tourist attraction ($\bar{X}$ = 4.12). From Table 3, the overall average score for accessibility in all aspects is 4.50. Most participants always study the routes and methods of travel well before leaving home ($\bar{X}$ = 4.80). The second requirement is the participants travel in a place where transportation is convenient for visually impaired people ($\bar{X}$ = 4.60). The least is participants always have a personal assistant on travels ($\bar{X}$ = 4.05).

From Table 4, The overall average score for accommodation in all aspects is 4.48. Most participants compare accommodation services and prices from multiple sources before making a booking decision ($\bar{X}$= 4.72). The second requirement is the participants choose accommodation with elevator access to the floor of the property ($\bar{X}$ = 4.60). The least is before booking accommodation, participants will be asked how to assist the visually impaired people ($\bar{X}$ = 4.30).

Table 2. The average score for amenity

Amenities	Mean	Std. Deviation
1.You travel to places that have facilities that accommodate visually impaired people while traveling.	4.45	.749
2.You travel to places with restaurants near tourist attractions.	4.57	.675
3.You travel to places with hospitals near tourist attractions.	4.25	.840
4.You use the tourist information service from the public relations point at the tourist attraction.	4.12	.853
5.You told others about accommodation, restaurants, transportation, and tourism services that facilitate tourism to others.	4.68	.572
Average	**4.41**	**.738**

Table 3. The average score for accessibility

Accessibility	Mean	Std. Deviation
1.You always study the routes and methods of travel well before leaving home.	4.80	.405
2.You always have a personal assistant on your travels.	4.05	.986
3.You travel in a place where transportation is convenient for visually impaired people.	4.60	.545
4.You use a vehicle that has staffs to serve you while traveling.	4.47	.716
5.You travel in a place where bookings are easily accessible.	4.57	.549
Average	**4.50**	**.640**

Table 4. The average score for accommodation

Accommodation	Mean	Std. Deviation
1.You can find information on accommodation services that cater to the visually impaired before booking.	4.43	.781
2.Before booking your accommodation, you will be asked how to assist the visually impaired people.	4.30	.883
3.You compare accommodation services and prices from multiple sources before making a booking decision.	4.72	.506
4.You choose accommodation with elevator access to the floor of the property.	4.60	.672
5.You choose accommodation with bathroom for the visually impaired.	4.37	.807
Average	**4.48**	**.730**

Table 5. The average score for activity

Activity factors	Mean	Std. Deviation
1.You search for information about activities that are available for visually impaired people in tourist attractions before deciding to travel.	4.57	.675
2.You are concerned with activities that visually impaired people could do.	4.40	.778
3.You consider safe activities that visually impaired people can do.	4.50	.751
4.The tourist destination offers a wide variety of sports activities.	4.37	.807
5.Tourist attractions are organized with interesting and attractive tourist activities.	4.50	.751
Average	**4.47**	**.752**

Table 6 The results of comparison of opinion differences between different age groups

		Sum of Squares	df	Mean Square	F	Sig.
1. He often decides to travel to a particular place because of his attraction e.g., good atmosphere, good food.	Between Groups	1.425	3	.475	3.080	.040
	Within Groups	5.550	36	.154		
	Total	6.975	39			
2. You travel to places with restaurants near tourist attractions.	Between Groups	4.325	3	1.442	3.858	.017
	Within Groups	13.450	36	.374		
	Total	17.775	39			
3. You use the tourist information service from the public relations point at the tourist attraction.	Between Groups	8.018	3	2.673	4.726	.007
	Within Groups	20.357	36	.565		
	Total	28.375	39			
4. You travel in a place where bookings are easily accessible.	Between Groups	2.586	3	.862	3.378	.029
	Within Groups	9.189	36	.255		
	Total	11.775	39			

From Table 5, The overall average score for activity in all aspects is 4.47. Most participants search for information about activities that are available for visually impaired people in tourist attractions before deciding to travel ($\bar{X}$= 4.57). The second requirement is the participants consider safe activities that visually impaired people can do, and tourist attractions are organized with interesting and attractive tourist activities ($\bar{X}$ = 4.50).

The least is tourist destination offers a wide variety of sports activities ($\bar{X}$= 4.37). The results of the calculation were compared to find the relationship between the variables using Pearson Chi-square found that there are only three relations among the Chi-Square tests that are significantly differences at the level of .01. The three relationships were 1) The relationship between travel period and education has significantly difference at a level of .01.; 2) The relationship between travel assistant and level of vision has significantly difference at a level of .01.; and 3) The relationship between type of vehicle and level of vision has significantly difference at a level of .01. From Table 6, The results of comparison of opinion differences between different age groups by ANOVA found that opinions on tourism factors of visually impaired people differed between groups at a statistically significant level of .05 in 4 questions: 1); 2); 3) and 4).

1) Attraction

From Table 7, the results of comparison of opinion differences between different level of visions groups by ANOVA found that opinions on attraction factors of visually impaired people differed between groups at a statistically significant level of .01 in 5 questions. The results of pairwise comparisons between in attraction factors using measure amount for three levels of vision. There was a significant difference at .01 level of measure amount for question 1, between low vision and moderate vision, low vision and blindness, mild vision and blindness, and moderate vision and blindness. There was a significant difference at .01 level of measure amount for question 2. There was a significant difference at .01 level of measure amount for question 3 between low vision and blindness, moderate vision and blindness. There was a significant difference at .05 level of measure amount for question 4 between low vision and blindness, mild vision and moderate vision, and moderate vision and blindness. There was a significant difference at .05 level of measure amount for question 5 between mild vision and blindness.

Table 7 The results of comparison of opinion differences between different level of visions groups in term of attraction by ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
1. You always travel in places that have not been before.	Between Groups	11.931	3	3.977	23.985	.000
	Within Groups	5.969	36	.166		
	Total	17.900	39			
2. You travel in places that provide new knowledge with accessibility.	Between Groups	10.208	3	3.403	10.476	.000
	Within Groups	11.692	36	.325		
	Total	21.900	39			
3. You will talk about tourist attractions that provide good facilities to other people with disabilities.	Between Groups	2.744	3	.915	6.296	.002
	Within Groups	5.231	36	.145		
	Total	7.975	39			
4. You will tell other people with disabilities about tourist attractions that don't have good facilities.	Between Groups	7.867	3	2.622	11.939	.000
	Within Groups	7.908	36	.220		
	Total	15.775	39			
5. You often decide to travel to a particular place because of his attraction e.g., good atmosphere, good food.	Between Groups	1.898	3	.633	4.486	.009
	Within Groups	5.077	36	.141		
	Total	6.975	39			

Table 8. The results of comparison of opinion differences between different level of visions groups in term of amenities by ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
1. You travel to places that have facilities that accommodate visually impaired people while traveling	Between Groups	9.100	3	3.033	8.531	.000
	Within Groups	12.800	36	.356		
	Total	21.900	39			
2. You travel to places with restaurants near tourist attractions.	Between Groups	5.467	3	1.822	5.331	.004
	Within Groups	12.308	36	.342		
	Total	17.775	39			
3. You travel to places with hospitals near tourist attractions.	Between Groups	17.531	3	5.844	21.102	.000
	Within Groups	9.969	36	.277		
	Total	27.500	39			
4. You use the tourist information service from the public relations point at the tourist attraction.	Between Groups	20.357	3	6.786	30.466	.000
	Within Groups	8.018	36	.223		
	Total	28.375	39			
5. You told others about accessible accommodation, restaurants, transportation, and tourism services that facilitate tourism to others.	Between Groups	3.298	3	1.099	4.176	.012
	Within Groups	9.477	36	.263		
	Total	12.775	39			

2) Amenities

From Table 8, the results of comparison of opinion differences between different age groups by ANOVA found that opinions on amenity factors of visually impaired people differed between groups at a statistically significant level of .01 in 5 questions. The results of pairwise comparisons between amenity factors using measure amount for three levels of vision. There was a significant difference at .05 level of measure amount for question 1 between low vision and blindness, and moderate vision and blindness. There was a significant difference at .01 level of measure amount for question 2 between low vision and blindness. There was a significant difference at .01 level of measure amount for question 3 between low vision and blindness, mild vision and blindness, and moderate vision and blindness. There was a significant difference at .01 level of measure amount for question 4 between low vision and blindness, mild vision and blindness, and moderate vision and blindness. There was a significant difference at .05 level of measure amount for question 5 between low vision and blindness.

3) Accessibility

From Table 9, the results of comparison of differences in opinions between different levels of perception by ANOVA revealed that opinions on accessibility factors of visually impaired people differed between groups at a statistically significant level of .05 for 5 questions. The results of pairwise comparisons between in accessibility factors using measure amount for three levels of vision. There was no significant difference of measure amount for question 1 between levels of vision. There was a significant difference at .01 level of measure amount for question 2 between low vision and blindness, mild vision and blindness, and moderate vision and blindness. There was a significant difference at .01 level of measure amount for question 3 between mild vision and blindness. There was a significant difference at .01 level of measure amount for question 4 between low vision and blindness. There was a significant difference at .01 level of measure amount for question 5 between low vision and blindness.

Table 9. The results of comparison of opinion differences between different level of visions groups in term of accessibility by ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
1. You always study the routes and methods of travel well before leaving home.	Between Groups	1.323	3	.441	3.127	.038
	Within Groups	5.077	36	.141		
	Total	6.400	39			
2. You always have a personal assistant on your travels.	Between Groups	27.192	3	9.064	30.474	.000
	Within Groups	10.708	36	.297		
	Total	37.900	39			
3. You travel in a place where transportation is convenient for visual impaired people.	Between Groups	4.228	3	1.409	6.882	.001
	Within Groups	7.372	36	.205		
	Total	11.600	39			
4. You use a vehicle that has staff to serve you while traveling.	Between Groups	9.883	3	3.294	11.751	.000
	Within Groups	10.092	36	.280		
	Total	19.975	39			
5. You travel in a place where bookings are easily accessible.	Between Groups	5.467	3	1.822	10.401	.000
	Within Groups	6.308	36	.175		
	Total	11.775	39			

4) Accommodation

From Table 10, the results of comparison of differences in opinions between different levels of perception by ANOVA revealed that opinions on accommodation factors of visually impaired people differed between groups at a statistically significant level of .01 in 5 questions. The results of pairwise comparisons between in accessibility factors using measure amount for three levels of vision. There was a significant difference at .01 level of measure amount for question 1 between low vision and blindness and mild vision and blindness. There was a significant difference at .05 level of measure amount for question 2 between low vision and blindness, mild vision and blindness, and moderate vision and blindness. There was a significant difference at .01 level of measure amount for question 3 between mild vision and blindness. There was no significant difference of measure amount for question 4 between levels of vision. There was a significant difference at .01 level of measure amount for question 5 between low vision and blindness, mild vision and blindness, and moderate vision and blindness.

Table 10. The results of comparison of opinion differences between different level of visions groups in term of accessibility by ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
1. You can find information on accommodation services that cater to the visually impaired before booking.	Between Groups	10.883	3	3.628	10.129	.000
	Within Groups	12.892	36	.358		
	Total	23.775	39			
2. Before booking accommodation, you will be asked how to assist the visually impaired.	Between Groups	16.369	3	5.456	14.000	.000
	Within Groups	14.031	36	.390		
	Total	30.400	39			
3. You compare accommodation services and prices from multiple sources before making a booking decision.	Between Groups	2.898	3	.966	4.914	.006
	Within Groups	7.077	36	.197		
	Total	9.975	39			
4. You choose accommodation with elevator access to the floor of the property.	Between Groups	4.923	3	1.641	4.660	.007
	Within Groups	12.677	36	.352		
	Total	17.600	39			
5. You choose accommodation with bathroom for the visually impaired.	Between Groups	12.452	3	4.151	11.563	.000
	Within Groups	12.923	36	.359		
	Total	25.375	39			

From Table 11, the results of comparison of differences in opinions between different levels of perception by ANOVA revealed that opinions on activity factors of visually impaired people differed between groups at a statistically significant level of .01 in 5 questions. The results of pairwise comparisons between in activity factors using measure amount for three levels of vision. There was a significant difference at .05 level of measure amount for question 1 between low vision and mild vision, low vision and blindness, mild vision and moderate vision, moderate vision and blindness. There was a significant difference at .05 level of measure amount for question 2 between low vision and mild vision, low vision and blindness, mild vision and low vision, and moderate vision and blindness. There was a significant difference at .01 level of measure amount for question 3 between low vision and blindness, and moderate vision and blindness. There was a significant difference at .01 level of measure amount for question 4 between low vision and blindness, and moderate vision

and blindness. There was a significant difference at .01 level of measure amount for question 5 between low vision and blindness, and moderate vision and blindness. The results of comparison of opinion differences between educational levels with ANOVA found that there was a statistically significant difference between the groups at the .05 level opinions about "You will tell other people with disabilities about tourist attractions that don't have good facilities".

There are 14 lists of comments on visually impairment travelling in the second-tier cities in Thailand. Most participants comment on tourist attractions should train staff to assist visually impaired people in providing travel advice or navigating in tourist places (13.33%), followed by it is difficult for the visually impaired is to use the elevator up and down the hotel building.; I should be good if the elevator had Braille so that visually impaired people could press the elevator freely (10.00%). Finding rooms is also difficult if visually impaired people walk back to the room by themselves (10.00%).; and There should be a walkway with braille blocks for the visually impaired people, blind, so that they can travel easily and safely (10.00%). The least are it should have an application to book accommodation that considers the use of the visually impaired more (3.33%).; Tourist attractions should be organized in a way that is accessible to all groups of people (3.33%).; It should be good if there was a footpath to walk in the tourist area (3.33%).; and I would be good to have a good guide to take me to travel in different places or a special group tour for visually impaired people (3.33%).

5) Activities

Table 11. The results of comparison of opinion differences between different level of visions groups in term of activities by ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
1. You search for information about activities that are available for visual impaired people in tourist attractions before deciding to travel.	Between Groups	8.852	3	2.951	11.904	.000
	Within Groups	8.923	36	.248		
	Total	17.775	39			
2. You are concerned with activities that visually impaired people could do.	Between Groups	13.292	3	4.431	15.475	.000
	Within Groups	10.308	36	.286		
	Total	23.600	39			
3. You consider safe activities that visually impaired people can do.	Between Groups	10.400	3	3.467	10.759	.000
	Within Groups	11.600	36	.322		
	Total	22.000	39			
4. The tourist destination offers a wide variety of sports activities.	Between Groups	9.942	3	3.314	7.730	.000
	Within Groups	15.433	36	.429		
	Total	25.375	39			
5. Tourist attractions are organized with interesting and attractive tourist activities.	Between Groups	9.077	3	3.026	8.429	.000
	Within Groups	12.923	36	.359		
	Total	22.000	39			

CONCLUSION AND DISCUSSION

Most visually impaired people had spent 1-2 days per time in travelling, spent more than 5,001 baht per trip, always traveled with assistance, travel by train, use the app to make room reservations, have experience in booking accommodation through Traveloka. Most visually impaired people have problems accessing buttons in a travel booking application, followed by problems with the lack of image descriptions, problems scrolling arrows to book a room, problems accessing data links and the system payment pending issue cannot be processed, payment issues accessing data in form, login problem by asking about the images seen, and the least is data sorting problem. Most visually impaired people both from interviewing and asking questionnaire method have similar problems: accessing buttons in a travel booking application, followed by problems with the lack of image descriptions, problems scrolling arrows to book a room, problems accessing data links and the system payment pending issue cannot be processed, payment issues accessing data in form, login problem by asking about the images seen, and the least is data sorting problem. These problems could be solved by designing the application follows the concept of usability, accessibility, and UX. However, Petrie and Bevan (2014) stated that there was a lack of agreement about whether accessibility means usability or universal design for disabled and elderly people among the definitions from Web Accessibility Initiative WAI, ISO usability and accessibility, and World Wide Web Consortium.

There is a lack of research that focuses on accessible tourism in Thailand, especially, accessible tourism for visually impaired people in the second-tier cities of Thailand. This research also aimed to study the attraction factors in tourism of people with visual impairments in the Second-Tier Tourism Cities of Thailand. The highest score for attraction tourism factors is attraction, followed by accessibility, accommodation, activity, and the least is amenities. The results of comparison of opinion differences between different age groups by ANOVA found that opinions on tourism factors of visually impaired people differed between groups at a statistically significant level of .05 in 4 questions. The results of the comparison of differences in pairs using Post Hoc Tests found that two pairs were statistically significant difference at the .05 level classified by age. The results of comparison of opinion differences between different level of visions groups by ANOVA found that opinions on tourism factors of visually impaired people differed between groups at a statistically significant level of .05 in all 5A of tourism factor questions. The results above associated with Sawangkong and Siriwong (2017); Angkananon and Choibamroong (2022) in term of: 1) the public transportation system in Thailand especially in the second-tier cities is still unable to meet the needs of the visually impaired. 2) They are lacking suitable and accommodating facilities. 3) There is also lack of facilities for the disabled at the tourist attraction, especially, in the second-tier cities in Thailand. The results also associated with Gonda (2021) who found that there were some similar issues in term of the main difficulties being transport, catering industry, accommodation, doing sports, and finding tourist attractions.

Moreover, most participants commented on tourist attractions should train staff to assist visually impaired people in providing travel advice or navigating in tourist places. This related to Khiaopraphasorn and Sawangsuk (2020) stated

that tourism personnel should develop knowledge of their responsibilities to be able to answer questions and can provide services to tourists with disabilities accurately. There also should be skills training in providing services and assistance to tourists with disabilities and developed in terms of personal characteristics. Followed by it is difficult for the visually impaired is to use the elevator up and down the hotel building. The comment on finding rooms is also difficult if visually impaired people walk back to the room by themselves which related to Small et al. (2007) revealed that visually impaired people also had problems in accessing to information. Therefore, planning a holiday trip for visual impairment takes more time and consideration. Other requirements are there should be a walkway with braille blocks for the visually impaired people, blind, so that they can travel easily and safely. Tourist attractions should be organized in a way that is accessible to all groups of people. These are related to Sawangsuk (2017) finding that there should be service areas in tourist attractions especially for disabled people, such as dining areas, area for tourism activities, etc.

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MAPPING RESEARCH TRENDS IN MOBILE TECHNOLOGY IN WELLNESS TOURISM DESTINATION: A BIBLIOMETRIC AND VISUALIZED ANALYSIS

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Abstract: The study aims to explore and review the literature published on the use of mobile technology in wellness tourism destinations, finding a total of 656 papers published between 2001 and 2021 to determine the thematic direction of the related research flourish. This study created a bibliometric and visualisation map of research trends in mobile technology in wellness tourism destinations using the Scopus database, PRISMA, VOSviewer and Harzing's Publish or Perish software. Results showed that United States published the most articles on this topic and co-occurrence of keywords revealed eight clusters: technological breakthroughs, mobile tourism adoption, tourist mobile applications, destination marketing, smart destination, tourist experience, data intelligence and analytics and service innovations. This study could elucidate this research topic and help researchers forecast its dynamic paths.

Key words: mobile technology, wellness tourism, wellness destination, bibliometric analysis, VOSviewer

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INTRODUCTION

Because of the increasing popularity of 5G mobile communication technology, people's lives and many businesses' modes of operation will be further transformed. Websites, social media and mobile technologies have had the most significant effects on information and communications technologies (ICTs), as they are major avenues for industry practitioners to reach their consumers (Leung et al., 2013; Sotiriadis, 2017). Additionally, mobility and ICT have been combined to create mobile devices, such as smartphones, tablet computers and mobile applications (apps) which are essential to everyday life, making the internet more accessible to everyone (Wang et al., 2016). Owing to ubiquitous internet use and rapid technological advancement, tourism has undergone significant reorganisation (Dorcic et al., 2019). In particular, mobile technology has significantly influenced tourism (Liang et al., 2017). Multiple travel concepts and approaches, including mobile tourism (Guerreiro et al., 2020), e-tourism (Artemenko et al., 2020), smart tourism (Bujari et al., 2020) and sustainable tourism (Sharmin et al., 2021) have originated or developed with the help of mobile-related devices, such as smartphones, glasses and other wearable devices. It is widely believed that mobile technology's radical impact on tourism, especially on wellness tourism, is imminent (Scarles et al., 2020). Therefore, wellness experiences are increasingly relying on mobile technology and the study of wellness tourism destinations is growing in importance (Bugeja and Grech, 2020; Palos-Sanchez et al., 2021; Srinivaasan and Kabia, 2020; Tung, 2021). It is critical for researchers in the age of information explosion to analyze efficiently a constantly growing number of scientific publications in their fields of study. To visualize the research trends in mobile technology in wellness tourism destination studies, this study used bibliometric approaches and graphic plotting. Bibliometrics is a branch of information science that applies statistics to publications, journals and other types of literature (Wang et al., 2019). Bibliometric analysis provides several advantages over typical literature evaluations and summaries. First, bibliometric approaches provide researchers with an overall network picture of their research topics by examining a large database of thousands of pages. Second, citation analysis in bibliometric approaches can quantify the effect of a research area, an individual researcher, or even an individual work in the field. Third, it is possible to easily capture or identify a field's classic literature and research hotspots.

At present, several bibliometric analyses are being undertaken to investigate research trends in a variety of topics and disciplines. Examples include COVID-19 and consumer behaviour studies (Cruz-Cárdenas et al., 2021), research trends

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based on the retrospective documents published over twenty years to guide future tourism studies (Singh et al., 2021), corporate social responsibility research in tourism and hospitality studies (Wong et al., 2021), innovative drivers for family business models in tourism studies (Arcese et al., 2021) and understanding the knowledge structure in studies on shared accommodation (La et al., 2021). Bibliometrics has been used for innovative hotel research (Fernandes and Pires, 2021) to review trends, patterns and future agendas of rural tourism (Karali et al., 2021) and analyse destination choice trends (Pandey and Joshi, 2021). The knowledge base of the last decades of tourism and hospitality entrepreneurship can be charted to focus on sustainable tourism (Trip et al., 2021), determine the field structure of wellness tourism and map significant trends in this expanding tourism area (Suban, 2022) and predict future tourism destination resilience (Wang et al., 2022). Recently, Szum (2021) conducted a bibliometric study on the Internet of Things-based smart cities. Han et al. (2021) performed a bibliometric study on artificial intelligence in business-to-business marketing. Celuch (2021) studied ICTs in the context of events. Moreover, Di Vaio et al. (2020) conducted a bibliometric study on the role of artificial intelligence and business models from the perspective of sustainable development goals. Additionally, Chen et al. (2020) studied mobile technology in tourism using bibliometrics and visualisation. However, to the best of our knowledge, no bibliometric analyses have been reported on the use of mobile technology in wellness tourism destinations.

Therefore, this article aims to systematically, comprehensively, and objectively analyze the current research status and potential future research directions through a visual bibliometric analysis of the use of mobile technology in wellness tourism destinations. Seven research questions were posited regarding the use of mobile technology in wellness tourism destinations: 1) What is the current publication trend regarding mobile technology in wellness tourism destinations? 2) Which are the most productive years of research on mobile technology in wellness tourism destinations? 3) Who are the most productive and influential authors concerning mobile technology in wellness tourism destinations? 4) What is the most influential work in this field of study? 5) Which are the most productive countries and influential institutions regarding the research on mobile technology in wellness tourism destinations? 6) What is the periodic progression of mobile technology in wellness tourism destination research and the intellectual structure of research in this area? and 7) What are the research gaps and future research directions in the use of mobile technology in wellness tourism destinations? The remainder of this article is organised into five sections. Section 2 reviews important literature on the use of mobile technology in wellness tourism destinations. Section 3 details the methods, including the data sources and analytical tools used in this study. Section 4 presents the graphical visualisations, analyses and interpretations and discusses the findings of this study. Finally, Section 5 presents the main conclusions, theoretical and managerial implications, future scope for research and limitations.

LITERATURE REVIEW

Wellness tourism

Wellness tourism has recently grown faster than the entire tourism industry because new healthcare trends emphasise holistic methods geared towards prevention and well-being rather than specialised medical procedures to treat diseases. Wellness tourism is distinct from medical tourism and undertaken by healthy individuals who seek to improve their mental and physical well-being (Karn and Swain, 2017). People on wellness vacations often integrate activities such as spa treatments based on water therapies with other physical activities such as hiking or educational excursions that require certain landscapes, geographical or physical qualities (Feng et al., 2021). The unique and differentiating characteristics of water bodies, natural parks and healthy cuisines are key components that make the wellness tourism experience more appealing to visitors. The Global Wellness Institute describes wellness as an active search for solutions and behaviours that contribute to a holistic state of health (Global Wellness Institute, 2018). Wellness is not a passive condition but a process of making decisions and taking action to achieve optimal health and well-being. Four components of holistic health as physical, mental, emotional and social must all function in harmony to achieve wellness. Including these components into holistic and integrative wellness tourism results in holidays that include 1) pleasure and hedonism, 2) altruistic activities and 3) meaningful experiences (Smith and Diekmann, 2017). The concept of wellness is also an economic growth engine that creates employment and promotes local food, designations of origin and gender equity. Wellness tourism can also aid in reviving traditional healing approaches and reduce mental health crises while contributing to preserving natural and cultural resources, environmental conservation and sustainable tourism. Health boosts both quality of life and social capital (Global Wellness Institute, 2019).

Wellness destinations

Wellness destinations are geographic sites that claim to deliver healing properties through local environmental features such as nature, air, sea or groundwater and soil. Tourists are the primary audience for wellness destinations, which frequently provide complementary recreational options. However, wellness areas benefit more broadly by recruiting permanent inhabitants and exporting local goods such as agricultural products, mineral water, sea salt and other commodities (Phuthong et al., 2022). Cornelia and Pforr (2017) considered the supply side of wellness tourism from the destination perspective. They assessed the generation and delivery of products and services to attract tourists seeking to maintain and improve their health. They analysed locations whose core resources and competencies consisted of 1) natural resources; 2) cultural, historical and spiritual resources; 3) complementary and alternative medicine offerings; 4) community mindsets and wellness-related lifestyles; 5) human resources and competencies; 6) wellness-specific superstructures; 7) wellness-related events; and 8) the combination of wellness with other activities or offerings.

Mobile technology in wellness tourism destinations

Currently, tourists take their smartphones everywhere (Law et al., 2018). Mobile technology has altered the way

travelers interact with destinations, purchase travel-related items, and share their travel experiences with others. Practitioners and marketers have responded by revising their tactics and plans to meet changing customer demands. Identifying the core themes that comprise mobile technology studies in hospitality and tourism helps us understand research interests and discover under-researched subjects that require more attention. The mobile technology component explores the use and function of mobile technology in wellness tourism and associated businesses from various perspectives.

For instance, Zhang and Dong (2021) used data mining technology in a big data environment to extract the image monitoring information of popular tourism destinations. Adi et al. (2021) proposed the potential of mobile phones at the district or city level, the availability of technical support, and the implementation of promotion and marketing support in rural tourism destinations. Srinivaasan and Kabia (2020) proved that smartphones could change tourists' behaviors and emotional states by addressing a wide variety of information needs while they are selecting and exploring the destination, sharing experiences, and "storing" memories. Flavián et al. (2019) revealed that virtual reality devices could generate more immersive experiences, higher sensory stimulation, more engagement, and higher behavioral intentions toward potential tourist destinations. Almobaideen et al. (2017) proposed geographical routing for tourists using mobile devices based on the Internet of Things, which selects a route that is best served by medical centers, and adopts the shortest path possible.

Tung (2021) applied design thinking to foster multidisciplinary collaboration and integrate interactive technology to enhance visitor experience in Herb Lane, a traditional Chinese herb market. Ballina et al. (2019) indicated that ICTs were the main tools to build the value of the tourist experience, and that technological utilities increase the destination's competitiveness. Moreover, Garcia et al. (2019) presented gamified mobile experiences as useful tools for destination marketing organizations to enrich tourists' experiences, and gain insight into tourists' behavior. Moreover, Clarizia et al. (2017) contended that digital storytelling with a mobile tailored story through emerging technology could enrich tourist destinations and attractions and increase tourists' engagement with destinations.

METHODS

In this research, we perform five steps in bibliometric analysis adopted from Zupic and Čater (2015). The flow chart of bibliometric analysis is described in Figure 1. Furthermore, this study employed quantitative bibliometric analysis using the PRISMA technique, visualisation of similarities (VOSviewer) and Harzing's Publish or Perish software to explore the research trends in mobile technology in wellness tourism destinations using articles retrieved from the Scopus database. Bibliometric analysis uses statistical methodologies, such as citation rates, to evaluate journals and authors statistically (Wang et al., 2019). It also examines quantitative metrics, such as citations and prolific authors. Citation analysis can investigate how certain influential papers have been studied subsequently by others (Egghe and Rousseau, 2002; Li, 2017). In other words, it can be descriptive or evaluative. There are millions of papers and journals in Scopus, which is the world's largest abstract and citation database, covering different titles, areas and perspectives.

Therefore, the current research used keywords including "Mobile", "Technology", "Tourism" and "Destination" in the PRISMA flow diagram to find data from the Scopus database, such as "TITLE-ABS-KEY (mobile AND technology)" and "("tourism" and "destination")" in the Scopus database. A total of 686 papers were found. When undefined characteristics were eliminated in the second stage, for example, (TITLE-ABS-KEY (mobile AND technology)), ((tourism) AND (destination)) and (EXCLUDE (PUBSTAGE, "aip")) and (EXCLUDE (AFFILCOUNTRY, "Undefined")), 656 documents remained. For greater certainty, Harzing's Publish or Perish software was used in conjunction with VOSviewer, a software tool for bibliometric mapping. Figure 2 depicts information flow through the different phases of a systematic review.

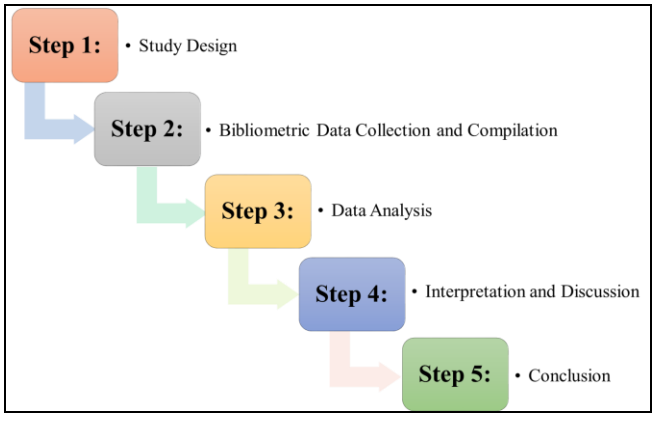

Figure 1. Workflow analysis chart
(Source: adapted from Zupic and Čater, 2015)

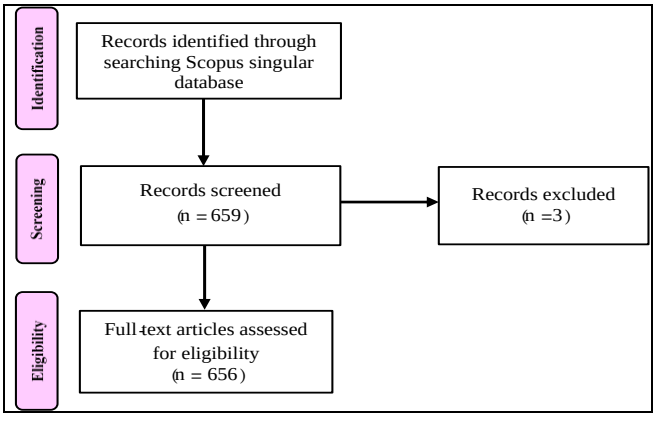

Figure 2. PRISMA flow diagram
(Source: developed by the authors)

RESULTS AND DISCUSSIONS

Results

The Scopus database was used to conduct a bibliometric study of publications on mobile technology in wellness tourism destinations. This section presents the results of our investigation, providing researchers access to information regarding document and source types, publication years, document languages and topic areas. The data include bibliometric information on nations with the largest number of published works, leading publishing venues, prominent institutions, keyword analysis and citation analysis.

Document and source types

Table 1 indicates that the search yielded 656 documents. Articles account for 63.26% (415 documents), conference papers, 27.29% (179 documents), book chapters, 6.25% (41 documents), reviews, 1.98% (13 documents), books, 1.07% (seven documents) and data papers, 0.15% (one document). Furthermore, all 656 document source types revealed that journals are the preferred source type for publication with 64.63% (424 sources), followed by conference proceedings with 20.27% (133 sources), book series with 8.38% (55 sources) and book covers with 6.71% (44 sources), as shown in Figure 3.

Table 1. Document type
(Source: analysed by the authors)

Document Type	Frequency	%(N = 656)
Article	415	63.26
Conference Paper	179	27.29
Book Chapter	41	6.25
Review	13	1.98
Book	7	1.07
Data Paper	1	0.15
Total	**656**	**100.00**

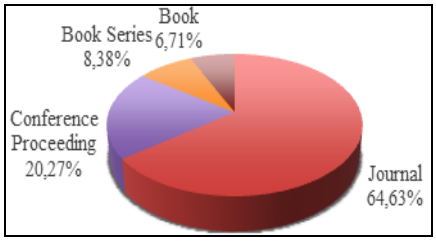

Figure 3. Document source type.
(Source: analysed by the authors)

Growth of publication

Figure 4 illustrates the number of papers examined from 2001 to 2021. Most publications were generated in 2020 (17.38%) and the least in 2002 (0.15%).

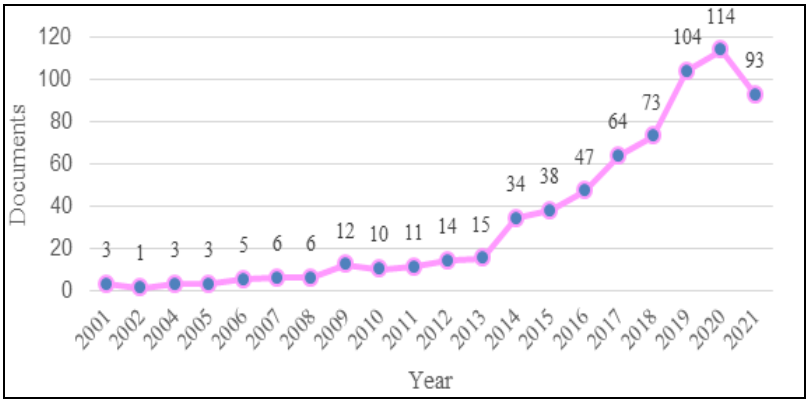

Figure 4. Documents by year (Source: analysed by the authors)

Table 2 Publications categorised by language
(Source: analysed by the authors)

Language	Frequency	%(N = 656)
English	644	98.17
Spanish	6	0.91
Chinese	3	0.46
German	2	0.30
French	1	0.15
Total	**656**	**100.00**

Languages of documents

English is the most frequently used language in publications, accounting for 98.17% of all publications (644 publications). Other languages, such as Spanish, account for 0.91% (six articles), Chinese, 0.46% (three publications), German, 0.30% (two publications) and French, 0.15% (one publication), as indicated in Table 2.

Subject area

The subject areas for the bibliometric investigation are listed in Table 3. Computer science had the highest frequency with 24.62% (304 articles), while neuroscience has the lowest frequency with 0.08% (one article).

Table 3. Subject areas (Source: analysed by the authors)

Subject Area	Frequency	% (N = 1235)
Computer science	304	24.62
Business, management and accounting	237	19.19
Social sciences	229	18.54
Engineering	125	10.12
Environmental science	64	5.18
Mathematics	45	3.64
Decision sciences	38	3.08
Energy	31	2.51
Economics, econometrics and finance	29	2.35
Earth and planetary sciences	24	1.94
Arts and humanities	22	1.78
Medicine	17	1.38
Physics and astronomy	17	1.38
Biochemistry, genetics and molecular biology	10	0.81
Materials science	10	0.81
Psychology	7	0.57
Chemical engineering	6	0.49
Multidisciplinary	5	0.40
Agricultural and biological sciences	4	0.32
Chemistry	4	0.32
Health professions	2	0.16
Immunology and microbiology	2	0.16
Pharmacology, toxicology and pharmaceutics	2	0.16
Neuroscience	1	0.08
Total	**1,235**	**100.00**

Most active source titles

"Sustainability Switzerland" heads the list of the top 20 most active source titles, as presented in Table 4 (5.37%; 23 documents), followed equally by "Journal of Hospitality and Tourism Technology" and "Lecture Notes in Computer Science, Subseries Lecture Notes in Artificial Intelligence" and "Lecture Notes in Bioinformatics" (4.44%; 19 documents each).

Keyword analysis

The fundamental approach that leads a researcher to an author document is keyword analysis. It provides information about the research, focusing on related themes (Lozano et al., 2019; Lozano et al., 2016). For example, 24% of the searches were on the keyword "Mobile", 18% on "Tourism" and 13% on "Technology". Unsurprisingly, the title words "Mobile", "Tourism" and "Technology" received the highest ratings, given that they were included in the search profile. "Information" and "Data" were ranked fourth and fifth, respectively, as indicated in Table 5.

Figure 5 depicts a network visualisation map to comprehend keyword analysis connected to mobile technologies used in wellness tourism destinations. VOSviewer was used to extract relevant research topics and tools from these keywords. By connecting the link of co-occurrence representation between the two terms, cluster differentiation was established based on the colour and size of the circles. The relative font sizes of the terms determine their respective popularity (Van Eck and Waltman, 2010). Tourism, augmented reality, smart tourism, mobile technology, smartphone, big data technology, social media, virtual reality, ICT, cultural heritage and mobile augmented reality are prominent keywords in wellness tourism destinations.

Table 4. Most active publications (Top 20) (Source: analysed by the authors)
* Percentage of total most active publications in the sample (N = 428)

Source Title	No. of Documents	%
Sustainability Switzerland	23	5.37
Journal of Hospitality and Tourism Technology	19	4.44
Lecture Notes in Computer Science including Subseries Lectures Notes in Artificial Intelligence and Lecture Notes in Bioinformatics	19	4.44
Information Technology and Tourism	12	2.80
Communications in Computer and Information Science	9	2.10
Journal of Physics Conference Series	9	2.10
Journal of Travel and Tourism Marketing	9	2.10
Tourism Management	9	2.10
Current Issues in Tourism	8	1.87
ACM International Conference Proceeding Series	7	1.64
Advances in Intelligent Systems and Computing	7	1.64
Annals of Tourism Research	6	1.40
International Journal of Contemporary Hospitality Management	6	1.40
Pervasive Health Pervasive Computing Technologies for Healthcare	6	1.40
Asia Pacific Journal of Tourism Research	5	1.17
IOP Conference Series Earth and Environmental Science	5	1.17
Journal of Destination Marketing and Management	5	1.17
Journal of Retailing and Consumer Services	5	1.17
Journal of Sustainable Tourism	5	1.17
Computers Environment and Urban Systems	4	0.93

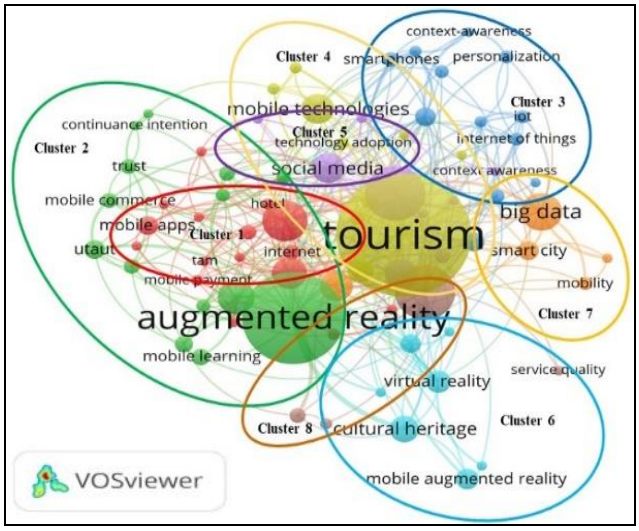

Figure 5. Author keywords dispersed in network visualisation map from 2001 to 2021. (Source: retrieved from VOSviewer)

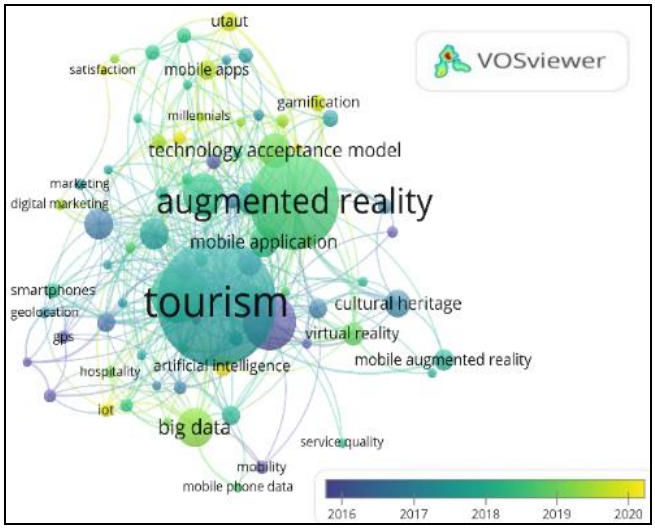

Figure 6. Author keywords dispersed in overlay visualisation map from 2001 to 2021. (Source: retrieved from VOSviewer)

The clustering process revealed eight colour-coded clusters. In addition, the zooming and exploring functionalities of VOSviewer allow for easier identification of gaps and potential streams of study, as follows: 1) The red cluster, which we call the technological breakthrough cluster, reveals gaps in themes such as smartphone, m-commerce, mobile apps, internet, mobile payment and machine learning. 2) The green cluster, which we call the mobile tourism adoption cluster, reveals gaps in themes such as augmented reality, technology acceptance model, mobile learning, gamification, perceived risk, perceived value, trust and continuance intention. 3) The navy cluster, which we call the tourist mobile application cluster, reveals gaps in themes such as smartphones, mobile, GPS, cloud computing, Internet of Things and artificial intelligence. 4) The yellow cluster, which we call the destination-marketing cluster, reveals gaps in themes such as tourism, mobile technologies, marketing, digital marketing and ICT. 5) The violet cluster, which we call the smart destination cluster, reveals gaps in themes such as mobile applications, smart tourism, social media, e-tourism, recommender system and sustainability. 6) The blue cluster, which we call the tourist experience cluster, reveals gaps in themes such as mobile augmented reality, virtual reality, innovation, cultural heritage, tourist experience and sustainable tourism. 7) The orange cluster, which we call the

Table 5 Top 20 keywords. (Source: analysed by the authors)
* Percentage of total keyword frequency in the sample (N = 13,725)

Keywords	Frequency	%	Keywords	Frequency	%
Mobile	2073	23.46	Technologies	516	5.84
Tourism	1602	18.13	Tourist	494	5.59
Technology	1121	12.69	Social	493	5.58
Information	1005	11.37	Applications	416	4.71
Data	759	8.59	Model	405	4.58
Study	645	7.30	Systems	397	4.49
Use	626	7.08	Tourists	392	4.44
Research	591	6.69	Application	388	4.39
Based	538	6.09	Experience	376	4.26
Travel	517	5.85	Analysis	371	4.20

data intelligence and analytics cluster, reveals gaps in themes such as big data, smart cities, mobility, mobile phone data and mobile applications. 8) Finally, the brown cluster, which we call the service innovation services' technology cluster, reveals gaps in themes such as mobile technology, service quality, location-based services and user experience.

Figure 6 depicts analytical overlay visualisation. While the size of the circles and labels indicates the number of occurrences of keywords, the thickness of the lines indicates the strength of the co-citation linkages. As the colour code explains, the data are reviewed against a timeline in this display. Consequently, the authors observed that some themes had been investigated thoroughly and quoted more often than others. For instance, themes of augmented reality, the technological acceptance model, big data, mobile applications and growth were more frequently investigated and quoted.

Furthermore, developing issues such as artificial intelligence, the Internet of Things, perceived risk, gamification, unified theory of acceptance and use of technology (UTAUT), technology acceptance model, satisfaction and mobile applications have recently piqued the interest of scientific researchers (yellow colour–the year 2020 as the average publishing date). Figure 7 illustrates the word analysis of the total keywords specified in the author documents.

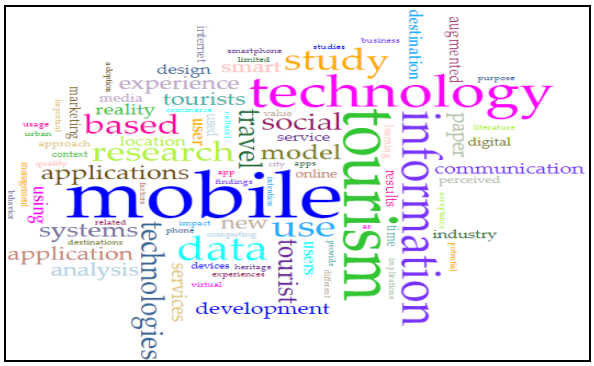

Figure 7. Analysis of the total keywords in author documents (Source: retrieved from Voyant Tools)

Table 6 Top 20 country contributions to publications (Source: analysed by the authors) * Percentage of total country contributions to publications in the sample (N = 894)

Country	Frequency	%	Country	Frequency	%
United States	86	9.62	Hong Kong	26	2.91
China	70	7.83	India	25	2.80
United Kingdom	70	7.83	Taiwan	25	2.80
Italy	40	4.47	Germany	23	2.57
Malaysia	38	4.25	Greece	17	1.90
Spain	38	4.25	France	14	1.57
South Korea	33	3.69	Netherlands	12	1.34
Portugal	31	3.47	Switzerland	12	1.34
Indonesia	30	3.36	Finland	11	1.23
Australia	26	2.91	Japan	11	1.23

Geographical distribution of publications

The geographical distribution of publications is used to create various countries' research productivity indicators for mobile technology in wellness tourism destinations. Table 6 shows the top 20 nations that contributed to publications and the volume of publications' productivity per country. With 86 articles (9.62%) from 894 publications, the United States is ranked first among the top 20 countries to publish information on mobile technology in wellness tourism destinations. China and the United Kingdom share second place with 70 publications each (7.83%). Moreover, Finland and Japan are tied in last place, with 11 publications each (1.23%). The authors also analysed the leading research institutions on mobile technology in wellness tourism destination studies. A total of 1,284 organisations were responsible for the retrieved articles. The 20 institutions' publication numbers have a relatively even distribution. However, mobile technology in wellness tourism

Table 7. Top 20 most influential institutions for studies on mobile technology in wellness tourism destinations, 2001–2021 (Source: developed by the authors) * Percentage of total institutions in the sample (N = 1,284)

Rank	Institutions (country)	No. of articles	No. of citations
1	The Hong Kong Polytechnic University (Hong Kong)	10	340
2	Bournemouth University (United Kingdom)	3	210
3	Universiti Tunku Abdul Rahman (Malaysia)	3	129
4	The Hebrew University of Jerusalem (Israel)	4	89
5	Lancaster University (United Kingdom)	4	75
6	University of Edinburgh (United Kingdom)	4	75
7	University of Southampton (United Kingdom)	4	75
8	School of Tourism, Hanyang University (South Korea)	3	64
9	University of Central Florida (United States)	2	55
10	University of Tartu (Estonia)	3	43
11	University of Piraeus (Greece)	2	37
12	Cardiff Metropolitan University (United Kingdom)	4	33
13	Macau University of Science and Technology (Macau)	2	32
14	Texas Tech University, (United States)	4	28
15	Victoria University (Australia)	2	25
16	University of Houston (United States)	2	23
17	University of Salford (United Kingdom)	2	20
18	Universidade Nova de Lisboa (Portugal)	2	9
19	The Polytechnic Institute of Bragança (Portugal)	2	7
20	Fudan University (China)	2	7

Table 8. Top 20 most productive authors. (Source: developed by the authors) * Percentage of total productive authors in the sample (N = 388)

Author Name	No. of Documents	%	Author Name	No. of Documents	%
Law, R.	10	2.58	Wang, D.	5	1.29
Dickinson, J. E.	8	2.06	Winstanley, C.	5	1.29
Cherrett, T.	6	1.55	Gretzel, U.	4	1.03
Davies, N.	6	1.55	Hassan, A.	4	1.03
Filimonau, V.	6	1.55	Marto, A.	4	1.03
Hibbert, J. F.	6	1.55	Ooi, K. B.	4	1.03
Norgate, S.	6	1.55	Pantano, E.	4	1.03
Speed, C.	6	1.55	Park, S.	4	1.03
Jung, T.	5	1.29	Tan, G. W. H.	4	1.03
Shoval, N.	5	1.29	Ahas, R.	3	0.77

destination papers that are published by an institution affiliated with the Hong Kong Polytechnic University have significantly more citations (340) than other institutions. Moreover, Hong Kong Polytechnic University has the highest number of affiliated research institutions that published 10 articles in this field, indicating that papers from this organisation are more influential. Statistical results show that six of the top 20 organisations come from the United Kingdom, indicating that the United Kingdom has the most significant impact on mobile technology in wellness tourism destination research.

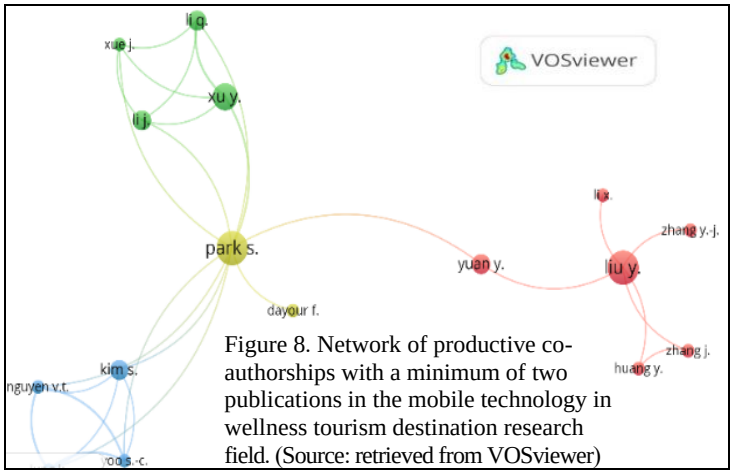

Figure 8. Network of productive co-authorships with a minimum of two publications in the mobile technology in wellness tourism destination research field. (Source: retrieved from VOSviewer)

Table 9 Citation metrics (Source: retrieved from Harzing's Publish or Perish software)

Metrics	Data
Publication years	2001–2021
Citation years	20 (2001–2021)
Papers	656
Citations	9802
Cites/year	490.10
Cites/paper	14.94
Authors/paper	3.11
h-index	52
g-index	80

Authorship patterns and collaboration

Table 8 lists the number of documents for each author. Approximately 388 documents on mobile technology in wellness tourism destinations are written by 160 authors and published by numerous organisations. Co-authorship networks show relationships between authors in a social environment (Melin and Persson, 1996). For example, only one of the first 10 most productive authors published 10 documents, while the rest published fewer than that. Furthermore, when considering the network of productive co-authorships in the field of mobile technology in wellness tourism destinations, Park and Liu are the most published authors whose co-authorship in this research field has resulted in at least two publications, as shown in Figure 8.

Citation analysis

Citation analysis is based on the patterns and frequency of citations connected from one text to another. Table 9 presents the citation metrics for 20 years (2001–2021) obtained using Harzing's Publish or Perish software.

Table 10 lists the top 10 most referenced publications and the most influential paper. Of the 656 documents analysed, "Ubiquitous Computing: Smart Devices, Environments and Interactions" by S. Poslad had the most citations (351). The article "Mobile recommender systems in tourism" by D. Gavalas, C. Konstantopoulos, K. Mastakas and G. Pantziou had the second most citations (291), followed by D. Buhalis and M. Foerste's essay "SoCoMo marketing for travel and tourism: Empowering co-creation of value", which was mentioned 204 times.

DISCUSSION

This section summarises our current investigation and the conclusions of the seven research questions specified in the introduction.

(RQ1) What is the current publication trend regarding mobile technology in wellness tourism destinations?

Through a bibliometric analysis of the Scopus database, this study analysed the research trends in mobile technology in wellness tourism destinations from January 2001 to October 2021. The Scopus database was used to retrieve 656 papers on mobile technology in wellness tourism destinations, which were analysed using VOSviewer and Harzing's Publish or Perish software. Articles were found to be the most common document type, accounting for 415 documents (63.26%). All 656 document sources revealed that journals were the preferred publication source type, containing 64.63% (424 sources) of all documents created. English was the most frequently used language for publishing, accounting for 98.17% of all publications, evidently to assist readers and other document scholars. Most studies on mobile technology in wellness tourism destinations were from the subject area of computer science (304; 24.62%). Research on mobile technology in wellness tourism destinations is directly related to the field of computer science. In particular, mobile technology that encompasses electronic or communication devices, which can be conveniently used in various places, such as notebook/netbook, personal digital assistant, tablet, cellphone, smartphone and mobile internet device, uses innovations in computer science for its development. This may be why most studies on mobile technology in wellness tourism destinations belonged to the field of computer science. Therefore, if researchers studying mobile technology in wellness tourism destinations wish to access a large amount of quantitatively scoped body of knowledge, they can directly search for data from the Scopus database and define subject areas in computer science. These subject areas will lead to direct knowledge of mobile technology in wellness tourism destinations and diverse works. Further, "Sustainability Switzerland", "Journal of Hospitality and Tourism Technology", "Lecture Notes in Computer Science", "Subseries Lecture Notes in Artificial Intelligence" and "Lecture Notes in Bioinformatics" were the top five active source titles with 61 documents, equivalent to 14.25%. "Sustainability Switzerland" published the most papers on mobile technology in wellness tourism destinations. It is an international and cross-disciplinary scientific, open-access journal of human, environmental, cultural, economic and social sustainability that serves as a state-of-the-art venue for sustainability and sustainable development

research. It publishes reviews, regular research papers, communications and brief remarks, with no length restrictions on the works. It also includes sections on tourism, culture and heritage. Therefore, it publishes the most research on mobile technology in wellness tourism destinations compared to travel and computer journals.

Table 10. Top 20 highly cited articles. (Source: retrieved from Harzing's Publish or Perish software)

Ref.	Author(s)	Title	Year	Cites	Cites per Year
623	S. Poslad	"Ubiquitous Computing: Smart Devices, Environments and Interactions"	2009	351	29.25
543	D. Gavalas, C. Konstantopoulos, K. Mastakas, G. Pantziou	"Mobile recommender systems in tourism"	2014	291	41.57
502	D. Buhalis, M. Foerste	"SoCoMo marketing for travel and tourism: Empowering co-creation of value"	2015	204	34.00
505	B. Neuhofer, D. Buhalis, A. Ladkin	"Smart technologies for personalised experiences: a case study in the hospitality domain"	2015	190	31.67
653	J. Baus, A. Krüger, W. Wahlster	"A resource-adaptive mobile navigation system"	2002	170	8.95
567	K. Hannam, G. Butler, C. M. Paris	"Developments and key issues in tourism mobilities"	2014	159	22.71
450	A.B. Ozturk, A. Bilgihan, K. Nusair, F. Okumus	"What keeps the mobile hotel booking users loyal? Investigating the roles of self-efficacy, compatibility, perceived ease of use and perceived convenience"	2016	157	31.40
656	S. Poslad, H. Laamanen, R. Malaka, A. Nick, P. Buckle, A. Zipf	"CRUMPET: Creation of user-friendly mobile services personalised for tourism"	2001	155	7.75
509	N.S. Safa, M. Sookhak, R. Von Solms, S. Furnell, N. A. Ghani, T. Herawan	"Information security conscious care behaviour formation in organisations"	2015	147	24.50
354	M.C. Tom Dieck, T. Jung	"A theoretical model of mobile augmented reality acceptance in urban heritage tourism"	2018	141	47.00
634	D.Y. Kim, J. Park, A. M. Morrison	"A model of traveller acceptance of mobile technology"	2008	139	10.69
516	L.O. Colombo-Mendoza, R. Valencia-García, A. Rodríguez-González, G. Alor-Hernández, J.J. Samper-Zapater	"RecomMetz: A context-aware knowledge-based mobile recommender system for movie showtimes"	2015	136	22.67
621	M. Haldrup, J. Larsen	"Tourism, performance and the everyday: Consuming the orient"	2009	134	11.17
654	J. Larsen	"Tourism mobilities and the travel glance: Experiences of being on the move"	2001	125	6.25
346	Z. Wang, S. Y. He, Y. Leung	"Applying mobile phone data to travel behaviour research: A literature review"	2018	119	39.67
452	N. Shoval, R. Ahas	"The use of tracking technologies in tourism research: the first decade"	2016	118	23.60
319	A. A. Alalwan, A. M. Baabdullah, N.P. Rana, K. Tamilmani, Y. K. Dwivedi	"Examining adoption of mobile internet in Saudi Arabia: Extending TAM with perceived enjoyment, innovativeness and trust"	2018	116	38.67
641	J. Raper, G. Gartner, H. Karimi, C. Rizos	"A critical evaluation of location based services and their potential"	2007	107	7.64
410	D. C. Ukpabi, H. Karjaluoto	"Consumers' acceptance of information and communications technology in tourism: A review"	2017	105	26.25
499	C. Lamsfus, D. Wang, A. Alzua-Sorzabal, Z. Xiang	"Going Mobile: Defining Context for On-the-Go Travelers"	2015	104	17.33

(R Q2*)* Which are the most productive years of research on mobile technology in wellness tourism destinations?

Our findings indicate an alternating increase and decrease in the number of research papers published between 2001 and 2004. A steady increase was observed from 2014 to 2020, with the year 2020 recording the most publications: 114 papers, accounting for 17.38% of all publications. However, because of the effects of the COVID-19 pandemic, the number of publications declined in 2021. These trends indicate that research studies on mobile technology in wellness tourism destinations started to gain more attention from 2014 and increased by leaps and bounds between 2019 and 2020. This is a result of the volatile situation of the global economy due to the rapid spread of COVID-19, causing a major global recession, which is likely to have a significant international impact on the rate of spending and the spread of global money on activities. The pandemic has also abruptly reduced and limited travel outside a country, significantly impacting the tourism industry. As COVID-19 refuses to relent, it is apparent that tourism must rely heavily on technical solutions. The ongoing crisis necessitates institutional innovation to envision durable, agile and adaptable strategic objectives and operations. Smart technologies, including mobile technology, are transforming the tourism and hospitality industries throughout the pandemic and beyond, opening the way for new business models, consumer touchpoints and value co-creation opportunities. Therefore, 2020 has engendered multiple studies and applications of mobile technology in wellness tourism destinations for facilitating human experiences, supporting critical business processes and enabling important governance aspects.

(R Q3) Who are the most productive and influential authors concerning mobile technology in wellness tourism destinations?

Our findings highlight the works of some of the most prolific and influential authors in mobile technology in wellness tourism destinations. Law, R. was identified as the most productive author in mobile technology in wellness tourism destination research, with 10 documents (2.58%) published between 2015 to 2021. All his published articles pertain to mobile-based technology use in hospitality and tourism. These findings are in line with previous bibliometric research conducted by Chen et al. (2020), who found that Law, R. is one of the top three authors with the largest number of publications on mobile technology in the tourism research field. This points to Law, R. as an expert in mobile technology in wellness tourism destinations whose work can be referenced by other academics to increase the chances of acceptance and publication of their

articles. Furthermore, the network of productive co-authorships in the target research field revealed Park and Liu as the authors with the most co-authorship on mobile technology in wellness tourism destinations. These findings show that researchers who build relationships and collaborate have a greater chance of getting published than those who do not.

(RQ4) What is the most influential work in this field of study?

Our findings reveal that the article titled "Ubiquitous Computing: Smart Devices, Environments and Interactions" by S. Poslad is the most cited research work in this field with 351 citations within the range of 388 documents by 160 authors. Therefore, if relevant personnel in academia and industry want to understand the research on mobile technology in wellness tourism destinations, they can start with the above author and their article.

(RQ5) Which are the most productive countries and influential institutions regarding the research on mobile technology in wellness tourism destinations?

The United States was ranked first among the top 20 countries to publish research on mobile technology in wellness tourism destinations, with 86 publications. This finding concurs with that of Chen et al. (2020), who found the United States of America, the People's Republic of China (including Hong Kong and Macau) and England to be the top three countries regarding the number of publications in the field of mobile technology in wellness tourism destinations. This indicates the quantitative scope and capacity of research on mobile technology in US wellness tourism destinations. The QS World University Rankings 2022 ranks the Massachusetts Institute of Technology as first in the world and Stanford University as third, indicating the presence of exceptional technology institutions in the United States. In addition, the World University Rankings 2022 by Times Higher Education ranks the US California Institute of Technology and Stanford University as second and fourth in the world, respectively. Both are outstanding educational institutions with a reputation for technology that is recognised worldwide. This makes the United States the country with the highest capacity for research in mobile technology in wellness tourism destinations compared to other countries around the world. Additionally, the Hong Kong Polytechnic University was found to be the most influential research institution that published eight articles with 221 citations in this field. The high impact of published articles by the Hong Kong Polytechnic University is because international publishers and high cite-score journals published most of these articles. For example, the Journal of Travel Research, International Journal of Contemporary Hospitality Management and Journal of Hospitality Marketing and Management were ranked in Quartile 1, with h-indices higher than 50 and 10 as per the Scimago Journal & Country Rank and CiteScore Rank in 2020, respectively. This indicates the Hong Kong Polytechnic University's credibility and acceptance over other institutions interested in studying mobile technology in wellness tourism destinations. Therefore, research citations from these institutions have a greater chance of gaining credibility and acceptance of research publications in mobile technology in wellness tourism destinations than those from other institutions.

(RQ6) What is the periodic progression of mobile technology in wellness tourism destination research and the intellectual structure of research in this area?

To address this research question, we constructed a network map using bibliographic coupling and keyword analysis based on bibliographic data analysed in VOSviewer. It revealed exciting patterns and themes in the field of mobile technology in wellness tourism destinations and the research hotspots comprised eight clusters: 1) technological breakthroughs, 2) mobile tourism adoption, 3) tourist mobile applications, 4) destination marketing, 5) smart destinations, 6) tourist experiences, 7) data intelligence and analytics and 8) service innovations. We found that keywords in the same cluster shared a similar hotspot. Cluster 1 contained keywords related to technology use in wellness tourism destinations, while most of the keywords in Cluster 2 were from technology acceptance studies, namely mobile tourism adoption. For Cluster 3, the keywords were mainly the various types of mobile computing applied to wellness tourism destinations. Most of the keywords in Cluster 4 were regarding the mobile devices used to communicate and distribute products or services to consumers, that is, destination marketing. The keywords in Cluster 5, referred to as the smart destination cluster, were mainly related to the electronics system used to achieve destination sustainability. The keywords in Cluster 6 were mainly concerned with the technology and innovation used to enhance inclusive experiences in wellness tourism destinations, namely, tourist experiences, whereas those in Cluster 7 were mainly the techniques or methods used to analyze data and tourist behaviour in wellness tourism destinations, namely, data intelligence and analytics. Finally, the keywords in Cluster 8 were mainly related to the technology used to improve service quality and satisfaction of tourists in wellness tourism destinations, namely, service innovations. According to these findings, the keyword trends of the emerging research topics within mobile technology in wellness tourism destination research shifted to exponential technology (e.g., Internet of Things, virtual reality and machine learning) used to enhance wellness tourism experiences. Moreover, the keywords dispersed in the network visualisation map show artificial intelligence, Internet of Things, perceived risk, gamification, UTAUT, technology acceptance model, satisfaction and mobile applications. These findings indicate potential streams and themes for further study.

(RQ7) What are the research gaps and future research directions in the use of mobile technology in wellness tourism destinations?

This study consolidated research on the use of mobile technology in wellness tourism destinations over the last 20 years. Five research gaps and directions for future research were identified using qualitative analysis. These included cross-cultural patterns in mobile technology usage to determine wellness tourism destinations, enhancing wellness tourism experiences from an exponential technology perspective, using artificial intelligence for wellness tourism, convergence of the Internet of Things in wellness tourism destinations and gamification in the context of wellness tourism destinations.

Cross-cultural patterns in mobile technology usage in wellness tourism destinations

Modern mobile technology is becoming increasingly comparable across the world but cultural variations across nations can influence mobile technology usage. Few cross-cultural studies have been published concerning mobile technology usage in wellness tourism destination research. Future studies should examine the influence of cross-cultural backgrounds of mobile technology users on wellness tourism destination visit intention or wellness experience.

Enhancing wellness tourism experiences from an exponential technology perspective

Exponential technologies enable change to occur at a rapid pace. Cost reductions and significant developments in computer power, bandwidth and data storage are transforming the world. Future studies should analyse the influence of exponential technologies such as the Internet of Things, virtual reality and machine learning on enhancing wellness tourism experiences.

Using artificial intelligence for wellness tourism. Tourism is heavily reliant on technical solutions to combat the ongoing COVID-19 pandemic. This crisis necessitates institutional innovation to design durable, agile and adaptable strategic initiatives and operations (Gretzel, 2021). Intelligent technologies are now paving the way for new business models, consumer touchpoints and value co-creation prospects in travel, hospitality and leisure that improve human interactions, assist vital corporate operations and enable critical governance features. Future studies should classify tourist photos and explore wellness tourism destination images using a deep learning model. Sentiment analysis could also be employed to measure quality and build sustainability in wellness tourism destinations, using artificial intelligence to design collaborative strategies and build wellness tourist profiles through neural networks. Convergence of the Internet of Things in wellness tourism destinations.

Disruptive technologies such as the Internet of Things play an essential role in understanding and controlling the wellness tourism business, particularly how supply and demand are related. Future research studies should examine a human-guided machine learning approach for 5G innovative wellness tourism destination. Radio frequency identification could be used with an application of the Internet of Things for shopping and wellness tourism for blind people to improve the tourist experience.

Gamification in the context of wellness tourism destinations.Gamification is gaining popularity in various industries including business, education and healthcare. Game mechanisms are employed in non-traditional gaming contexts to significantly raise brand recognition and increase customer engagement. Future research studies should identify the gamified environment as a strategy to improve tourist behaviour and analyse the effect of gamification adoption intention on brand awareness and loyalty in wellness tourism destinations. Enhancing the smart wellness tourism experience for people with visual impairments could also be assessed using a gamified application approach through needs analysis.

CONCLUSIONS

Many authors have made significant contributions to the development of this topic, which is frequently regarded as uncertain and immature, since the recent commencement of studies on mobile technology in wellness tourism destinations**.** Regardless of this viewpoint, many methodologies have been used to interpret data from diverse perspectives**.** This study presents a visualised bibliometric study of mobile technology research trends in wellness tourism destinations**.** First, we created a series of scientific maps based on annual publications, countries, institutions, author productivity and source journals on mobile technology in wellness tourism destination research**.** Second, a 20-year bibliometric study of the literature on mobile technology in wellness tourism destinations published in the Scopus database between January 2001 to October 2021 was conducted for this purpose**.** Third, mobile technology**'**s knowledge bases and hotspots in wellness tourism destinations were discussed using document co-citation analysis and keyword co-occurrence analysis**.** The key conclusions are as follows**.**

(1**)** Study findings may be useful for researchers working on mobile technology in wellness tourism destination studies to select relevant publishing journals and encourage partnerships among authors and researchers**.** Furthermore, the retrieved high-frequency keywords will assist researchers in identifying hotspots and understanding research dynamics and trends**; (**2**)** The steady increase in mobile technology articles linked with wellness tourism destinations shows an active research field, particularly after 2018**.** According to the research distribution analysis, mobile technology has played a part in wellness tourism destination studies in the United States, China and the United Kingdom**.** In particular, the United States is the most productive country regarding relevant publications**.** There is an even distribution of publications on mobile technology in wellness tourism destinations among research institutions; however, articles from the Hong Kong Polytechnic University, Hong Kong had far more citations than those from other higher education institutions**. "**Sustainability Switzerland**"** has the greatest influence among all the academic journals publishing on mobile technology'; **(**3**)** by constructing a co-citation network of cited references, the knowledge bases of mobile technology in wellness tourism destination studies were retrieved**.** Classical publications mostly address **"**ubiquitous computing**"**, **"**mobile recommender systems**"**, **"**social context mobile marketing**"**, **"**smart technologies for personalised experiences**"**, **"**mobile navigation systems**"** and **"**developments and key issues in tourist mobilities**"**; **(**4**)** the key study ideas covered were displayed within a network context using visualisation tools**.** Tourism, augmented reality, smart tourism, mobile technology, smartphones, big data, social media, virtual reality and ICT expansion have received more attention and citations than others**.** However, the number of links and overall link strength across network items revealed study gaps and future trends; **(**5**)** the co-occurrence of keywords in this analysis highlighted rising research themes in mobile technology in wellness tourism destination research**.** This study indicates eight research clusters**:** technological breakthroughs, mobile tourism adoption, tourist mobile applications, destination marketing, smart destinations, tourist experience, data intelligence and analytics and service innovations**.** This study identified five research gaps and future research directions as cross**-**cultural patterns in mobile technology usage in wellness tourism destinations, enhancing wellness tourism experiences from an exponential technology perspective, using artificial intelligence for wellness tourism, convergence of the Internet of Things in wellness tourism destinations and gamification in the context of wellness tourism destination**.**

Research Implications

The current study has implications for both scholars and practitioners**.** Bibliometric analysis addresses key questions

that researchers should consider while researching mobile technology in wellness tourism destinations from an academic standpoint. This study assists practitioners in wellness tourism to understand how to develop and incorporate mobile technology in their responses to tourist behaviour concerns and global wellness tourism trends. The authors recognize the points highlighted in the literature review as areas that need more detailed investigations or hotspots in future studies based on the gaps and trends revealed through bibliometric research. For example, the development of mobile applications for wellness tourism destination assessment using big data analytics technology, wellness tourist experience-based mobile application design and a wellness destination mobile tourist guide using an intelligent wireless system. Nonetheless, the peculiarity of the times we live in, including a pandemic that has had a significant impact on the tourism industry, makes this research a welcome knowledge-based map of mobile technology in wellness tourism destinations and a backdrop for future comparable endeavors. Furthermore, although the database includes articles from January 2001 to October 2021, the authors discovered an unanticipated absence of research on the interaction between COVID-19, mobile technology and wellness tourism destinations. Consequently, there are further research possibilities to explore this topic.

Limitations and future research

This bibliometric study, like any other, has some limitations. First, this study only examined Scopus-indexed papers, but research on mobile technology in wellness tourism destinations is projected to be far greater. Other research databases, such as Web of Science and Google Scholar, can be integrated in the future to obtain more accurate findings. Second, we only analysed research publications published between January 2001 and October 2021, even though studies are released daily. Third, despite cleansing our database, it is still possible that irrelevant papers were included in this study. Another disadvantage of the study is that network visualisation may assign qualitative importance or insignificance to specific components due to time-related bias. Corroboration using overlaying visualisation, which may accommodate the time-frame requirement, is advised to address such inaccuracies. Further investigations may consider extending the analysis by conducting in-depth research that tracks and maps the research status and development trends of mobile technology in wellness tourism destinations using a topic modeling based bibliometric method and subsequently consider applying text-mining approaches to complement well-established mobile technology research methodologies. In addition, although bibliometric analysis is essentially effective in terms of quickly dealing with large-scale literature data, there is a lack of in-depth investigation, compared with manual techniques such as coding and meta-analysis. Therefore, it is encouraged to further survey representative papers, from a qualitative perspective, to provide more profound and fine-grained understanding of mobile technology in wellness tourism destinations. Moreover, our study focus was discipline specialism, however, future studies could be implemented in the context of the discipline (and in comparison to other disciplines) and tracking knowledge evolution and flow within and beyond the discipline boundaries. Finally, this study analysed data using VOSviewer. Future studies may employ different software, such as CiteSpace II and Bibexcel.

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TOURIST SATISFACTION DURING THE PANDEMIC: AN ANALYSIS OF THE EFFECTS OF MEASURES TO PREVENT COVID-19 IN A MEDITERRANEAN COASTAL DESTINATION

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Abstract: The impact of the COVID-19 on tourist satisfaction is a particular relevant issue, due to the role that elements such as the prevention measures implemented at the destination might play. For this reason, this article examines tourist satisfaction during the peak tourist season of 2020 in a mature coastal destination in Catalonia in relation to safety and prevention measures imposed due to the COVID-19 pandemic. We use explanatory factor analysis and partial least squares path modelling for comparing the determinants of tourist satisfaction prior and during the pandemic based on surveys conducted in 2019 (N = 1556) and 2020 (N = 2220). The results suggest that the determinants of overall tourist satisfaction in 2019 remained significant in 2020. Moreover, although tourists especially appreciated feeling safe in 2020, our results suggest that such a perception was unrelated to measures to prevent COVID-19. The paper raises concerns towards the management of situations such as the pandemic in tourist destinations, as a proper balance must be found between the need of making visitors feel safe, and avoiding measures that can be felt as invasive or annoying, hampering the tourist experience.

Key words: tourist satisfaction, COVID-19, prevention measures, safety perception, coastal destination

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INTRODUCTION

Tourism demand is highly sensitive to disruptions such as political and economic instability (Eid et al., 2019), terrorism (Araña and Leon, 2008), crime (Yüksel and Yüksel, 2007) and adverse climatic events (Giddy et al., 2017). In fact, risk is an intrinsic component of the tourist experience, one that has to be taken into consideration when analysing the determinants of tourist satisfaction (Xie et al., 2020). In that context, tourists' fear and discomfort can affect their experience by way of the negative emotions attached to them (Alegre and Garau, 2010). At the same time, actions implemented to mitigate the effects of those disruptions can also significantly impact tourist satisfaction. That impact can be positive, if the actions are perceived by tourists to relieve their perception of risk (Payam, 2016), or negative, if they are perceived as too forceful or ineffective. Though undesirable, many tourist destinations are occasionally affected by disturbances such as those mentioned. Along with those risks, public health crises are another sort of adverse event that can seriously hamper the tourist experience, as demonstrated by the global spread of COVID-19 (Nilashi et al., 2021).

The COVID-19 pandemic massively impacted tourist activity around the world in 2020, and the tourism sector remains in recovery to this day. In 2020, the global tourism industry shrunk by more than 80%, and, in the first quarter of that year, tourist arrivals dropped by more than 20% (UNWTO, 2020). The pandemic initially forced many nations to close their borders, which prevented domestic and international travel as well as compelled many hospitality-related establishments such as restaurants, bars, and hotels to shut down, either temporarily or forever. In time, constraints such as lockdowns and social distancing measures began altering the environment of the tourism industry in every aspect (Gössling et al., 2021).

Since then, tourism activities have been forced to live with the restrictions imposed to slow the spread of COVID-19 infection, along with individuals' fear of contracting the illness. Within the particular context of the pandemic, not only have tourist arrivals plummeted, but both the profile of tourists (Arbulú et al., 2021) and their behaviour during stays (Sánchez-Perez et al., 2021) have changed, sometimes dramatically. Beyond that, a wide range of emerging evidence has captured the plummeting of tourism travel and, in international travel in particular, (Haryanto, 2020), the existence of uneven effects depending on the sort of destination (Duro et al., 2021), the extent to which the pandemic has affected tourists' choices, the profiles of tourists who visit certain destinations (Cuomo et al., 2022) and the vaccination-associated

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effects on the recovery of tourism demand (Williams et al., 2022). Tourist satisfaction is one of the most important dimensions in the tourist sector. According to Jang and Feng (2007), it is also one of the most important variables to consider when analysing tourist behaviour, largely because it affects destination selection, product and service consumption and the decision to return. For those reasons, tourist satisfaction has attracted the attention of researchers, albeit to a somewhat limited extent. In our case, analysing tourist satisfaction during the peak tourist season of 2020 in a mature coastal destination characterised by mass tourism was expected to allow us to disentangle the role of safety and prevention measures implemented as determinants of tourist satisfaction. Thus, the aim of our study was twofold.

On the one hand, we sought to examine whether the different components of overall tourist satisfaction changed their effect as a result of the pandemic and, more particularly, whether the role of safety gained ground in that context. On the other hand, we also sought to analyse whether measures to prevent COVID-19 also played a role in the determination of tourist satisfaction. The prevention measures at the time of the survey embraced the compulsory use of face masks outdoors as well as indoors and continuous hand hygiene, restrictions on the number of people who could simultaneously access certain facilities and the time-limited use or closure of certain activities enjoyed by tourists.

BACKGROUND

Despite the risk of contracting COVID-19, people have not stopped travelling during the pandemic (Roman et al., 2020). Although their top reasons to travel regardless of the pandemic have been to relax and to engage in leisure activities, their selection of destinations has played a vital role in their decisions about whether to travel. Consistent with that idea, some authors have signalled the emotional benefits of tourism for recovering from the stress and anxiety caused by the pandemic (Buckley and Westaway, 2020; Buckley, 2022). No matter their basis, tourists' perceptions of the risk of COVID-19 came to the fore in 2020 as one the most important factors in their decision-making (Huang et al., 2020, 2021), and it also shaped their behaviour at the destination (Shin et al., 2022). In that context, there are few studies that have assessed the impact of the pandemic on tourist satisfaction, and even fewer that compared the situation before and after the pandemic. Amongst the ones that have been conducted, they have tended to focused on just particular sectors of the tourism industry. In fact, attention has most often been paid to certain types of accommodations. For instance, Hong et al. (2020) and Cai et al. (2020) analysed tourist satisfaction with Chinese B&B, Voon et al. (2022) with homestay accommodations in Malaysia and Cai et al. (2020) with ryokans in Japan, while Srivastava and Kumar (2021), Song et al. (2022), Sun et al. (2022), Yu et al. (2022) and Nilashi et al. (2022) have all investigated changes for hotel customers caused by COVID-19.

According to Srivastava and Kumar (2021) there are three elements through which COVID-19 can modify the usual dynamics that define tourist satisfaction: (1) the negative health consequences of the disease, (2) the guidelines and advisories issued by health agencies, and (3) wide media coverage of the pandemic. A concept able to explain how COVID-19 has negatively altered tourist satisfaction since the pandemic broke out is *psychological risk*, which refers to the probability that tourists' travel and tourism experiences may adversely impact their self-image and satisfaction (Adam, 2015). Within that framework, the spread of the infection threatened not only people's physical health but also their mental health, especially in terms of emotions and cognition, both of which are major sources of tourist satisfaction.

The predominancy of works based on hotel data is due to the possibility to explore the frequency of words used in the reviews provided by their customers. This allows researchers to explore the relationship of these words with the overall satisfaction level reported. On top of that, this research strategy also enables researchers to compare satisfaction before and after the outbreak of the SARS-CoV-2. For this reason, next, the most outstanding studies will be discussed, paying attention to the data and the methods used, as the source of data used highly conditions the empirical approach. The contribution of Srivastava and Kumar (2021) must be highlighted as it was the first to compare the factors that accounted for overall satisfaction of satisfied and unsatisfied customers of the hotel industry before and during the pandemic. The authors analysed the prevalence of a diversity of attributes within customers' reviews of hotels from the United States, which were collected from TripAdvisor. The overnight stays took place from December 2019 to June 2020.

They found that there were attributes such as "COVID precautions" and "blue spaces" (oceans, lakes, rivers, and swimming pools), that had increased their prevalence in the satisfied and unsatisfied customers' comments alike. In the case of COVID prevalence, it increased from 0% (prior-to-the pandemic) to 6% of all reviews (during it), and it was found that their implementation was critical to enhance overall satisfaction. In contrast, other elements such as "breakfast," "property impression," and "convenient location" decreased their presence for satisfied and dissatisfied guests. Song et al. (2022) also explored customers' reviews, in this case from the region of Chengdu, a top tourist destination in China. Reviews were related to the period from February to May 2020, and the same months of 2019. The results of their multiple regression models made apparent that while service, room, cleanness, location, value and sentiment were significant determinants of overall satisfaction, service was no longer significant in the data drawn from 2020.

Sun et al. (2022) also used data drawn from customers' reviews to conclude that they gave more generous ratings during the pandemic, whereas hotel prevention and control measures to reduce health risks after the COVID-19 were central for improving overall satisfaction. Yu et al. (2022) collected worldwide TripAdvisor reviews from February to April 2020, and by means of a method-design that combined both quantitative and qualitative techniques, concluded that hotel customers' positive affect substantially impacted their online ratings, whereas negative affect and cognitive effort were negatively associated to customer satisfaction. Nilashi et al. (2022) also departing from TripAdvisor reviews developed a much more complex method-design which involved Latent Dirichlet Allocation (LDA) for textual data analysis, k-means for data segmentation, dimensionality reduction approach for the imputation of the missing values, and fuzzy rule-based for the prediction of satisfaction level. Their results signalled not only that service was critical to maintain customers'

satisfaction within the context of the health crisis, but also that new dimensions of "services" have arose. In this line, tourists would be expecting to get more services related to the prevention of contracting the infection.

Hong et al. (2020) applied IPA (Importance performance analysis) on data drawn from an on-line survey launched from the 1st of March to the 15th of the same month in 2020. This work used paired differences to assess customers' valuation of a list of 30 different attributes of B&B located in Zhejiang (China) before the advent of the pandemic, and their perceived importance during it. The conclusion was that the pair differences were in most of the cases significant, and consequently, there was a discordance between the aspects that were regarded as important before the spread of the virus, and afterwards. They concluded that the COVID-19 increased the concern for health aspects of B&B establishments: scattered room layouts, split air conditioning systems, availability of products for cleaning and disinfection, and natural ventilation.

These were attributes that were found be of high priority or priority. Cai et al. (2020) replicated the methodology put forward by Hong et al. (2020) (IPA and paired differences, and the same list items to be valued by customers), to analyse the impact on the valuation of customers of Japanese guesthouses, minshuku, and ryokans. Likewise, they detected differences between the valuation of the accommodation attributes before the pandemic and their importance after the breakout of the illness, and were able to ascertain that natural ventilation and materials to maintain safe interior indoor air quality were elements of high priority in the new context. Cai et al. (2021) used confirmatory factor analysis and structural equation modelling on data collected by means of an on-line survey conducted in Wenjuanxing (China) during the first national holiday after COVID-19 in 2020. The results of the model signalled that after the pandemic design-based strategies and design environmental value have a significant main impact on well-being perception, tourist satisfaction, and tourist loyalty. The same methodology, confirmatory factor analysis and structural equation modelling, was applied by Voon et al. (2022) on data drawn from a survey to tourists who stayed overnight in Malaysian homestay accommodations.

Eight latent factors, departing from an initial set of 32 items, arouse: culture, guiding service, food and beverage, environment, cleanliness, accommodation, services, and accessibility). The authors concluded that prevention practices in the context of COVID-19 may appear as disruptive for tourists. They can be appreciated by them if they are effectively explained and reminded in a friendly manner, nevertheless.

Beyond the analyses of accommodation within the pandemic, in which safety has been pointed out as a key element to foster customer satisfaction, and given that before the COVID-19 research had pinpointed that tourists' perceptions of safety and security impact their choice of destinations and satisfaction (Milman and Pizam, 1995), the effect of two elements on overall tourist satisfaction should be taken seriously into account: perceived safety and prevention measures at the destination to deter the spread of infection. Altogether, evidence is scarce. It is consistent nonetheless with the results previously summarized related to accommodation. Hence, concerning perceived safety, Mwesiumo and Abdalla (2022) found that, for tourists in Tanzania, epistemic value, value for money and perceived safety were significantly associated with overall satisfaction. Meanwhile, Ma et al. (2022) concluded that air passengers with positive perceptions of the functionality of facilities, the accessibility of their layout and the cleanliness of airports were more satisfied than their peers with negative perceptions and were relatively prone to report wanting to take more flights in the future. In other work, using a survey launched in June 2020, Lu and Atadil (2021) found that U.S. citizens were reluctant to travel to China largely due to perceptions that the country's destinations were neither safe nor secure. Beyond that, Ababneh et al. (2022) found that undergraduate university students' level of satisfaction with restaurant services could be predicted by service quality, perceived value, COVID-19-related safety measures in place and food quality. Last, Zaman et al. (2021) have highlighted that destinations with the reputation of being COVID-19-free by means of vaccination programmes were more likely than others to attract tourists and to begin seeing pre-pandemic figures of tourism demand.

Addressing how measures to prevent COVID-19 have impacted tourist satisfaction and destination image, Humagain and Singleton (2021) identified the positive impact of satisfaction with anti-COVID-19 practices at destinations with outdoor recreation trips on tourists' perceived value, overall satisfaction, intention to revisit and intention to recommend. More recently, Huete-Alcocer and Hernández-Rojas (2022) detected the positive effect of COVID-19 safety measures on tourist satisfaction with restaurants in Córdoba, a World Heritage Site in Spain. In other work, Shum and Ghosh (2022) highlighted that restaurant employees' prosocial breaking of public health safety protocols in place to combat COVID-19 can have a substantial negative impact on the establishments' performance ratings. Jiménez-Medina et al. (2022), for their part, concluded that hospitality establishments' adoption of anti-COVID-19 measures positively influences tourist satisfaction and tourists' intention to return. Similar results were obtained by Szentesi et al. (2021), with data drawn from a survey of both customers and employees of hotels in Romania. Added to that, Park et al. (2021) concluded that residents' attitudes towards tourism activity during the pandemic can be improved if anti-COVID-19 measures were perceived to have been implemented. Vich et al. (2022) reached a similar conclusion in the context of public transport services that frequently carry tourists.

For our work, Davras and Durgun's (2022) contribution is especially interesting, for they assessed how different measures to prevent COVID-19 had been rated by TripAdvisor users between June and August 2020. Their results revealed that whereas measures taken by hospitality establishments such as disinfection and hygiene were well-rated, the opposite was observed for social distancing requirements and the mandatory use of masks. Those results suggest that whereas the former did not seem inconvenient for customers, the latter did, even though such practices are more effective at preventing the spread of contagion. Likewise, as reported by Constant et al. (2022), not all anti-COVID-19 measures have received the same degree of acceptance. In that vein, the temporarily closure of certain services and spaces receives the lower approval. The lesson learnt is that measures to prevent COVID-19 can be perceived as being annoying and hamper tourists' experiences. That reality might be a consequence primarily of pandemic fatigue (Boylan et al., 2021), which makes individuals more prone to break socially accepted rules and conventions observed to prevent the spread of contagion (Drody et al., 2022).

With regard to the works that have been previously commented, to the best of our knowledge this is the first attempt to assess to what extent the determination of overall tourist satisfaction has been affected by the outbreak of the pandemic, by means of an analysis involving both the comparison between prior-to-the pandemic data and data collected during the pandemic, and at the same time, the use of data, collected by means of interviews, that gather information on satisfaction of all tourists at a destination and their whole tourist experience, instead of just one particular sector of the tourist product, as it happened with works which were focused just on accommodation.

DATA

Study area

Located in Catalonia, 100 km south of Barcelona, Costa Daurada is one of the most popular coastal destinations in the Spanish Mediterranean. According to data provided by the Costa Daurada Tourism Observatory, in 2019 the area was visited by more than 5 million tourists, who together made approximately 20 million overnight stays. Those figures plummeted in 2020, however, due to the effects of the COVID-19 pandemic. According to data of Tourism Open Knowledge of the Costa Daurada Tourism Observatory, tourist arrivals and overnight stays in the Costa Daurada region dropped by 70% and 75%, respectively, from 2019 to 2020. In Costa Daurada, tourism activity is primarily concentrated in the municipalities of Salou, Cambrils and Vila-seca, which together account for more than 70% of the area's total tourism capacity. All three are small coastal cities with populations ranging from 20,000 to 35,000. Also within the Costa Daurada area, two midsized cities are located not far from the most dynamic tourist municipalities; Tarragona has a population of more than 134,000 and Reus a population of 100,000. All of those cities are well connected by road and public transport. As a result, tourist excursions in Costa Daurada are easy to organise, fast and comfortable.

The area's chief attractions are its beaches and sunny weather, along with several cultural attractions in Tarragona and Reus. On top of that, the Roman remains of Tarragona have been designated as a UNESCO World Heritage Site. Last, Port Aventura, located between Salou and Vila-seca, ranks amongst the top-five theme parks in Europe (Anton Clavé, 2010), one that received approximately 5.2 million visitors in 2019. In Costa Daurada and across Spain, measures to prevent COVID-19 were introduced after the end of the lockdown in the early summer of 2020. People had to wear facemasks indoors and outdoors beginning on 9 July, and nightclubs were forced to close on 25 July.

Data collection

We used microdata from a tourism demand survey conducted annually by the Costa Daurada Tourism Observatory in the municipalities of Cambrils Salou and Vila-seca. The survey items address the characteristics of tourists' trip, their stays and activities during their holidays, and socioeconomic variables, as well as tourists' perceptions of different dimensions of the destination. Access to the microdata was granted via a research cooperation agreement. Given our objective to gauge whether the determinants of tourist satisfaction have changed as a result of the COVID-19 pandemic, we selected data from 2019 (i.e. pre-pandemic) and from 2020 samples (i.e. mid-pandemic). We used data from a total 3776 respondents collected during interviews: 1556 from 2019 and 2220 from 2020. The fact that the sample size for 2020 clearly exceeded that for 2019 did not compromise the robustness of the methodology applied. Partial least squares (PLS) was applied to each of the samples separately. During the high tourist season from June to September in both 2019 and 2020, interviews were conducted on all seven days of the week, while during the rest of the year they were conducted only at weekends.

Table 1. Descriptive statistics of the profile of tourists in Costa Daurada in 2019 and 2020

		2019		**2020**	
		N = 1556		*N* = 2220	
		Frequency	Percentage	Frequency	Percentage
Origin	Spain	662	42.54%	1907	85.90%
	France	267	17.16%	161	7.25%
	Other	627	40.30%	152	6.85%
Profile	Couples with no children	581	37.34%	1018	45.86%
	Families with children	661	42.48%	700	31.53%
	Travelling with friends	238	15.30%	339	15.27%
	Alone	76	4.88%	163	7.34%
Age	15–44 years	663	42.61%	665	29.95%
	45–64 years	537	34.51%	963	43.38%
	>64 years	356	22.88%	592	26.67%
Accommodation	Hotel	764	49.10%	500	22.52%
	Camping	96	6.17%	157	7.07%
	Apartment	276	17.74%	281	12.66%
	Second home	346	22.24%	1121	50.50%
	Other	74	4.76%	161	7.25%
Length of stay	1–3 nights	179	11.50%	602	27.12%
	4–7 nights	675	43.38%	634	28.56%
	8–15 nights	505	32.46%	363	16.35%
	>15 nights	197	12.66%	621	27.97%
Gender	Woman	750	48.20%	1057	47.61%
	Man	806	51.80%	1163	52.39%
Repeat visit?	Yes	1075	69.09%	1994	89.82%
	No	481	30.91%	226	10.18%

The overall distributions of interviews conducted in the districts of each municipality were defined proportionally to the number of tourists hosted in each area. Beyond that, different survey points were chosen in the three municipalities; all are key locations that attract the main tourist flows (e.g. beaches, coastal waterfronts and shopping or leisure areas). The selection of individual tourists to be surveyed at each location was random, the survey was performed by professional staff, and each individual interview took an average of approximately 5 minutes to complete. On the 2019 and 2020 surveys, items that allow measuring different aspects of tourist satisfaction were cleanliness of public areas, safety, the kindness of locals, accommodation services, public transport, facilities for pedestrians, entertainment and night life, green areas, the

cleanliness of beaches and the sea, facilities on beaches, quality-to-price ratio, signage, restaurants in general and overall degree of satisfaction. In 2020 a specific question on satisfaction with COVID-19 prevention measures was added to the questionnaire. On those surveys, respondents were also asked to rate the level of perceived overcrowding at the destination. Responses for satisfaction ranged from 1 (*very poor*) to 5 (*excellent*) on a 5-point Likert scale, whereas ones for overcrowding, on another 5-point Likert scale, ranged from 1 (*there is no overcrowding*), to 5 (*it's totally overrun by tourism*).

Descriptive statistics

Table 1 presents the descriptive statistics of the profile of tourists in 2019 and in 2020 and showcases the unprecedented disruptions caused by the COVID-19 pandemic for tourism demand. The share of foreign visitors dropped dramatically from 57% in 2019 to only 14% in 2020. Second homes gained ground in 2020, from 22% to 50%, whereas hotels lost it and dropped from 49% to 23%. In relative terms, the shortest stays (i.e. 1–3 nights) and the longest ones (i.e., >15 nights) also grew, together with the proportion of tourists who had previously stayed overnight in Costa Daurada, which rose from 69% to 90%. In sum, the tourist profile changed significantly in 2020, for in that year the destination was primarily visited by domestic tourists who owned property in the area, whereas international tourists hardly travelled there at all.

Table 2 presents the descriptive statistics of the variables related to tourist satisfaction. Some of the corresponding items listed here were not used in the forthcoming analysis due to large numbers of missing values; they included accommodation services, entertainment and night life, public transport and restaurants in general. Missing values resulted from the fact that not all visitors used or consumed all of the tourist products offered in the destination. For instance, not all visitors ate in restaurants. Overall, visitors in Costa Daurada were highly satisfied and reported an overall level of satisfaction of 4.44 in 2019 and 4.29 in 2020, both on a 5-point scale ranging from 1 and 5. Thus, overall satisfaction slightly declined from one year to the next. In fact, the decline between 2019 and 2020 affected all items presented in Table 2.

The kindness of locals and facilities for pedestrians were the items that obtained the highest rates in 2019 and 2020 alike. Whereas there were no rates less than 4.0 in 2019, with quality-to-price ratio and cleanliness of public areas having the lowest levels of satisfaction, in 2020 four items fell below 4.0: quality-to-price ratio, cleanliness of public areas, facilities on beaches and cleanliness of beaches and the sea . Last, measures to prevent COVID-19, surveyed only in 2020, achieved a rating of 3.74 and was thus the element that received the lowest score.

METHODS

The proposed methodology is presented in Figure 1.

Factor analysis

Factor analysis is a statistical technique first developed to describe correlations between individuals' mental test scores (Spearman, 1904). Following Yong and Pearce (2013), the model for factor analysis can be expressed as follows:

$$x = \mu + \Lambda f + e \quad (1)$$

For a *p*-element vector x of observed variables, there is a $p \times k$ matrix Λ of loadings, a *k*-element vector f of scores, a mean *p*-element vector μ and a vector of error terms e. Thus, vector x denotes the observed data accounted for by the vector f of latent variables, whereas μ is assumed to be zero. Scores are uncorrelated and their variance equals 1. Because the error terms are uncorrelated with themselves and with the scores, the loadings can be interpreted as correlations between the original variables and the scores. The factors are obtained by maximum likelihood estimation, and, in that particular case, conducting exploratory factor analysis (EFA) can provide initial estimates of the association between variables and their latent factors.

Table 2. Descriptive statistics of variables of tourist satisfaction that account for overall satisfaction

	Full sample		**2019**		**2020**	
	N = 3776		*N* = 1556		*N* = 2220	
Cleanliness of public areas	*M*	*SD*	*M*	*SD*	*M*	*SD*
Safety	3.98	0.93	4.14	0.82	3.87	0.98
Kindness of locals	4.17	0.82	4.29	0.72	4.08	0.88
Facilities for pedestrians	4.27	0.74	4.31	0.76	4.24	0.72
Green areas	4.26	0.81	4.34	0.74	4.20	0.86
Signage	4.11	0.82	4.25	0.77	4.02	0.85
Cleanliness of beaches and the sea	4.13	0.73	4.18	0.73	4.10	0.72
Facilities on beaches	4.07	0.92	4.23	0.82	3.96	0.97
Quality-to-price ratio	4.00	0.91	4.19	0.75	3.87	0.98
Measures to prevent COVID-19	3.99	0.80	4.09	0.76	3.92	0.82
Overall satisfaction	3.74	1.00			3.74	1.00
	4.35	0.65	4.44	0.60	4.29	0.67

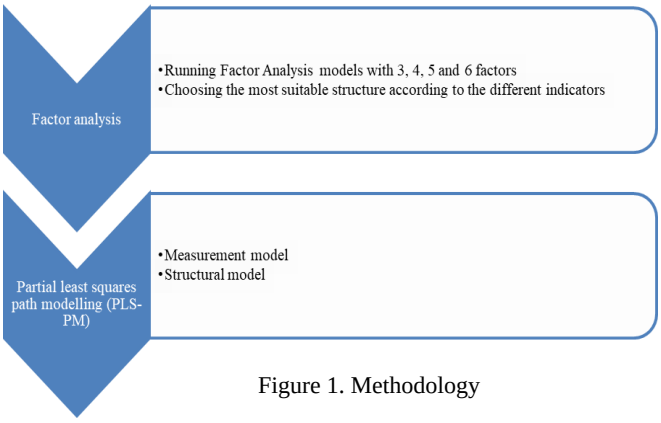

Figure 1. Methodology

Partial least squares path modelling (PLS-PM)

PLS-PM is a multivariate methodology that assesses both direct and indirect effects on presumptive causal relationships (Benitez et al., 2020). In PLS-PM, there are two types of models: the measurement model and the structural model. The measurement model, which takes into account the relationships between a latent variable and the corresponding manifest variables, following McIntosh et al. (2014) can be expressed as:

$$x = \Lambda_x \xi + \delta, \quad (2)$$

in which x denotes the observed variables, ξ represents the latent variables, Λ denotes the factor loadings, and δ indicates the error terms. By contrast, the structural model represents the relationships between the latent variables or constructs and following McIntosh et al. (2014) can be written as:

$$\eta = \alpha + \beta_\eta + \Gamma\xi + \zeta \quad (3)$$

in which η is an *m*-vector of generic latent endogenous constructs or variables, ξ is an *n*-vector of generic latent exogenous constructs or variables, α is an *m*-vector of intercept terms, β is an $m \times m$ matrix of generic path coefficients that place the influence of η on each other, Γ is an $m \times n$ matrix of coefficients of the effect of ξ on η, and ζ is the *m*-vector of errors that contains the unexplained parts of η.

RESULTS: EFA

To ensure that the factors entered into the PLS-PM models for 2019 and 2020 were identical and that the coefficients of the pre-pandemic and mid-pandemic models were therefore comparable, we ran an EFA with the data from both years. Several well-established parameters for the factorability of the correlations were studied, including the Kaiser–Meyer–Olkin (KMO) sampling adequacy measure (Kaiser, 1974) and Bartlett's test of sphericity, both of which validated a factor structure with four factors. All eigenvalues exceeded 1, and the percentage of total explained variance was 54%. The results of the EFA, shown in Table 3, produced a clean factor structure with relatively high loadings for the factors. The results showed that the alpha coefficients of the four factors ranged from 0.68 to 1 and thus exceeded the minimum value of 0.5 which is considered to be an appropriate indication of reliability in basic research (Nunally, 1975). The four dimensions of destination attributes extracted were labelled "general safety", "destination characteristics", "beaches" and "quality-to-price ratio".

Table 3. Results of exploratory factor analysis

	Factor 1	Factor 2	Factor 3	Factor 4	KMO	Communality	Eigenvalue	% of variance	Cronbach Alpha
General safety									
Cleanliness of public areas	**0.391**	0.15	0.271	−0.013	0.892	0.491	1.032	0.110	0.680
Safety	**0.823**	0.003	−0.013	0.021	0.891	0.663			
Destination									
Kindness of locals	0.211	**0.423**	-0.032	0.053	0.923	0.332			
Facilities for pedestrians	0.023	**0.682**	−0.031	−0.042	0.931	0.433	1.443	0.160	0.711
Green areas	0.021	**0.441**	0.221	0.003	0.932	0.391			
Signage	−0.043	**0.541**	0.043	0.181	0.910	0.464			
Beaches									
Cleanliness beaches and	0.011	−0.013	**0.871**	−0.013	0.881	0.741	1.341	0.150	0.723
Facilities on beaches	0.041	0.121	**0.493**	0.152	0.883	0.473			
Quality-to-price ratio									
Price–quality relationship	0.012	0.000	0.000	**0.931**	1.000	0.881	1.042	0.120	1.000

Note: Overall KMO = 0.9, Bartlett's test of sphericity = chi-square- 11281; *p* - 0; *df* = 36

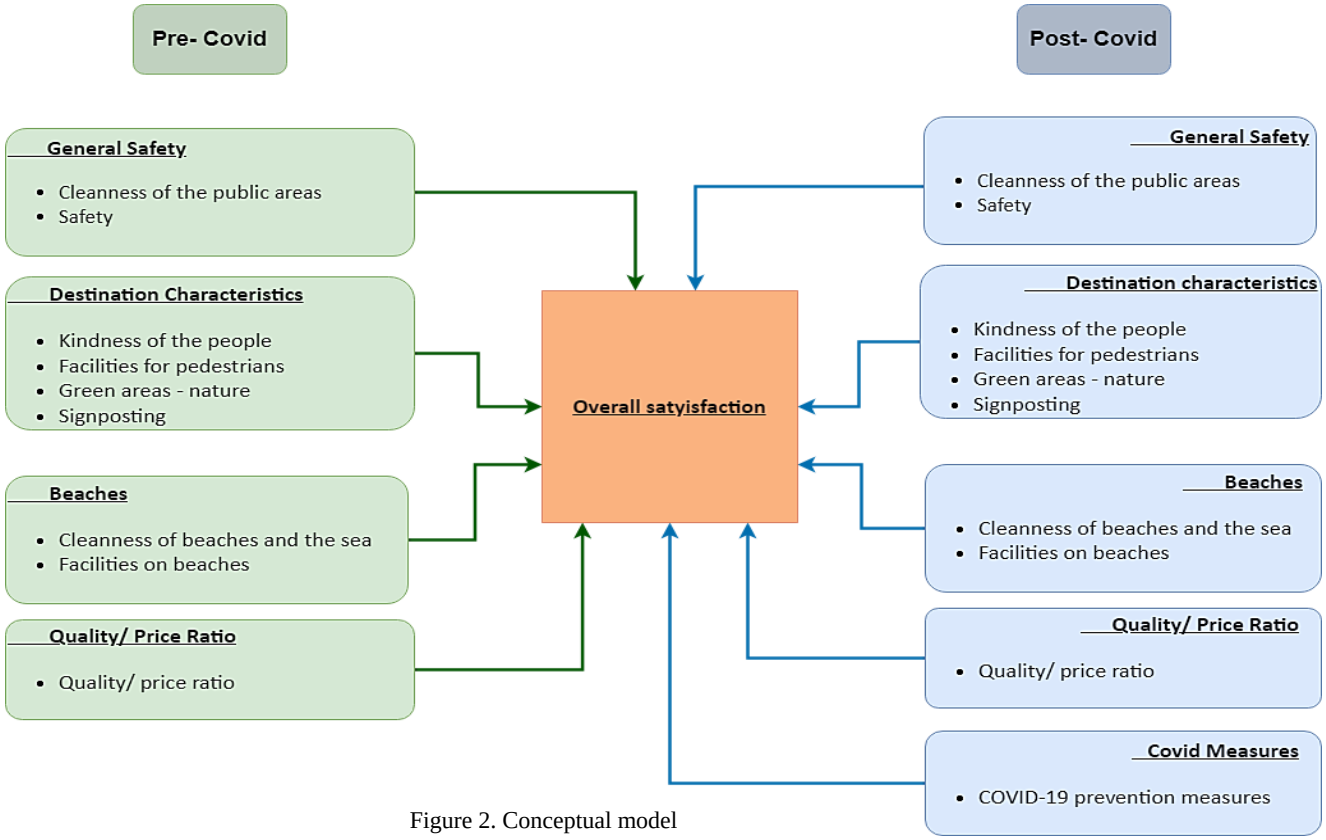

Figure 2. Conceptual model

PLS-PM

Because the EFA that we conducted provided an optimal initial structure of the data, the initial PLS path model was

modified to improve its fit, and the proposed model, depicted in Figure 1, was thus converged. For 2019, the four latent constructs obtained from the EFA were considered: safety and security, destination characteristics, beaches and quality-to-price ratio. For 2020, in addition to those four latent variables, a fifth element was introduced: how tourists rated measures to prevent COVID-19. The PLS-PM simulation of the model was performed by taking into account a large number of parameters, including item loading, reliability and validity. Following Henseler et al. (2009), it involved a two-step process of calculating the PLS model parameters separately by solving out the blocks of the measurement model and estimating the path coefficients of the structural model.

Measurement model

According to Müller et al. (2018), it is essential to ensure convergent validity and discriminant validity such that the fit indices indicate an appropriate model fit. Cronbach's alphas and average variance extracted (AVE) were used to measure convergent validity; all Cronbach's alpha values exceeded 0.6, the threshold value recommended by Dijkstra and Henseler (2015). Moreover, the AVE of each construct exceeded the threshold of 0.5 (see Appendix B) recommended by Fornell and Larcker (1981) and Hair et al. (2017). Following Fornell and Larcker (1981), the square root of the AVE of each latent variable was used to establish discriminant validity. The correlations were all less than the value of the square root of the AVE values and thus indicated an acceptable level of discriminant validity amongst the variables (see Appendix B). The model therefore fit the data well and had validities at appropriate levels.

Table 4. Results of the pre- and post-COVID-19 measurement models

Pre-COVID-19	Loading	Cronbach's alpha	DG.rho	eig.1st	eig.2nd	AVE
Beaches	0.911	0.784	0.903	1.65	0.355	0.823
	0.903					
Destination characteristics	0.702	0.721	0.827	2.18	0.686	0.544
	0.750					
	0.725					
	0.772					
General safety	0.884	0.715	0.875	1.56	0.444	0.778
	0.880					
Quality-to-price ratio	1.000	1.000	1.000	1.000	0.000	1.000
Satisfaction-19	1.000	1.000	1.000	1.000	0.000	1.000

Post-COVID-19	Loading	Cronbach's alpha	DG.rho	eig.1st	eig.2nd	AVE
Beaches	0.874	0.684	0.863	1.52	0.48	0.76
	0.869					
Destination characteristics	0.738	0.708	0.82	2.13	0.651	0.533
	0.711					
	0.704					
	0.765					
General safety	0.853	0.655	0.853	1.49	0.513	0.743
	0.872					
Quality-to-price ratio	1.000	1.000	1.000	1.000	0.000	1.000
COVID-19 measures	1.000	1.000	1.000	1.000	0.000	1.000
Satisfaction-20	1.000	1.000	1.000	1.000	0.000	1.000

Note: AVE = average variance extracted. RMSEA = 0.061 pre-COVID-19 and 0.055 post-COVID-19; SRMR = 0.027 pre-COVID-19 and 0.028 post-COVID-19; Goodness-of-fit index value = 0.5293 pre-COVID-19 and 0.4865 post-COVID-19.

Table 5. Results for the Fornell–Larcker criterion of discriminant validity pre- and post-COVID-19

Pre-COVID-19	General safety	Destination characteristics	Beaches	Quality-to-price ratio	Satisfaction-19
General safety	**0.882**				
Destination characteristics	0.628	**0.737**			
Beaches	0.541	0.568	**0.907**		
Quality-to-price ratio	0.443	0.574	0.488	**1.000**	
Satisfaction-19	0.457	0.622	0.452	0.474	**1.000**

Post-COVID-19	General safety	Destination characteristics	Beaches	Quality-to-price ratio	COVID-19 measures	Satisfaction-20
General safety	**0.861**					
Destination characteristics	0.563	**0.728**				
Beaches	0.511	0.562	**0.872**			
Quality-to-price ratio	0.404	0.553	0.487	**1.000**		
COVID-19 measures	0.475	0.44	0.327	0.297	**1.000**	
Satisfaction-20	0.431	0.577	0.409	0.442	0.297	**1.000**

Structural model

Table 6 and Figure 3 present the results of the structural models for 2019 and 2020. Following Hair et al. (2016), we used bootstrapping techniques with 5000 samples to evaluate *t* statistics and confidence intervals (*p*). The goodness-of-fit values obtained in the PLS-PM analysis were 0.5293 before the COVID-19 pandemic and 0.4865 during it, whereas the respective R^2 values were 0.417 and 0.368. Both indicators point to a downward trend in the capacity of traditional measures of tourist satisfaction to account for overall satisfaction. The results of the model suggest that the four latent variables considered (i.e. general safety, destination characteristics, beaches and quality-to-price ratio) were all significant in the models for 2019 and 2020. Although a stronger effect was attached to destination characteristics (i.e. 0.45 in 2019 and 0.40 in 2020), the rest of the variables presented far smaller correlations. Second in importance was the quality-to-price ratio (i.e. 0.14 in 2019 and 0.15 in 2020), whereas the lowest correlations were associated with beaches (i.e., 0.10 in 2019 and 0.05 in 2020) and general safety (i.e. 0.06 in 2019 and 0.12 in 2020). Even so, the most outstanding result was

that measures to prevent COVID-19 did not exhibit any significant association with satisfaction in 2020. The comparison between data from 2019 and 2020 allows disentangling the extent to which the pandemic affected tourist satisfaction. Figure 2 and Table 3 shown that the effect of the latent variables on overall satisfaction tended to vary from one year to the next. To begin, the path coefficient of general safety nearly doubled from 2019 to 2020. Conversely, the correlation with beaches was almost halved, whereas the effect associated with destination characteristics also diminished, albeit to a far lesser extent. By contrast, the path coefficient of the quality-to-price ratio increased slightly. It should be highlighted that although general safety was the least important element for tourists in 2019, it surpassed beaches in 2020.

Table 6. Pre- and post-COVID-19 structural models

Relationships pre-COVID-19	Effects	*t* value	Pr (>|*t*|)	Result
Beaches -> Satisfaction-19	0.096	3.812	0.000	Significant
Destination characteristics -> Satisfaction-19	0.446	15.703	0.000	Significant
Quality-to-price ratio -> Satisfaction-19	0.144	5.902	0.000	Significant
General safety -> Satisfaction-19	0.060	2.310	0.021	Significant

Relationships post-COVID-19	Effect	*t* value	Pr(>|*t*|)	Result
Beaches -> Satisfaction-20	0.052	2.381	0.018	Significant
Destination characteristics -> Satisfaction-20	0.398	16.62	0.000	Significant
Quality-to-price ratio -> Satisfaction-20	0.147	6.981	0.000	Significant
General safety -> Satisfaction-20	0.118	5.313	0.000	Significant
COVID-19 measures -> Satisfaction_20	0.005	0.264	0.792	Not significant

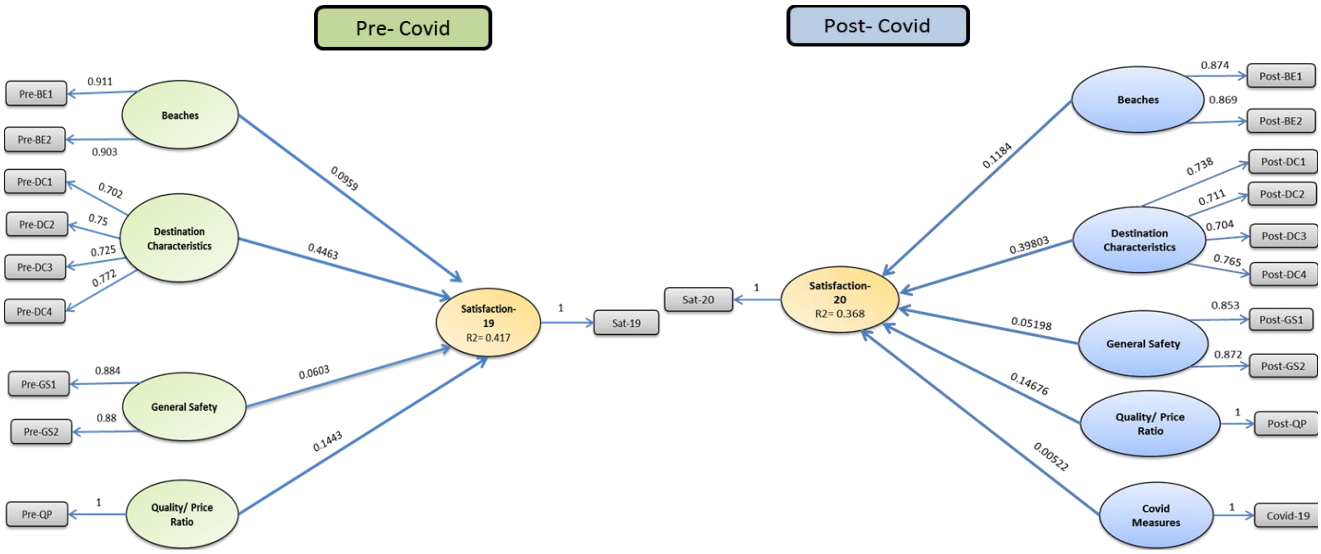

Figure 2. Proposed PLS path model

DISCUSSION AND CONCLUSION

In our work, we sought to discern the extent to which the COVID-19 pandemic altered the determination of tourist satisfaction in Costa Daurada, a very popular Mediterranean coastal destination, during the peak tourist season in 2020. The conclusions of our research are necessarily limited to the particular circumstances brought about by the spread of the coronavirus that included restrictions on travelling, especially to international destinations, as well as limitations on activities at destinations and individuals' logical fear of contracting the virus. Analysing the COVID-19 impact on such popular coastal destinations is particularly relevant, as they have proven to be particularly vulnerable to the effects of the pandemic (Duro et al., 2021). Given such specific vulnerability, it is critical to pinpoint the extent to which the determination of tourist satisfaction has been affected by the pandemic while taking into consideration that tourist satisfaction is key for individuals' decisions, including about whether or not to return to destinations (Jang and Feng, 2007).

EFA and PLS-PM were applied to two sets of data regarding tourists. The first contained data drawn from a survey of tourists at Costa Daurada in 2019 (N = 1556), whereas the second was based on the same survey that was replicated in the summer of 2020 (N = 2220). The questionnaire for both surveys along with the traditional items used to characterise tourists' demand included how tourists rated different elements of the destination and their overall level of satisfaction. Beyond that, the questionnaire in 2020 also contained items specifically related to COVID-19, including how tourists rated the measures in place to prevent COVID-19. Four factors emerged from the EFA—general safety, destination characteristics, beaches and quality-to-price ratio—all of which were found to be significant determinants of overall tourist satisfaction in both 2019 and 2020. Especially important was the effect associated with the characteristics of the destination that embraced elements such as the kindness of locals, facilities for pedestrians, green areas and signage. Probably the most outstanding result was the non-significance of the measures to prevent COVID-19 at the destination, which contradicts published findings (Humagain and Singleton, 2021; Huete-Alcocer and Hernández-Rojas, 2022; Jiménez-Medina et al., 2022).

In view of that result, the question arises whether tourist satisfaction has had anything to do with measures to prevent COVID-19 during the pandemic. Along those lines, the PLS model provided evidence that even though there was no direct effect of the measures to prevent COVID-19 on tourists' overall satisfaction, there was sufficient evidence of its indirect

effect. For one, the results indicate the substantial growth of the path coefficient of general safety compared with 2019. Thus, feeling safe in 2020, which primarily included the original variables of the cleanliness of public areas and safety, gained considerable importance during the pandemic. For another, the factor loading of pedestrian facilities with respect to general safety also grew in 2020 compared with 2019. In sum, although visitors were eager to feel safe during their stays at the destination in 2020, that sense of safety did not directly derive from measures to prevent COVID-19. In fact, such measures (e.g. compulsory use of face masks or hand washing, physical distance, capacity limitations or even closure of activities) were liable to be perceived as annoying and mundane (Sadiković et al., 2020).

Tourists who visited the Costa Daurada in 2020 appreciated a feeling of safety more than in previous years. How that feeling of safety was achieved, however, is another question. Direct measures to prevent COVID-19 did not exert a significant influence on tourist satisfaction, meaning that such a feeling of safety could be more effectively achieved in a more indirect way by expanding pedestrian facilities, promoting outdoor tourist activities instead of indoor ones and/or implementing actions to diminish the density of visitors in certain crowded locations. Those sorts of actions should generate a spillover effect on other dimensions of tourist satisfaction. By contrast, the absence of any significant impact attached to measures to prevent COVID-19, despite not increasing tourist satisfaction, at least signals that they were not perceived as being overly annoying for tourists. In terms of destination management, the results indicate that phenomena such as health crises, including the COVID-19 pandemic, are especially difficult to handle at mass tourism destinations. Aside from guaranteeing tourists' and residents' health, tourists' perceptions are also important. On the one hand, visitors need to feel safe, as proven by its increased weight in 2020 compared with 2019 in the PLS path model. Previous works have shown that the absence of health safety is a powerful deterrent of the intention to travel for tourism (Chua et al., 2021) and leads to negative experiences for tourists (Jonas et al., 2011). On the other hand, an excess of prevention measures could be perceived as unpleasant and/or invasive or could convey the idea that the destination poses a serious threat. Given the dynamic evolution of the coronavirus responsible for COVID-19, which is highly related to individuals' perceptions of risk, a working balance between X and Y has been particularly difficult to strike. Added to that, the diversity of individuals' perceptions of the pandemic has further complicated the implementation of a proper response.

Several elements suggest approaching our results with caution. For one, the incidence of the pandemic, even though increasing, was relatively low during that summer after the spring lockdown in Spain. Thus, data related to other destinations with different levels of incidence are required in order to prove the consistency of the results. For another, the prevention measures implemented were specific to Catalonia, whose government was responsible for COVID-19 policy during the period examined, whereas other preventive measures could have led to different reactions amongst tourists. Last, the tourist profile dramatically changed from 2019 to 2020, and, likewise, the samples of tourists differed greatly from one year to the next. The fact that many individuals ruled out the idea of travelling to a popular coastal destination under the threat of COVID-19 warrants consideration. In fact, most of those who did stayed in an apartment or a second home, which considerably minimised their risk of contracting the illness. Last, restrictions on international travels were imposed, which has to be taken into account. All of those caveats and limitations, however, leave the door open to future research able to provide further evidence of the effect of preventive measures on satisfaction, the results of which would be highly valuable for destination managers needing to cope with future critical situations, no matter how undesirable.

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THE EMERGENCE OF SAFETY AND SECURITY IN THE TOURISM STRATEGIES OF EU MEMBER STATES

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Abstract: The aim of the study is to position tourism safety and security within the strategy-making practices of the European Union member states. We examined these issues through content analysis of tourism development strategies. In quantitative research we analyzed the frequency of occurrence of terms related to 13 topics, while a qualitative study revealed the different dimensions of safety. Most of the planning and strategy documents do not pay much attention to tourism safety, which is in most EU countries clearly in its infancy. Terms related to public safety most prevalent in the member states' strategies, within which they have formulated objectives concerning mainly crime and terrorism. The European Union does not currently have unified concept for tourism development, leaving the development of tourism as a destination to individual Member States.

Key words: tourism security, tourism safety, tourism planning, strategy, European Union

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INTRODUCTION

'Security' is primarily the personal security of tourists and of their property against external, deliberate threats (e.g. crimes, terrorism, wars), while safety refers to protection against the unintended consequences of an unintentional act (Mansfeld and Pizam, 2006). The two concepts are inseparable from each other, which brought the concept of 'tourism surety' (Tarlow, 2014). The strategic development through knowledge-based and proficiency plans is essential in tourism (Shahraki, 2022) to achieve the vision of a country and for positioning itself as a tourist destination. This can help to reach the goals set by the destination, define the main cornerpoints of the market position it wants to gain, and describe the path and concept leading to it. A well-planned and organized destination carries out its operational activities along these priorities and implements its specific projects, as well. Based on certain assumptions or conditions that represent the future, scenario planning could be a vital tool for scientifically evaluating uncertainties and developing supporting strategies (Seyitoğlu and Costa, 2022). However, the safety of tourists seems to be playing an increasingly important role in terms of the market position. As a result of the terrorist attacks of recent years, European tourism has undergone a major transformation, with previously popular destinations becoming less popular (like France or Egypt) and mid-level ones rising (like Bulgaria). Tourism planning, value-based positioning, demand management, and supply reliability all contribute to the resilience of the tourist destination. Safety became an important part of the destination image as well (Zou and Yu, 2022). Communities provide the "backbone" of the scientific literature on tourism planning (Leiva, 2022) however, any study has discussed its safety aspects. The main goal of our research is to determine the place of tourism security and safety in the planning, development and strategy-making practices of the Member States of the European Union; and exploring the assessment of the importance of safety at state level in the tourism sector.

This article contributes to increasing knowledge about planning in tourism and its findings have practical implications for policymakers how to get prepared for the next crisis. To the best of the author's knowledge, the national tourism strategies of EU-members attractions has not been analyzed so far regarding security and safety.

As tourism planning is a national competence, i.e. EU countries have full competence to decide on its development independently; thus, we examined the individual planning and strategy documents for each Member State (Juul, 2015).

Tourism can be affected by political decisions (Post et al., 2022). Since the implementation of the Lisbon Treaty, the EU has supported and coordinated the tourism measures of the Member States. This formal recognition has opened a new chapter in EU tourism policy (Margaras, 2017). Tourism planning could accordingly be defined as a "roadmap that takes tourism organizations and destinations from their current level of development to where they want to be" (Edgell and Swanson, 2013: 245). Tourism planning plays a key role in integrating other sectors into tourism, shaping physical developments, conserving significant resources, and even providing a framework for 'selling' destinations (Williams, 1998). Edgell et al. (2008:7) define tourism policy as progressive actions, guidelines, directives, principles, and procedures

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embedded in an ethical framework that best assist the community's (or nation's) planning, development, product, service, marketing and sustainability goals for the future growth of tourism.

The planning process of the development of sustainable tourism consists of several steps. According to Inskeep (1994), these steps include: preparation, goal setting, examination of supply elements, analysis and synthesis, formulation of plans and policies, formulation of recommendations, definition of implementation and control methodologies. Tourism security and safety is becoming an increasingly differentiating force in tourism. A tourism service provider or destination can significantly increase the number of visitors by creating a safe atmosphere and minimizing risks (Marton et al., 2018), which is also of key importance in terms of country perceptions and destination choice (Bogáromi and Malota, 2017).

In the Maslow Pyramid, human needs are located on five levels, security is on the second level, and this hierarchy of needs also shows how important security is in tourists' decisions. Travelers choose the destination, the accommodation, the means of transport used so that they can minimize the risks associated with the trip (Michalkó, 2020). The decision of travelers is influenced not only by the actual information but also by their own impression and perception; their individual interpretation is often given more emphasis in the choice of destination than reality (Li et al., 2018).

There is a growing scientific interest in the impact of safety and security issues on tourism, including terrorism (Liu and Pratt, 2017) and crime (Altindag, 2014). Tourism security and safety involves tourism protection; the difference between them is that the latter refers to unintentional consequences of an unintended nature (e.g. accident) as opposed to the former (Agarwal et al., 2021). Tourism security focuses on local, international, and global situations or events where the caused harm is intentional and deliberate (Tarlow, 2014) like arson, crime and terrorism (Korstanje, 2017). The term 'tourism security' is used when protection goes beyond the personal safety of tourists and includes destinations (Tarlow, 2014). Modern perceptions of security cover a wide range of global issues, as climate change, resource scarcity, international crime, health, and biosecurity (Hall et al., 2003). Security and safety together influence travel intentions, the tourists' risk perceptions of personal safety and destination security influence such decisions (Seabra et al., 2014).

Fareed et al. (2018) shows a direct positive relationship between safety and security and the success of tourism destinations. Tourists make a negative impression of a vacation spot if they do not feel safe at the destination. This could decline tourism in the area. Prospective tourists may choose not to visit the destination because of its negative reputation. Tourists who have felt threatened or unsafe will avoid activities outside their accommodation and will not recommend the destination to others (Poku and Boakye, 2019). Tourists have become more aware of the security and protection scenarios of the destinations they visit. A paradigm shift occurred from the actual safety and secutity concerns of tourists to preventive behaviors (Poku and Boakye, 2019). Their sense of safety posed serious challenges as their sense of security became less certain due to the increasing frequency and severity of natural and man-made crises (Mendiratta, 2011). There are both subjective and objective elements of risk perception that are formed in travelers. Based on qualitative research, tourists realize human insecurities, food and weather risks at first sighting, and later address risks related to financing, quality of services, accidents, and natural disasters (Cui et al., 2016). The term 'crisis' is the XIX. It spread in the middle of the twentieth century, by which time it had become 'disruptive' in politics, society, and the economy (Glaesser, 2003). Crises are typically unavoidable and recurring phenomena that have a major impact on the economy (McKercher and Hui, 2004).

Due to the economic importance of tourism and its increased vulnerability in the age of globalization, we need to address crisis preparedness and management (Santana, 2008). According to Glaesser (2003), we can speak of a crisis when a tourism business is forced to make a time-bound decision in a difficult situation in which its operation is jeopardized. In the case of a destination, when the crisis occurs, the number of tourists and guest nights decreases, business profits and investment volumes fall, and the number of employees falls (Laws and Prideaux, 2005). Effective crisis management is essential in tourism sector, which is often the victim of crises for various political, economic, social, and natural technological reasons. But not only service providers, but also tourist destinations need to be prepared for a possible crisis (Faulkner, 2001). The World Travel and Tourism Council (2019) made a recommendation for the three phases of tourism crisis management. During the crisis, long-term strategies can only be developed with reservations, which makes the situation of re-emerging tourism businesses significantly more difficult after the crisis (Sausmarez, 2009).

MATERIALS AND METHODS

In the course of our empirical research, we examined the place of tourism safety through content analysis in the tourism planning, development and strategic documents of the European Union member states. The European Union does not currently have a unified concept for tourism development, leaving the development of tourism as a destination to individual Member States. As revealed in the literature analysis, tourism is a sector strongly embedded in a country's economic and social strategic directions, so in many cases tourism development concepts are based on and serve as a complement to these socio-economic goals. From this, we assume that Member States typically deal with general (economic) security issues, within which there are few specific tourism objectives.

Based on the above, our empirical research sought answers to the following main research questions:

- In what dimensions do EU Member States interpret and translate tourism safety into practical recommendations and goals?
- What are the similarities and differences between EU Member States in terms of tourism safety priorities?

In our understanding a settlement/destination addresses several target groups. The primary are residents, and those who are about to choose a place to live in; people who choose the area as a temporary residence, for example for tourism. Document and content analysis is the study of human communication and a set of social products (Babbie, 2001: 351-352). Content analysis can be both quantitative and qualitative. During the quantitative analysis, the researcher collects the words and phrases that appear in the text. Qualitative analysis focuses on the context and latent content of the document. In our research,

we used both methods.The conceptual framework of our empirical research is provided by the Safe Cities Index approach established in 2015 by the Economist Intelligence Unit. The safety indicator is basically a system of indicators for measuring the safety of cities as places of residence and tourist destinations, which determines the safety of cities along four dimensions:

• Digital safety: refers to the access and use of free internet and other digital devices by city residents without personal identity damage (identity theft) or data breach.

• Health safety: the general public health situation and care, health risks caused by extreme weather, compliance with environmental regulations affecting health, but also the examination of the mental illness of the population.

• Infrastructure safety: the construction and development of urban infrastructure consume huge sums. Tourists face infrastructure-specific risks looking for an emergency exit at a traffic jam or a concert in the event of a fire.

• Personal safety: Due to their population density and popularity, big cities are the primary targets of terrorists, which destroys not only the image of destinations, but also the willingness of tourists to travel.

As the authors of the Safe Cities Index have pointed out when formulating the dimensions, all of the above factors can also be considered relevant to the tourist target group of a destination. To further delineate the concept and to interpret the above approach more effectively and specifically in tourism, the tourism safety dimensions were developed by Michalkó (2020). This provided the other main conceptual framework for our empirical study. The two approaches can be clearly linked: the aspects specifically expressed by Michalkó (2020) to express tourism safety can be aligned with the dimensions of the Safe Cities Index (Figure 1). The above conceptual approach provided an excellent basis for analyzing the safety of European countries as tourist destinations, which we carried out in a quantitative and qualitative way (Figure 2).

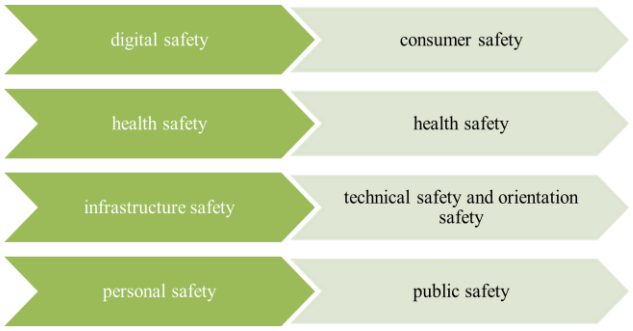

Figure 1. Interpretation of the Safe Cities Index to determine the safety of countries as tourist destinations based on Michalkó (2020) (Source: Own edition, 2022)

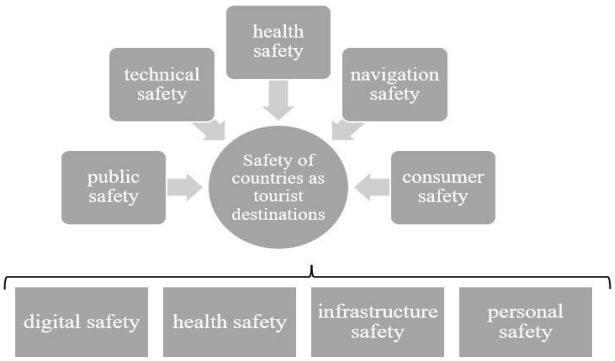

Figure 2. Research model of the qualitative analyses (Source: Own edition, 2022)

The strategies available in English for 13 Member States (Austria, Cyprus, the Netherlands, Croatia, Ireland, Poland, Latvia, Hungary, Malta, the United Kingdom, Italy, Romania, Slovenia) were downloaded from the websites of the national tourism organizations. For 9 countries (Bulgaria, Czech Republic, Denmark, Estonia, Finland, Lithuania, Germany, Portugal, Slovakia) there is no tourism development strategy in English, but after an e-mail request we received them in the original language from the national tourist offices. We translated these original language documents to English using Google's software; and used these, but not the original language documents for the analyses. For a further 6 countries, we did not receive information on planning documents (France, Greece, Luxembourg, Sweden) or there is no national strategy (Belgium, Spain). In the quantitative analysis, we examined the frequency of occurrence of 15 terms in the documents.

Some of the selected terms were based on a basic benchmark method, including a study by Marton et al. (2018) and previous literature on travel risks (Floyd and Pennington-Gray, 2004; Newsome et al., 2004; Lepp and Gibson, 2003). The terms thus obtained were supplemented with additional words that appeared in a significant number on national and international news channels in 2019. To do this, we used Google Trend Analytics (https://trends.google.com).

We filtered out occurrences that were not relevant, i.e., they were not mentioned in the strategies in the topic of tourism safety and security (but in the general economic sense, for example). Examined expressions: security, secure, insecurity, safety, safe, unsafe, risk, terrorism, stability, instability, conflict, threat, crisis/crises, tension, peace.

RESULTS AND DISCUSSION

A significant part of tourism development strategies was prepared in the early 2010s, and it typically includes goals and recommendations until 2020, and in some cases an action plan. As a result, we have found that terms related to tourism safety and security are restrained in the strategies, but there are many references to the economic crisis of 2008-2009 and its effects. It was also noteworthy that the elaboration of each strategy showed considerable diversity: there were strategies with extremely detailed analysis and an action plan but planning documents setting out general objectives were also found. Safety and security issues appear in varying proportions in the tourism development strategies of the 22 EU Member States examined. The terms concerning safety and security itself (safety, security, safe) were predominant in the examined documents (Figure 3).

These terms were mostly mentioned in the situation analysis chapters of the documents (SWOT or PESTEL analyzes) as well as in the overview sections that discussed tourism consumer trends. Risk, threat and terrorism were also mentioned more frequently in several documents, also mainly as factors influencing consumers' travel decisions. The term 'peace' was most often used by sections dealing with marketing communications as potential buzzwords.

Table 1. Frequency of terms related to tourism safety and security in the tourism development documents of the examined EU Member States (number of mentions) Own research, 2022 based on Ministry of Tourism (2017), Tourism Industry Advisors (2017), Palatková et al. (2012), Lithuania (2015), Cross-Sectoral Coordination Centre (2012), The Government of The Republic of Croatia (2013), Ministry of Economic Affairs and Employment of Finland (2019), Deutscher Tourismusverband e.V (2019)

Countries	security	secure	insecurity	safety	safe	unsafe	risk	terrorism	stability	instability	conflict	threat	crisis/ crises	tension	peace	sum
Bulgaria	27	5	0	10	2	0	11	5	1	1	1	4	2	0	0	**69**
Cyprus	12	16	2	15	11	1	4	1	0	1	0	0	0	2	3	**68**
Czech Republic	12	1	0	11	12	0	4	2	0	0	0	9	0	0	0	**51**
Lithuania	11	0	0	4	13	0	3	1	0	1	1	1	1	0	2	**38**
Latvia	5	9	1	1	2	0	2	0	0	0	1	1	2	1	0	**25**
Croatia	2	7	0	12	0	0	0	0	0	1	1	0	0	0	0	**23**
Finland	3	1	0	13	4	0	0	0	1	0	0	0	0	0	0	**22**
Germany	0	15	0	2	0	0	0	0	0	0	0	1	0	0	0	**18**

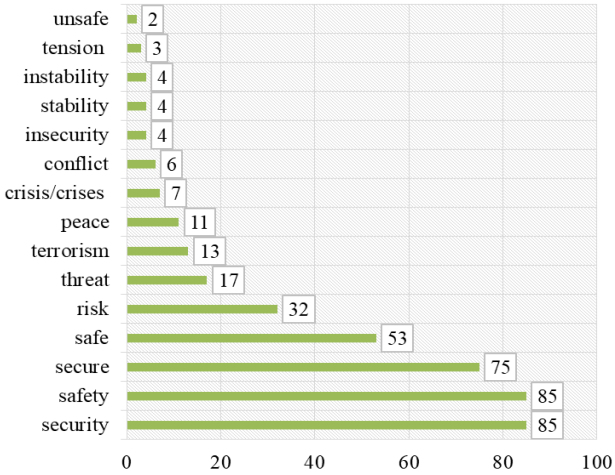

Figure 3. Frequency of terms related to tourism safety and security in the national tourism development strategies of the examined EU countries (Source: Own edition, 2022)

Examining the documents, we found that words related to tourism safety and security were most often mentioned in the Bulgarian strategy (69 cases in total), but these terms also occurred in large numbers (68-51 cases) in the Cypriot and Czech strategies. In the case of Lithuania (38 cases) and Latvia (25 cases), we also found a high number of occurrences, while in the case of the Irish strategy, for example, these examined words never occurred. Table 1 summarizes the list of countries where the sum of the search terms exceeds 15.

In the qualitative content analysis, in addition to the terms mentioned above, we also looked in the documents for manifestations that show a connection with one of the five dimensions of tourism safety according to Michalkó (2020). Accordingly, we found references to public safety, technical safety, health safety, orientation safety or consumer safety in a total of 153 cases in the 22 strategies examined. The planning documents focused mostly on public safety (mentioned a total of 69 times in 18 different countries). In this regard, national tourism development strategies have primarily drawn attention to the fact that safety plays an important role in tourists' travel decisions, one of the reasons for which is the rapid flow of information, as wherever a negative event occurs, tourists can be informed immediately. On the issue of public safety, several countries (Portugal, Latvia, Slovenia, Cyprus, Estonia) have emphasized that they consider themselves safe, and this is also the view of tourists visiting them (Table 2). “Slovenia is a safe, multicultural, tolerant and hospitable destination, which is of major importance for successful tourism development.” (Ministry of Economic Development and Technology, 2017:12).

In addition, several countries have mentioned the safety of various tourism products, e.g., the safety of adventure, cycling, water tourism in that country. The reduction of crime, assassinations and immigrants, as well as the need to introduce safety and quality standards have been mentioned as a task to be addressed, with the aim of closing the gaps in these areas. In order to prevent illegal immigration and crime, new electronic control systems are needed in the European Union to help prevent and combat terrorism (authors’ own translation from the Ministry of Economic Affairs and Communications, 2013). „Safety standards must also be in place, especially with regards to services and facilities provided within these tourism zones.” (Ministry for Tourism, 2015:44). Some strategies also identified the goal of increasing the safety of people and luggage at accommodation establishments and beaches, as well as managing conflicts between locals and tourists. In some cases, the (in)adequacy of transport morale or the negative influencing power of geopolitical conflicts in sending and bordering countries were also mentioned as a kind of external factors.

Table 2. The appearance of the dimensions of tourism safety in the tourism development strategies of the examined EU member states - public safety Own research: 2022 based on Ministry of Tourism (2017), Tourism Industry Advisors (2017), Palatková et al. (2012), Ministry of Business and Growth (2015), Ministry of Economic Affairs and Communications (2013), Ministry of Economic Affairs and Employment of Finland (2019), The Government of The Republic of Croatia (2013), Cross-Sectoral Coordination Centre (2012), Lithuania (2015), Hungarian Tourism Agency (2017), Ministry for Tourism (2015), Deutscher Tourismusverband e.V (2019), Presidency of the Council of Ministers, Department for Regional Affairs Tourism and Sport (2013), República Portuguesa Economia and Tourismo de Portugal (2017), UNWTO (2007), Ministerstvo dopravy Slovenskej Republicy (2013), Ministry of Economic Development and Technology (2017), NBTC Holland Marketing (2019)

Countries that mention it	Bulgaria; Croatia; Cyprus; Czech Republic; Denmark; Estonia; Finland; Germany; Hungary; Italy; Latvia; Lithuania; Malta; Portugal; Romania; Slovakia; Slovenia; The Netherlands
Main topics, some examples	-the country considers itself safe (Portugal, Latvia, Slovenia, Cyprus, Estonia) (in) adequacy of traffic morale -necessity and shortcomings of safety regulations and quality assurance standards; -recognition of terrorism and security as factors influencing travel; the influencing power of geopolitical conflicts; safety of people and luggage in accommodation and beaches; -managing conflicts between locals and tourists; safety of different specific tourism products (e.g., adventure, cycling, water tourism); -reducing crime, assassinations and immigrants as a goal

Technical safety appeared in the strategies for 12 countries, a total of 23 times. Typically, the emphasis was on the safety of different modes of transport and routes, highlighting roads, parking, and related traffic signs. Clearly, the strategies address important security issues for ports, airports and the visa system, in relation to which countries have set a number of development goals. Cyber security has become a key security issue today, and the analysis of data protection and data traffic has been mentioned in the strategies (Table 3).

„Hand in hand with digitalization, data protection and cyber security are gaining in significance. This requires awareness-raising and support." (Federal Ministry Republic of Austria Sustainability and Tourism, 2019:20)

The documents also referred in several places to the need to ensure secure access to digital content and services, as well as the development of local applications to make visitors' stay easier and safer.

"Development of digital content and other products and e-services, thus expanding the accessibility and possibilities of use of such services in economic activity." (Cross-Sectoral Coordination Centre, 2012:63).

Table 3. The appearance of the dimensions of tourism safety in the tourism development strategies of the examined EU member states - technical safety Own research, 2022 based on Federal Ministry Republic of Austria Sustainability and Tourism (2019), Ministry of Tourism (2017), Ministry of Economic Affairs and Employment of Finland (2019), Deutscher Tourismusverband e.V (2019), VisitBritain(2013), Hungarian Tourism Agency (2017), Presidency of the Council of Ministers, Department for Regional Affairs Tourism and Sport (2013), Cross-Sectoral Coordination Centre (2012), Ministry for Tourism (2015), UNWTO (2007), Ministry of Economic Development and Technology (2017)

Countries that mention it	**Austria; Bulgaria; Finland; Germany; Great Britain; Hungary; Italy; Latvia; Malta; Romania; Slovenia**
Main topics, some examples	improving the secure accessibility of digital content and service; development of local applications data protection, data traffic analysis, cyber security; roads, road signs, parking, public washrooms, additional infrastructure; security of ports and airports, development of terminals; improving the speed and efficiency of visa procedures; improving the safety of hiking trails, ski slopes and nature trails

The issue of health safety was the least discussed topic in the documents examined. A total of 14 ideas on this topic was mentioned in the strategies, in 11 countries. These mentions were almost exclusively about food and the supply of restaurants. In several cases, the importance of healthy, quality food and drink were emphasized by tourism service providers, and in this connection, knowledge of the origin of food and the preference for local products, as well (Table 4).

Potable tap water has also become an important issue nowadays, therefore it is no wonder that some countries emphasize that tap water is drinkable. The poor quality of drinking water poses a risk to the health of the local population and visitors (authors' own translation from the Ministry of Tourism, 2017). It has been mentioned in several strategies that quality labels and trademarks have recently acquired an important role in tourism, especially in hospitality, and several countries have set the goal of developing them and establishing their system. „The 'Gostilna Slovenija' trademark: Establishing culinary diplomacy and supporting the international visibility of Slovenian cuisine. Healthy food in the hospitality sector and its promotion" (Ministry of Economic Development and Technology, 2017:33).

In some cases (e.g., Malta), curbing illegal catering activities has also been mentioned as a task to be addressed.

Table 4. The appearance of the dimensions of tourism safety in the tourism development strategies of the examined EU member states - health safety Own research, 2022 based on Federal Ministry Republic of Austria Sustainability and Tourism (2019), Ministry of Tourism (2017), The Government of The Republic of Croatia (2013), Ministry of Economic Affairs and Employment of Finland (2019), VisitBritain (2013), Cross-Sectoral Coordination Centre (2012), Lithuania (2015), Ministry for Tourism (2015), República Portuguesa Economia and Tourismo de Portugal (2017), Ministry of Economic Development and Technology (2017), NBTC Holland Marketing (2019)

Countries that mention it	**Austria; Bulgaria; Croatia; Finland; Great Britain; Latvia; Lithuania; Malta; Portugal; Slovenia; The Netherlands**
Main topics, some examples	quality food and drinks from the service providers involved in tourism; quality labels, trademarks; knowledge of the origin of food, preference for local products; curbing illegal catering activities; providing potable tap water;

Table 5. The appearance of the dimensions of tourism safety in the tourism development strategies of the examined EU member states – orientation safety Own research, 2022 based on Ministry of Tourism (2017), The Government of The Republic of Croatia (2013), Tourism Industry Advisors (2017), Palatková et al. (2012), Ministry of Business and Growth (2015), Ministry of Economic Affairs and Employment of Finland (2019), Deutscher Tourismusverband e.V (2019), Hungarian Tourism Agency (2017), Ministry for Tourism (2015), Ministry of Sport and Tourism (2015), República Portuguesa Economia and Tourismo de Portugal (2017), UNWTO (2007), Ministerstvo dopravy Slovenskej Republicy (2013), NBTC Holland Marketing (2019)

Countries that mention it	**Bulgaria; Croatia; Cyprus; Czech Republic; Denmark; Finland; Germany; Hungary; Malta; Poland; Portugal; Romania; Slovakia; The Netherlands**
Main topics, some examples	multilingual signposts for attractions; improving the signposting of rural areas and attractions; development of close-to-nature tourism (e.g. walking, cycling) signage; the need to introduce tourism information systems

The issue of orientation safety was mentioned by 14 countries (28 times in total), most of which point out that the country did not pay enough attention to the placement of multilingual signposts in the past. This is typical of city centers, around airports and close to attractions The countries mentioned the backwardness of rural areas in this field as a clear shortcoming; the development of the signposting of roads and attractions was defined as a task for several countries in the development plans. „Signage (wayfinding & informational), particularly in rural areas, should be of a traditional design, with the use of neon being forbidden or strictly limited." (Tourism Industry Advisors, 2017:630) (Table 5).

In connection with the above problem, it is also necessary to improve the signposting of close-to-nature tourism (e.g., walking and cycling tourism) in order to ensure safe transport. The need to set up tourism information systems in several countries was also mentioned. „Improving the tourist information system in a destination (e.g., information desks, interpretation of the area, tourist signage).” (The Government of The Republic of Croatia, 2013:38).

Only 10 countries dealt with a fairly wide area of consumer safety (23 mentions in total). Several Member States have highlighted the quality problems caused by the gray and black economies, which make it impossible for regular service providers to operate profitably and are a major source of guest complaints. Reducing these illegal activities and eliminating unlicensed units is a goal for several countries in the near future. „A large number of bed and breakfast establishments is not licensed, thereby creating a very significant black economy. This is undermining the profitability and reinvestment capability of the legal operators.” (UNWTO, 2007:120). Quality standards and categorizations have emerged in many areas of tourism, and strategies have also drawn attention to their accurate measurement and adherence (Table 6).

The responsible thinking of the tourism sector is reflected in the continuous improvement of quality and the improvement of the safety and accessibility of tourism services. Safety must be taken into account throughout the chain of services provided to customers, paying attention to the requirements prescribed by the Consumer Safety Act, complying with the specified limits and directing operations on the basis of them. (authors' own translation from Ministry of Economic Affairs and Employment of Finland, 2019). In connection with the above, several countries have mentioned the provision of adequate quality of service and, in this context, consumer protection in their strategies. In some cases (Malta, Romania, Finland) we have read that the lack of education of tourism workforce can also be a problem in the quality of services, so e.g., Malta plans to expect a minimum level of qualifications for those working in the industry.

Table 6. The appearance of the dimensions of tourism safety in the tourism development strategies of the examined EU member states - consumer safety Own research, 2022 based on Ministry of Tourism (2017), Tourism Industry Advisors (2017), Palatková et al. (2012), Ministry of Economic Affairs and Employment of Finland (2019), The Government of The Republic of Croatia (2013), Ministry for Tourism (2015), UNWTO (2007), Ministerstvo dopravy Slovenskej Republicy (2013), Ministry of Economic Development and Technology (2017)

Countries that mention it	**Bulgaria; Croatia; Cyprus; Czech Republic; Finland; Malta; Poland; Romania; Slovakia; Slovenia**
Main topics, some examples	reducing the gray and black economy, eliminating unauthorized operations adherence to quality standards and categorizations expect a minimum level of qualification for employees ensuring adequate service quality, consumer protection

CONCLUSION

In the second half of the 2010s, the issue of security became an inevitably important consideration when making travel decisions. On the one hand, there are statistically demonstrable winners and losers of the terrorist acts of recent years; on the other hand, thanks to the rapid flow of information and online interactions between consumers (blogs, social media posts, etc.), deficits related to various aspects of security are also revealed in a matter of seconds.

The relevant literature often studies isolated case studies for a certain event or for a country (Mawby et al., 2020; Preko, 2020; Machado, 2011). This is the first attempt to explore the state of security and safety planning in tourism at country-level in the European Union. The main goal of the present research was to determine the place of tourism safety and security in the planning and development strategies of the countries of the European Union; and to explore the assessment of the importance of safety and security at Member State level in the tourism sector. To this end, we analyzed the tourism planning and strategic documents of 22 EU Member States. In our empirical research, we also performed quantitative and qualitative content analysis. For the former, we examined the frequency of occurrence of the term's security, secure, insecurity, safety, safe, unsafe, risk, terrorism, stability, instability, conflict, threat, crisis / crises, tension, and peace, while the aim of the qualitative study was to explore the manifestations of the dimensions of tourism safety according to Michalkó (2020) with a qualitative assessment. Thus, the main aspects of the qualitative study were public safety, technical safety, health safety, orientation safety and consumer safety.

Based on the main research questions outlined at the beginning of our study, we found that for each Member State, all the dimensions of tourism safety, including public safety, technical safety, health safety, orientation safety and consumer safety, appear. At the same time, it can be considered a novel scientific result that, although in terms of the grouping of tourism risks outlined by Roehl-Fesenmaier (1992), the focus of our study has been on destination as a risk; on the basis of the examined strategic documents, we found that they tend to project the general economic and social security issues of the country further into the tourism sector. The results of this were also confirmed by our qualitative study.

The qualitative analysis showed that countries primarily understand public safety as tourism security, including setting targets for crime and terrorism, and drawing attention to various aspects of quality assurance. With regard to technical safety, the development of digital communication and infrastructure investments were the main targets. We need to realize that having them is now a basic need for tourists. Health safety has been the most relevant to food, through the introduction of quality labels and marks and the promotion of local products. These ideas are pushing at open doors, as tourism trends clearly show visitors' openness to local, authentic food and meals. In relation to making orientation and navigation safer, a number of strategies have highlighted the goal of improving signage, whether in rural areas or close to attractions. While many digital programs are helping you find your way around these days, they can't replace the placement of signs and directions. Thus, in order for the visitor to find the attraction or service provider, proper signposting is essential. Consumer safety is an issue that can be interpreted in each of the above four dimensions, therefore strategies consider the reduction of the gray and black economy as a key factor in addition to adequate service quality and consumer protection.

The examined tourism development strategies were quite different in scope, content and depth. Regarding their scope, we analysed documents from 40 up to 800 pages, the former focused more on strategic goals, while the latter even contained specific action plans and also indicators and necessary financial resources. We have found similarities in the structure of the documents. Almost every strategy started with a trend- and situation analysis, in which the impacts of the current social, economic and ecological issues on tourism were demonstrated, and changing consumer behavior was described. They then turned to the general economic and tourism endowments and potential of the country. Strategies addressed the identification of target groups and the identification of competitors to varying degrees. The formulation of strategy goals was of varying depth. In the field of security and insurance, all documents focused primarily on public safety. Some only mentioned potentially unpleasant situations for tourists, while others described quite specific measures to address or plan to address these situations. In many cases, the word 'secure' appeared on the subject of the financial background needed to develop tourism, and in some cases on the subject of providing adequate human resources, which, however, cannot be directly linked to the subject of tourism security.

As a result, we have found that terms related to tourism safety appear modestly in strategies. The terms related to safety and security (safety, secure, security, safe) appeared the most, mainly in the chapters describing the situation analysis and tourism consumer trends. Words related to tourism safety were most often mentioned in the Bulgarian strategy (69 cases in total), but these terms also appeared in large numbers in the Cypriot and Czech strategies (68-51 cases).

Based on Fareed et al. (2018) there is a direct positive relationship between safety and security and the success of tourism destinations. The destinations and countries that were the focus of our investigation were almost without exception well-prospered before the coronavirus epidemic, and all were considered safe. Since the documents, we analyzed were prepared in the period before and for the duration of the pandemic, we can explore Fareed's statement in this context. Based on the data of the European Statistical Office, Spain, Germany, Italy, Greece, and Austria performed best in terms of the number of foreign visitors in 2019. During our empirical content analysis, we found that the strategic documents of Bulgaria, Cyprus, Czech Republic, Lithuania, and Latvia dealt most often with a security aspect. Comparing the two lists, we see that there is no match in the top five. However, our results do not extend to the fact that well-performing countries are popular because of security aspects, neither cannot be said that they are safer because the examined terms or topics are often mentioned in their strategies. We can assume that where this is mentioned more often, more attention is paid to the topic, already at the level of planning, and thus presumably also in implementation and practice. The aim of our study was therefore to show the importance and weight of this topic, which we succeeded in doing.

The study concludes with some management conclusions. Although increasing security and safety contributes to improving the economic impact of tourism (Manrique-de-Lara-Penate et al., 2022), most of the currently valid planning and strategy documents do not pay much attention to tourism safety and security, which is in most EU countries clearly in its infancy. The documents focus on the general socio-economic security issues of the given country for the tourism sector. In the planning of tourism and the formulation of strategic foundations, the interpretation of tourism safety, which currently focuses almost exclusively on public safety and consumer safety, needs to be broadened. However, nowadays technical safety (especially with regard to the development of digital communication, data security) or just making orientation and navigation safer is essential for a traveler in 2020. The integration of technologies into tourism (e.g., GPS and POI-based route planning, the emergence of virtual and augmented reality at tourist attractions) and their treatment as a safety issue has, in our view, become an unavoidable planning issue. And the year 2020 has taught us that the fifth dimension of tourism safety, that is health safety, can become a critical factor at any time, paralyzing the entire tourism sector.

In our view, it would be irresponsible at this time to declare any country safe today. No matter how much a state strives at the legislative level to protect consumers, have adequate technical training, security of orientation and navigation, avoid various health epidemics, or even fight terrorism, 100% protection cannot be established despite the highest level of precautions. And this kind of uncertainty can only be alleviated if a country, destination or, where appropriate, a specific attraction communicates its activities and measures related to the above, proving its readiness; and it is not refuted by the media or the news, either. As we encounter a significant amount of false news in a crisis situation, constant contact with the media can help with objective information. However, this already leads us to another area of tourism, the planning and organization of PR activities. Due to the coronavirus epidemic, the safety of tourism is expected to be appreciated, but it would be important that not only health safety was given priority in renewable strategies.

The limitation of the present research is that most of the examined strategic documents planned the main directions of tourism in the Member States until 2020. Thus, when the present study is published, new development plans are being prepared, which will no longer focus on the economic crisis of 2008-2009, but on the experience of the terrorist attacks in the middle of the 2010s and the coronavirus epidemic in late 2019 and peaking in 2020.

During further research, it is worthwhile to study several dimensions of tourism safety and, in the case of individual destinations, the relationship between real and perceived safety. Association research is likely to be suitable for this (cf. Kovács, 2013, 2019). Special attention should also be paid to the communication activities of each Member State, which, although present in a negligible proportion in the present strategies, can be brought closer to the marketing communication practice of tourism safety by examining other destination-specific publications and other digital content. Another interesting aspect of a further study could be to explore whether Member States that have addressed the issue of tourism safety at a strategic level (formulated as a goal in their strategies and communication) have indeed successfully returned to the market. That is, on the one hand, were they able to reach the previous visitor number as prior to the coronavirus epidemic; or on the other hand, have they really been more successful in creating tourism safety?

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DEVELOPING SPATIAL TYPOLOGY FOR URBAN AGRICULTURE INITIATIVES TO ACHIEVE FOOD SECURITY IN JORDAN

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Abstract: The study investigates the current Urban Agriculture (UA) initiatives in Jordan on multiple spatial typology scales, addressing their different stakeholders and identifying the produced crops compared to their sufficiency level across the country, which is crucial to understanding the role of Urban agriculture in achieving food security and sufficiency in Jordan. The study is based on extensive desk research covering around 105 sources to identify the crucial dimensions of Urban agriculture. The study uses diagrammatic representations to analyze these dimensions and stimulate discussions through interviews conducted later with 12 key members. The study also uses thematic analysis to generate relevant themes that target Urban agriculture's main issues and opportunities in Jordan. The study discusses the levels of integration and continuity between the different Urban agriculture scales to achieve food security, the reasons for such distribution and spread, provided opportunities and faced challenges, as well as the key factors that resulted in success or failure along with the potential risks facing Urban agriculture in Jordan. Four themes were identified as a result of the interpretations of these discussions covering the needs and sufficiency, ownership, coordination between stakeholders, and the nature of products. The study addresses the main aspects, problems, and opportunities related to Urban agriculture in Jordan and integration between scales, stakeholders, and crops and provides recommendations for the key stakeholders on how to emphasize their contribution to the required level of Urban agriculture to achieve sufficiency and ensure local food security as an outcome. The study also provides a standing point to stimulate further research in these areas.

Key words: Spatial Typology, Urban Agriculture, Urban Planning, Food Security, UA initiatives, Jordan

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INTRODUCTION

In the last three years, countries turned towards the closure of their borders because of the global health crisis after decades of heading towards globalization, they had faced challenges pertaining to food security and agriculture, created a major disruption in the urban food systems (Aldazhanova et al., 2022; Altman, 2020). Countries have applied an internal policy focus on their own capabilities and self-sufficiency for each country and have rearranged their priorities accordingly, with food security being placed among the top ones. Jordan is considered of particularity in that regard, as it is ranked 64th out of 113 countries in terms of food security, according to the Global Food Security Index for the year 2019, issued by The Economist Intelligence Unit, Der Spiegel (2020). King Abdullah-II of Jordan revealed the national policy guidelines in an interview with Der Spiegel (2020), stating that; "Food security is the top priority", that the risk of starvation is considered greater than the risk of global health crises in many regions of the world, and therefore the investment is made in storing strategic foods, and strengthening strategic reserves for a minimum of one year, as is the case in European countries. From that respect, sufficiency of food products through Urban Agriculture (UA) as a type of spatial planning, has been advocated as a country-wide strategy to improve food security (Altieri, 2019; Otten, 2015). A comprehensive strategy is achieved by studying land resources on different spatial typologies and studying different scales, from the city down to the district, neighborhood and to the housing unit level. This study cannot be comprehensive without examining and investigating other important related factors; such as stakeholder's contribution on different levels, imported essential crops compared to the possibility of growing it locally, self-sufficiency achieving and maintaining, and UA local initiatives with their success rates.

Current studies on urban agriculture worldwide addressed the role of spatial typologies in achieving food security. Part of these studies emphasized specific spatial typology scales, which resulted in the limitation in separating them from other spatial typologies (Abelman, 2020; Cabannes and Marocchino, 2018; Meenar, 2017; Sanyé-Mengual et al., 2015; Philips, 2013). Other studies emphasized the multiplicity of spatial typology scales but rarely addressed the integration of spatial typologies in achieving food security, particularly when the diversity of crops that could be produced is concerned (see Kumalawati et al., 2020; De Vries and Fleuren, 2015; Pearson et al., 2010).

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To achieve food security in the context of Jordan; this study emphasizes integrating all various components and identifying research gaps, by focusing on the integration of multiple spatial typology scales and the way this can enhance the management of the produced crops. Additionally, it maps current urban agriculture initiatives in Jordan on multiple spatial typology scales, addressing their different stakeholders, and identifying the produced crops compared to their sufficiency level across the country. In order to attain sufficiency and assure local food security as a result, the study concludes with recommendations for the stakeholders (planners, landscape architects, government, individuals, NGO's, etc.) on how to emphasize their contribution to the required UA balance.

LITERATURE REVIEW

a. Agriculture in Jordan

Jordan has an area of about 89 million square acres. Being dominated by an arid and semi-arid Mediterranean climate, about 5.5% of the area of Jordan is considered dry lands, with annual precipitation ranging between 200-300 mm. This rate exceeds 300 mm in no more than 4% of the country's area, which mainly comprises the northwestern highlands (Ministry of Agriculture, 2020). This reflects agricultural challenge in Jordan, where the total arable area, though not all cultivated, is about (8.9) million acres, representing a mere 10% of the country's area. The area used for cultivating field crops and grains in 2020 amounted to about 891967 acres, compared to 595655 acres cultivated with vegetables, and 377533 utilized for fruit trees (excluding olives). Accordingly, the total cultivated area in the Kingdom in 2018 was estimated at about 2732199.6 million acres, which comprises 3% of the total area, or 27% of the cultivable area (Ministry of Agriculture, 2020).

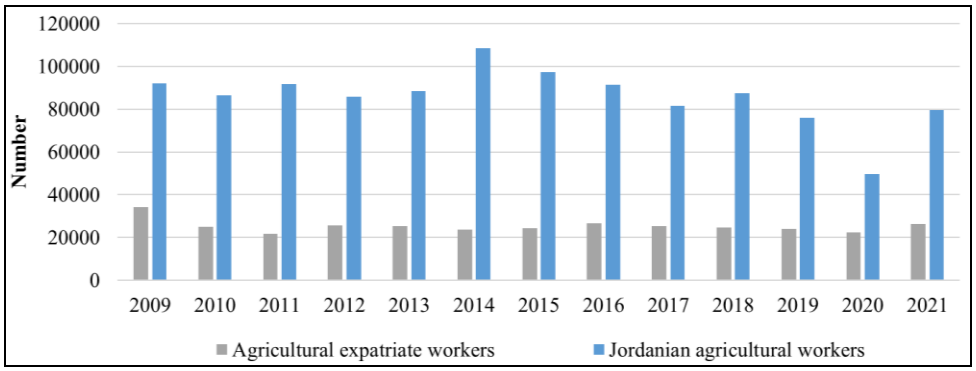

Figure 1. Number of Jordanian and expatriate workers diagram (Source: Ministry of Labor, Market Figure, 2022: 91)

The Jordanian community is not accustomed to working in agriculture, where such sector has significantly relied on expatriate workers, seen in Figure (1), which is a challenge facing agriculture in Jordan. While unemployment among the national youth reached 41% (Ministry of Labor, 2022), a clear aversion can be seen by the community from the demanding physical work associated with the agricultural sector, along with the social stereotypes and norms depreciating the stature of agricultural work. In response, the government has aimed to stimulate the national participation in agriculture by facilitating low-interest loans to farmers through the Agricultural Credit Corporation. This has backfired, where around 70% of the farmers struggled with debt that kept building up through the years due to a combination of higher costs and lower returns, ending up being pursued by the government for their repayment default (Al Odwan, 2018).

The reduction of the farmers' financial returns was due to a number of reasons, including the lack of their products quality, cultivation surplus in certain crop types such as tomatoes (market bottlenecks), and the reduction of other, though more demanded, with the lack of government support as importing such products was more affordable than growing them locally. This was exacerbated by difficulties faced with a fluctuating rainy seasons and rising costs of agricultural production. The outcome was the disappearance of 14,000 small farmers failing to cultivate their lands who, after a while, ended up selling their plots to new affluent-class owners. With the latter not actually working in agriculture, the purchased agricultural lands were turned into family farms for weekend leisure (Al Odwan, 2018). Farming as a profession was also affected by the rise in population and urban sprawl (Al-Koufahi et al., 2018), leading to land consumption for construction projects (Al Otoum, 2020). In addition to promoting farming as a profession, many municipalities have resorted to initiatives supporting land cultivation as a community initiative, covering areas such as pavements, roundabouts, and municipal gardens. Universities, schools, and mosques similarly resorted to comparable initiatives for different reasons related to leisure, education, beautification in addition to securing food. These initiatives, however, are rare and hardly successful due to the lack of community interest and collaboration in addition to other uncontrollable reasons. Alternatively, the most noticeable, widely spread, and probably considered successful agriculture initiatives were in house gardens (Department of Statistics, 2002), with people having special interest in gardening as a leisure and cooperative activity through which they share knowledge and expertise in addition to providing some types of food that they share with their neighbors (Dubbeling et al., 2009).

b. Self-sufficiency Production

Jordan maintains sufficiency in certain crops but is found severely lacking in others. There is a lack of balance between crops that are overly sufficient while other essential foodstuff is not even close to sufficiency. As Figure (2) demonstrates, two types of olive, olive oil and tomato crops have a self-sufficiency ratio that exceeds 100%. Potatoes are in a similar position with a self-sufficiency ratio of about 96%. Citrus fruits, such as lemons and oranges, have a self-sufficiency ratio of

about 57%. It is noticed that the self- sufficiency rates of the basic foodstuff in Jordan, are very low ranging between (2.3% to 8.2%) (Ministry of Agriculture, 2022). This was mainly due to the unremunerated compensation for prices, fluctuation of the rainy season, and rising costs of agricultural production, in addition to urban sprawl and growing population. As shown in Figure (2), it is clear that the proper consideration of a certain insufficient crop mandates addressing the opportunities and challenges in considering the country's ability to satisfy its demand by increasing its production in a manner that ensures its proper integration with different crops and other essential foodstuff such as rice, sugar, lentils, and dry beans, that face challenges with their self-sufficiency ratio ranging from 0-8.8%. Referring to table (1) and Figure (2), the urgency in tackling food production issues in Jordan is quite clear, particularly in terms of necessary products that are otherwise imported.

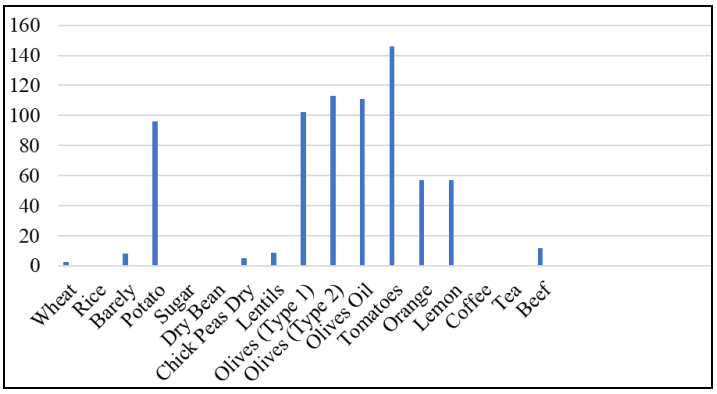

Figure 2. Self –Sufficiency Ratio Diagram (SSR) of Food Items, 2021

Table 1. Self –Sufficiency Ratio (SSR) of Food Items, 2021 (Source: Department of Statistics, Jordan Statistical Yearbook, 2022)

	SSR	Export	Import
Wheat	2.3	61213	1173392.4
Rice	0	2550.6	198784.1
Barely	8.2	0	854817.1
Potato	96.1	9926.1	2243.2
Sugar	0	449	281063.5
Dry Bean	0	0	4988
Chick Peas Dry	5.3	72.4	36345.9
Lentils	8.8	132.7	10115.1
Olives (Type 1)	102.4	3617.6	0
Olives (Type 2)	113	4840.1	1488.1
Olives Oil	111.1	2345.5	2.8
Tomatoes	146.1	224423.8	0
Orange	57.2	1852.1	34497.6
Lemon	57.1	391	22405.6
Coffee	0	2982.3	37827.9
Tea	0	3938.7	8219.9
Beef	11.5	12546.1	70864.5
Mutton	42.8	12.7	24928.1
Goat Meat	100	0	0
Chicken meat	79.3	9773.1	74077.9
Cow Milk	100	0	0
Table Egg	99.7	0	127.8
Fish	6.8	389.6	32517.3

c. Urban Agriculture (UA)

Urban agriculture is a modern trend in urban planning and city management. It is defined by researchers, such as Wagstaff and Wortman (2013) and Bailkey (2000), as the practice of cultivating, processing, and distributing food and non-food products, in or around urban areas (Al-Asad and Zureikat, 2018). Land-use planners and landscape architects emphasize encouraging UA to become engaged in the growth and change of cities, by including community farms, allotment gardens, rooftop gardening, edible landscaping, urban forests, and other productive components of the urban environment (Lovell, 2010). UA is acknowledged for the benefits of forming strong social relationships, supporting community interaction, and involvement in knowledge and expertise sharing. While considering the potential of UA as a means to achieving food security, reference is made to the numerous benefits associated with it, resulting in its growth in various parts of the world. These include access to healthy/organic food, clean living, and the greening of cities. (Aldazhanova et al., 2022; Al-Asad and Zureikat, 2018) UA is different from rural agriculture in local food systems, where it is integrated into the local urban economic and ecological system to actively contribute to achieving food security (Yan et al., 2022; Al-Asad and Zureikat, 2018). As it turns out, Jordan's issue is the decreasing amount of land and space available for urban agriculture. With this importance and associated benefits of urban agriculture, Jordan represents a case of rare and fragmented urban agriculture initiatives. This demonstrates the necessity of urban agriculture's revival and unification in Jordan in order to achieve its benefits, particularly in terms of food security.

d. Fragmentation and Integration of Urban Agriculture in Studies

- It was not easy to integrate and classify studies related to the UA, due to the different way of handling and studying different aspects, some studies look at spatial typology and its various kinds, while others look at stakeholders and crops.

d. 1. Multiple studies have addressed the topic of UA with reference to its **spatial typologies** and their role in achieving food security. 1) Some focused on a specific spatial typology through work on the neighborhood scale including community farms and rooftop gardens (Abelman, 2020) as well as the city and urban scale (Cabannes and Marocchino, 2018; Meenar, 2017; Sanyé-Mengual et al., 2015; Philips, 2013). These studies present the importance of each of these spatial typology scales and their contribution to urban agriculture, they had their limitations in not considering the multiplicity and combined effect in addressing UA (Cabannes and Marocchino, 2018). 2) A second research category focused on multiple spatial typologies. This includes the work of de Vries and Fleuren (2015) on individual gardens, semi-public urban spaces, and green infrastructure, the work of Newell et al. (2022) on community and private gardens, as well as the work of Pearson et al. (2010) on the social and economic concerns of urban agriculture. These studies present the multiplicity of spatial typology scales in addressing UA but do not take into account their combined effect (Cabannes and Marocchino, 2018). 3) A third category focused on the combined effect of the spatial typologies, these studies present the integration of the food system on the city, urban neighborhood, private parcel, and built structure scales (Kasper et al., 2017; Lovell, 2010). 4) Other studies also addressed the effect of considering the initiatives taken on different scales; micro, mezzo, and macro, such as the works of Wang (2016) on edible landscapes in China and the study

of Specht and Sanyé-Mengual (2015) on the risks pertaining to urban rooftop farming in Barcelona and Berlin. This category, in specific, presents and draws attention to (i) the way the various spatial typologies can be taken into account, and (ii) the ways the different spatial scales can complement each other and contribute to UA problems, whether we consider the house with its balconies and sometimes it's back and front yard gardens; housing tenements with possibly green roofs and façades; neighborhoods with food assets on their streets, pavements or open spaces; or districts with possibly larger parks, whether cultivated or not; cities as a whole, with open fairs, supermarkets, food hubs or wholesale markets; or peri-urban areas that may have cultivated areas and a rural hinterland (Cabannes and Marocchino, 2018).

d. 2. The multiplicity and combination of these typologies situate UA at the intersection and as a product of the integration of these spatial typology scales, reflecting **the necessity of cooperation between the different stakeholders responsible for these initiatives**.

Where most studies comprised the different spatial typology scales of urban agriculture and the means of addressing them separately or in combination**, the distribution and integration of the produced crops** were, in most cases, left out. The studies of Abelman (2020); Wang (2016); Sanyé-Mengual et al. (2015); Cabannes and Marocchino (2018); Philips (2013) went through the crops commonly farmed within the different addressed cases of home gardens, roof gardens, community, and peri-urban gardens, in a fragmented manner that did not attach such crops to a particular spatial typology scale. On the other hand, de Vries and Fleuren (2015) provided a more holistic account of the **crops produced per spatial typology scale** but did not emphasize the means of their inter-scale integration. Although there are some studies that provided insights into the role of UA in tackling food security (The Arab Group for the Protection of Nature, 2019; Al-Asad and Zureikat, 2018).

- The argument here is that addressing different spatial typology scales and the collaboration between different stakeholders should take into account the types of crops produced, how they compare to the needs, and how they are integrated with other crops to achieve sufficiency, which is still lacking.
- The current UA studies in Jordan are no exception. These studies are still fragmented in terms of addressing different spatial typology scales, stakeholders and produced crops. This is exacerbated by considering the multiplicity of initiatives that are not still documented, which adds to the fragmentation and lack of possible combination or integration.
- This study is only an attempt to combine such documented/undocumented initiatives while particularly focusing on produced crops. The study proceeds to compare the produced crops with the self-sufficiency ratios to identify ongoing issues.

METHODOLOGY

The research relies on an in-depth diagrammatic analysis of a number of UA initiatives that took or are currently taking place on multi-scales in Jordan. A multidimensional analysis was utilized, starting with a long list of dimensions that were tested on a multiplicity of existing cases (considering spatial typology scales, locations, drivers, limitations, involved stakeholders, contribution of and effects on governance and local community, types of products, time of initiation, duration, and continuity) (Figure 3). These dimensions were then refined to address the main concerns of the research, connecting the multiple spatial typologies of UA initiatives, their stakeholders and the associated crops with the level of spread and factors of success of each spatial typology scale, leading to a better understand of the food security reality in Jordan.

The study relied on a combined approach that started with an extensive desk research incorporating a review of circa (40) research papers as well as (65) press-releases and (50) governmental announcements and issued statistics covering local plans and initiatives in Jordan for the period from 2005 to 2021. The study further relied on reports and market surveys developed by a number of none-governmental organizations estimating the spread levels (spatial typology scale) and success rates (stakeholders) of UA initiatives. Accordingly, the UA initiatives and attempts were collected and analyzed on the basis of the following criteria:

(i) the coverage of multiple spatial typology scales of UA, (ii) the variety of stakeholders involved, (iii) the types of crops produced, and (iv) the incidents of continuity/discontinuity, success/failure, opportunities/challenges, among other considerations.

The outcomes of the desk research went through three levels of interpretation and investigation, using diagrams to organize the data and assist the researchers in formulating ideas and stimulating discussions through the interviews that followed (see Buckley and Waring, 2013). The usage of diagrams was not limited to visual representation of what is being discovered through analysis, but also as generative/analytical techniques and communicative tools to achieve the following:

- Mapping the different UA initiatives in order to associate them with the available typologies in Jordan, their stakeholders, and cultivated crops. To understand the effectiveness of these associations, the study also mapped the level of spread of each initiative on the associated scale while pointing out the level of success of each initiative based on continuity. Mapping was done manually by the researchers as usage of software packages offering visual displays of semantic nets, concept diagrams and graphs did not necessarily enable deep reflection on the data, its interpretation, or criticism (Radnofsky, 1996).
- Utilizing the provided diagrammatic analysis and providing critical reflections regarding the produced associations. The provided diagrams helped the researchers become more reflexive as they stimulated thoughts through a transparent process, reducing the potential for reductionism (Buckley and Waring, 2013).
- Utilizing the diagrammatic analysis as tools for communication and further exploration with the main stakeholders (Buckley and Waring, 2013; Crilly et al., 2006). This entailed conducting semi-structured interviews with (12) of the key members involved in the selected UA initiatives to provide insights into the subject matter as well as validate the outcomes of the analysis. Each interview lasted around 30-120 minutes to stand on the levels of integration and continuity between the different scales to achieve food security, the reasons of such distribution and spread,

provided opportunities and faced challenges, as well as the key factors that resulted in success or failure along with the potential risks facing UA in Jordan going forward. The usage of diagrams was beneficial to focus the discussion on the common framework (Crilly et al., 2006; Ford and Sterman, 1998).

It should be acknowledged, however, that these methods could be embedded with some limitations, where (i) prepared diagrams have the potential to influence or restrictively bias interviewees' thinking, rather than help stimulate, expose or reflect it (Crilly et al., 2006; Larkin and Simon, 1987), and (ii) diagrams are most useful to those who have the ability and skill to quickly interpret them. To overcome these limitations, we followed Crilly et al. (2006) in suggesting that diagrams were merely a work in progress and could still be amended with any newly reported data or further insights. Furthermore, the diagrams were shared with architects, landscape designers and other experts who acquired the knowledge and capability to effectively read into and interpret visual data. Data analysis utilized NVivo (10) software to analyze the interview results through familiarizing with the data, identifying initial codes, grouping codes to generate themes, evaluating the produced themes to reach the finalized themes that would be based upon in providing relevant recommendations.

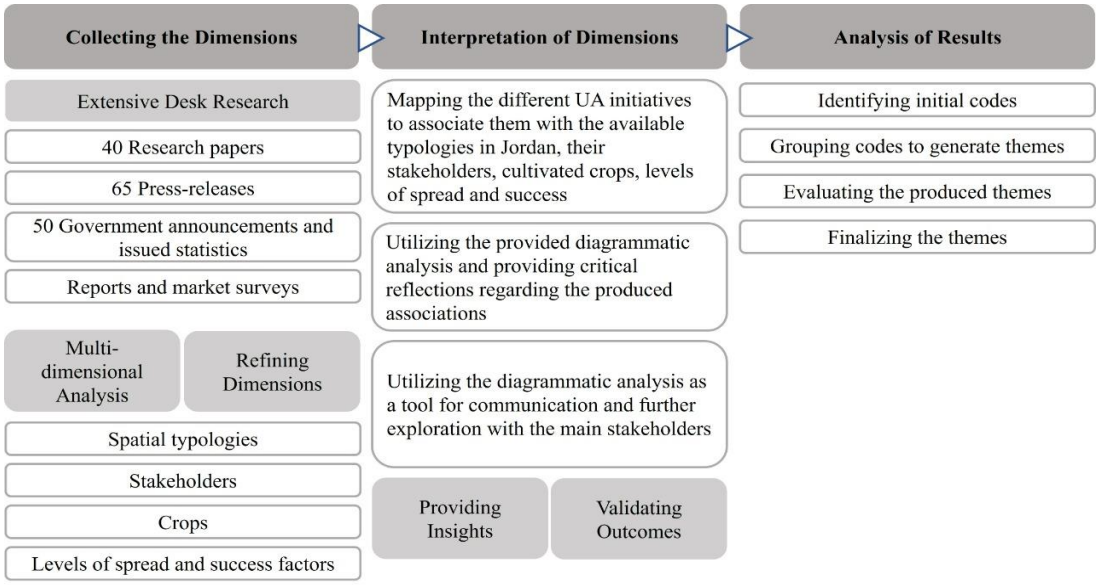

Figure 3. Flow chart of the adopted methodological steps

RESULTS AND DISCUSSION

The first part of the discussion includes the mapping of UA initiatives and their analysis (shown in Figures 4 and 5), covering their spatial typologies scale that were classified depending in Jordan context (home, neighborhood, district and city), associated stakeholders and crops along with their level of spread and success. The main focus was on the integration between these aspects. Numbers of spread levels and success rates were deducted from previous market surveys and reports developed by NGO's to help in better understanding the effectiveness of these associations (The Arab Group for the Protection of Nature, 2019).

1- Spatial Typology Scale and Spread: The findings demonstrate that the house scale had the highest spread among other UA forms, with focus on the backyard (with a percentage of 70%) followed by the front yard (with a percentage of 40-50%). The spread within the house scale also revealed a minimum usage of facades, balconies and green roofs. Conversely, the findings showed that the neighborhood scale had the lowest spread, with sidewalks having the highest percentage in this scale (reaching 40%) while other spaces, including open spaces and roundabouts, did not exceed 7%. The spread on the district scale was barely different than the neighborhood, reaching a maximum percentage of 45% at universities while not exceeding 20% in other spaces. Finally, on city scale, while attaining a relatively high value of spread through farms, did not reflect a proper utilization of leftover spaces, with a spread value not only 3%.

2- Stakeholders: The findings revealed seven key stakeholders that are mainly connected to different types of spaces. The government is responsible for farms, leftover spaces, large parks, and mosques. Municipalities are responsible for large parks, open spaces, roundabouts, in addition to cultivating municipal gardens. Schools and universities are responsible for their own gardens as well. NGOs and communities are responsible for sidewalks and sometimes collaborate with other stakeholders to achieve their goals. NGOs could also collaborate with individuals on different private house and neighborhood spaces. While communities are responsible for sidewalks, individuals are in charge of all house-level spaces, where other individuals (mainly farmers) are responsible for farms. These types of stakeholders have been found always connected to different levels of success or failure. Initiatives supported by individuals (excluding farmers) achieved the highest level of success (100%). Initiatives supported by universities achieved a 70% success level while the ones supported by schools attained a lower rate (20%). Initiatives supported by NGOs acquired a 50% level of success, depending on the other party collaborated with. Finally, no proof of success was found in any of the initiatives supported by municipalities or communities. Figure (6) below demonstrates the level of success and failure based on stakeholders.

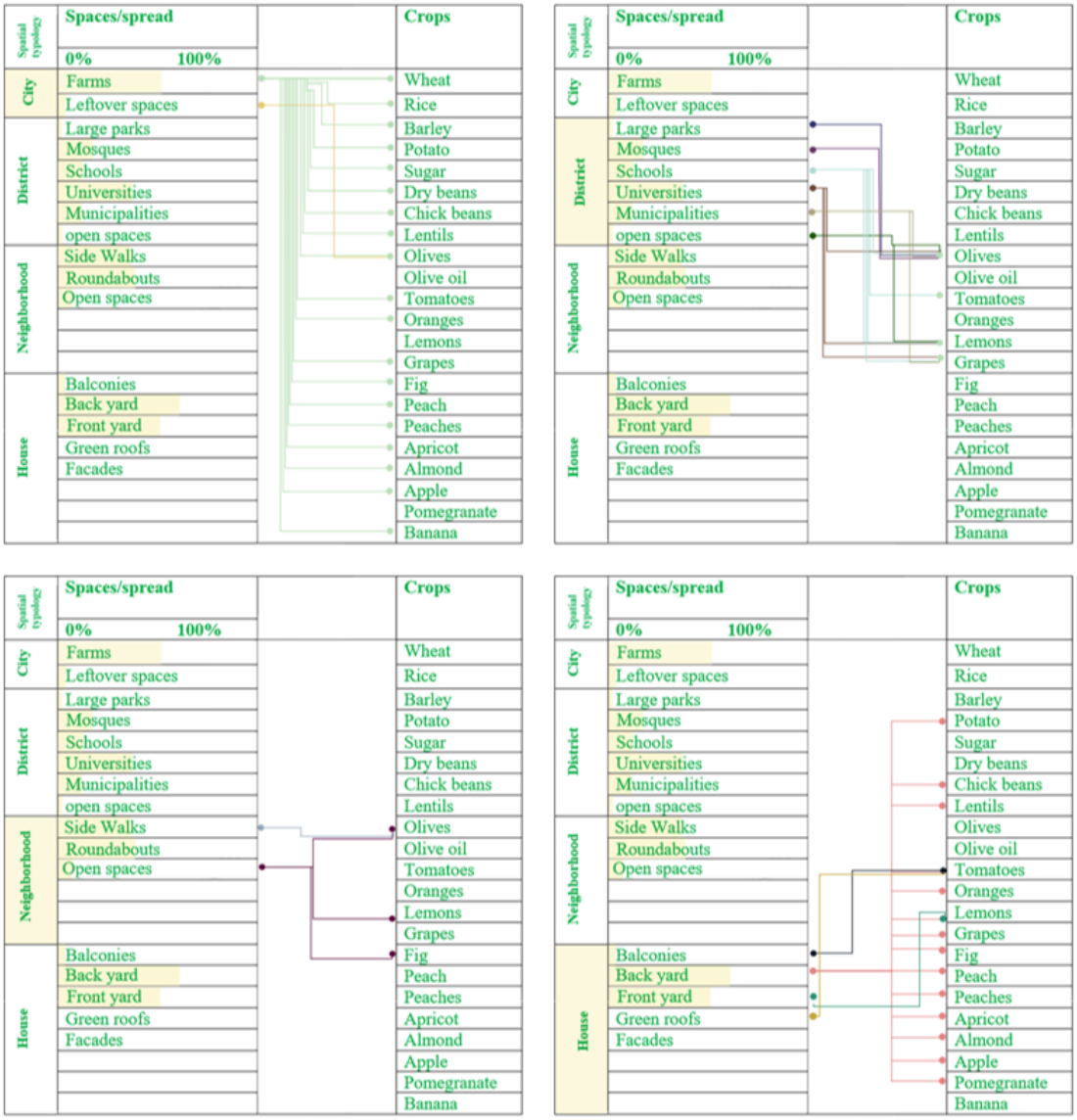

Figure 4. Mapping outcomes of UA; the integration between each spatial typology scale and crops

3- Crops: The findings show that the crops associated with the house scale were potato, tomato, peach, apricot, apple, grapes, oranges and pomegranate. Notably, most of these crops are considered demanding in terms of continuous care, irrigation and fertilizing. On the neighborhood level, the most dominant crops were olive, lemon, and fig. Notably, these are the crops that do not need as much care. On the district level, crops varied between the ones that demand care (grapes, peach) and others that do not (figs and lemon). On the city scale level, comparatively, crops were primarily rice, barely, and wheat, which are crops regarded as demanding continuous care and irrigation.

As an outcome of the distribution of crops, it is worthy to note the exclusive association of some crops with a single spatial typology scale, such as wheat (on the city scale). Other crops, comparatively, were associated with multiple spatial typology scales, such as olive, which could be found on the

Figure 5. Mapping outcomes of UA; the association between spatial typology scale, stakeholders and success

neighborhood, district and city scales. This can be justified as some crops (e.g. wheat, rice and barley) need large areas to be farmed while others (olive for example) can be planted in its singularity. Furthermore, crops that need processing after their cultivation (except for olives) are mostly farmed on larger scales (mass production). Table (2) demonstrates the distribution of key crops investigated among the different spatial typology scales. The following part of the discussion includes the interviews analysis, focusing on the main themes resulting from discussing the diagrammatic representations, the justification of distribution, and explanation of the levels of spread and success ratios. Four main themes were identified:

Table 2. The distribution of studied crops among the different spatial typology scales

Crop	Classification	Spatial Typology Scale
Tomato	Multi-scale	House – Neighborhood – District - City
Potato	Multi-scale	House – Neighborhood – District - City
Lemon	Multi-scale	House - Neighborhood – City
Orange	Multi-scale	House - Neighborhood – City
Olives	Multi-scale	All scales
Barley	Single scale	City

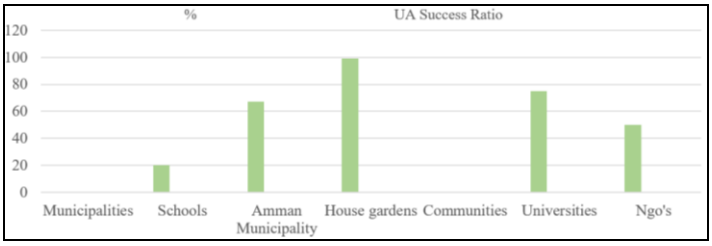

Figure 6. Level of success and failure diagram based on stakeholders (ratios deducted from market studies and reports by NGO's)

1- Needs and sufficiency

The interviews revealed a lack of integration between stakeholders, resulting in the excessive supply of some already-sufficient crops at the expense of others. This highlights the need to reorganize the crops with respect to the different spatial typology scales depending on their availability. The interviews showed that cultivating crops in many spatial typology scales, such as house and neighborhood was disconnected from their current availability. On the house level, for instance, the decision on cultivating a specific crop depended on the preferences of tenant, as the decision was driven by factors that exceeded securing that crop as food, where certain crops might be selected for beautification, providing aroma or shade. On the neighborhood scale, however, it became common to cultivate similar crops mostly because people were used to them or because they do not require continuous care from adjacent residents, as such care relied on the dedicated effort of members that were not always available. The distribution of significant crops across Jordan reveals a multiplicity of agricultural crops with varying availability levels. Availability, in that regard, relies on two factors; the spatial typology scales and stakeholders suitable to cultivate and maintain such product and the probability of success each scale/ stakeholder group affords.

Here we realize that some crops are associated with one spatial typology scale, such as wheat, along with a particular stakeholder, which sharply determines their level of success or failure. Other crops, such as olives, are found on multiple spatial typology scales associated with a variety of stakeholders, which renders their level of success reliant on multiple variables. These results could be associated with the actual crop sufficiency, marked by a number of products that are excessively available compared to other barely sufficient crops. Wheat, for example, is associated with one spatial typology scale and particular stakeholders with a level of sufficiency around 1.1%. Olive, which is associated with many spatial typology scales and a variety of stakeholders, justifies a higher level of 112.3%. Lemon, similar to olive (found on multiple spatial typology scales and stakeholders) has a sufficiency rate of 68.5%. In addition, most crops (tomato, potato, orange) found on the house scale have a sufficiency rate that exceeds 60%, mainly due to the high rate of success, as well as the spread, on that spatial typology scale. In light of the distribution shown in table (2), a number of discrepancies were found reflecting (i) the excessive farming of certain crops despite their general availability and, sometimes, their abundance, and (ii) the growth of certain crops on multiple spatial typology scales at the expense of other crops that are restricted by nature to a particular spatial typology scale. This reveals the need to realign the distribution of agricultural crops in order to reach a better multi-scalar integration of UA in a manner that better contributes to food security nationwide.

2- Ownership (care)

The interviews showed that the ownership and the level of management and care is one of the significant factors that affect the success of the concerned crop. For example, the spread of the house scale as the most seen amongst other typologies (around 70% in backyards and 40-50% in front yards) can be attributed to the self-awareness and interest maintained by individuals, especially when such activity is under their total control and for their own benefits. The role of NGOs associated with house scale initiatives is vital as they are able to provide the required coordination and support. This results in a very high success rate of these initiatives (99%) with a high sufficiency rate (exceeding 60%) for most crops associated with that scale. The spread of initiatives on the city level, particularly farms, is found to be 60%. This is the outcome of associating farm success with farmers' benefits, though it depends on the level of government support. The case of farms is critical due to their connection to their direct benefits and the lack of government support in some cases. For example, farmers became less interested in cultivating wheat because of government orientation towards importing such product. This disinterest resulted in dropping the success rate on that scale, resulting in a low sufficiency of wheat (1.1%), which was eventually replaced with potato that is also cultivated at other spatial typology scales, reaching a sufficiency of 93.1%. This is important to note as a crop like wheat cannot be cultivated by stakeholders other than farmers, while potato can be, and is already being cultivated by others.

3- Coordination between stakeholders

The interviews showed a lack of integration between the multiple stakeholders at different spatial typology scales. The crops were mostly chosen according to stakeholder preference without coordination with other stakeholders in light of their availability and sufficiency. This emphasizes the need for more coordination amongst stakeholders through a deeper

understanding of their areas of interest and, at the same time, in alignment with the most imminently needed crops. In some cases, individuals on the house scale were found to cultivate the same crop and exchanging it with their neighbors as a cultural norm rather than being driven by the need to satisfy a crop that is lacking in their area.

The spread over the neighborhood and district scales was the least (ranging from 0% to 40%). The neighborhood case, in particular, is linked to the lack of coordination in between the neighborhood community members, in light of the lack of support from the municipalities and/ or NGOs to enable the proper management of such shared areas, or the facilitation of the required tools for the neighborhood community to autonomously handle that responsibility. The neighborhood members were less interested because there were no clear criteria for sharing the benefits. This resulted in a success rate of 0% in cases that relied on the local communities. The spread of the district scale was linked to the lack of coordination and continuous monitoring, although district scale stakeholders showed more interest because the benefits were directly connected to them, though not in clear or structured ways. Most of the failing initiatives were attributed to the lack of irrigation and access control of animals to the gardens. In some cases, particularly within schools, continuous care was generally lacking due to the summer break, when nobody would be available to ensure the watering or care for the plants. The random and less controlled access of school children is a potential contributor to this failure. Only a few examples on the district scale witnessed more success. In universities, there is a collaboration between students to care for available gardens, while in Greater Amman municipality, there is good management, care, protection, and irrigation.

4- Nature of products

The interviews also showed that the nature of the crop is a very important influencer of that crop's success. According to the interviewees, some products could need continuous irrigation such as rice while others, such as olive, would not. Some products could only be planted on large spatial typology scales, such as wheat and rice. Others needed processing after their cultivation, such as wheat and sugar. At the neighborhood scale, such as pavements where the olive crops are planted, very little care is provided by the municipality or the surrounding residents. However, it is still considered a success simply because of the durability of the crop itself, which does not need large amounts of water to grow. Municipalities are aware about this important fact and have accordingly provided recommendations on what would be most suitable to grow at that scale. At the city scale, particularly in farms, where rice and sugar are planted, a comprehensive need for continuous watering is a must and little care or management would affect the product comprehensively because of its sensitivity.

CONCLUSION

The study represented a collaborative effort to map current UA initiatives in Jordan on multiple spatial typology scales, addressing their different stakeholders and identifying the produced crops compared to their sufficiency level across the country. The study contributed to current UA research by focusing on the integration between spatial typology scales/stakeholders and crops, an aspect that is lacking in previous research. The study was conducted to address problems of food security and sufficiency in Jordan and provide recommendations for the key stakeholders on how to emphasize their contribution to the required level of UA to achieve sufficiency and ensure local food security as an outcome. Accordingly, and based on the finding, the research provides the following recommendations:

1- As the house scale was found to be quite prominent with the highest rates of success, it would be advisable to think of ways of expanding its contribution by utilizing other available components such as facades, balconies and roofs along with the already used front and backyards.

2- UA on the neighborhood and district scales should be considered extensions to the house scale, where the motivation of tenants and homeowners can play a key role in revitalizing UA on that level. This can happen through further incentives that can be provided to their associated stakeholders in order to maintain a larger role in its development.

3- Continuing the support of initiatives owned by the successful stakeholders such as individuals and universities and standing on the reasons of failure for other stakeholder-steered initiatives.

4- Further integration is required between stakeholders to enhance the distribution of crop cultivation between the different spatial typology scales depending on their level of sufficiency. This entails realigning the mapping of agricultural crops in order to reach a better multi-scalar integration of UA in a manner that better contributes to food security nationwide. This can be supported by establishing a semi-governmental body that is "flexible and duly supported" to lead UA affairs in Jordan and ensure the coordination between multiple parties.

5- Stimulating the feeling of ownership among community members and securing more involvement, contribution, and buy-in is quite necessary. This could be achieved by emphasizing the particular features of the targeted crops and, accordingly, raising the levels of interest of the concerned stakeholders. Such features can include aesthetics, health, nutrition, and other aspects.

6- Creating a digital agricultural map for Jordan that contains on-line necessary statistics, including related to UA to stand on the current situation in a dynamic and lively manner.

7- Understanding that the success of UA initiatives is associated with the ability to go about them in parallel to daily activities maintained by the community. This aligns with the local view on agriculture as a cultural leisure activity that people usually enjoy. Associating this factor through a nation-wide strategy can assist in the better allocation of crops on the different spatial typology scales. Despite the research effort to develop extensive insights on UA initiatives in Jordan, not all of these initiatives were possible to document and analyze, mainly due to their fragmented nature and lack of communication and media coverage. The study, however, was aimed to represent a starting point for researchers who are interested in UA to build on the finding on this research through further research and recommendations that would eventually result in a more integrated body of knowledge in relation to such a national comprehensive strategy.

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ADAPTATION STRATEGIES FOR IMPACTS OF CLIMATE CHANGE ON SUSTAINABLE TOURISM IN MALAYSIA

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Abstract: Climate change is a critical issue today which significantly affected not just the ecosystem of the community but also the sustainability of tourism industry. Climate change consequences on sustainable tourism are crucial because it increases the danger of species extinction, decreases freshwater, increases wildfire accidents, heat waves, and illnesses, all of which cause visitors to avoid certain places. This study surveyed the community awareness toward climate change and also their perceptions regarding the adaptation strategies for impacts of climate change on sustainable tourism in Malaysia. A number of 400 respondents living in the area of sustainable tourism in Malaysia which are directly and indirectly affected by climate change was selected to fulfill the objectives of the study. An online survey was implemented for the purpose of distributing questionnaire during the pandemic. The findings indicated that two domains derived as adaptation strategies and were named as enhancing awareness and capacity development and also diversification of sustainable tourism activities. This study significantly provides the policymakers a comprehensive adaptation plan to overcome the impacts of climate change on sustainable tourism in Malaysia through the community perspectives. It also assists the policymakers to strongly understand the consequences of adaptation measures of climate change for the future sustainability of tourism industry in Malaysia.

Key words: Adaptation strategy, climate change impacts, sustainable tourism, Malaysia

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INTRODUCTION

Climate change is considered a controversial issue in the tourism sector, as it is expected to affect the tourism as a large portion of its overall performance including the infrastructure, hospitality, land, culture, and economics (Hall et al., 2015). Undoubtly, the tourism industry is sensitive to climate change due to the fact that it has a direct impact on the tourist resources at destinations (Kovacs and Thistlethwaite, 2014), and increases the danger of species extinction, decreases freshwater, increases wildfire accidents, heat waves, and illnesses, all of which cause visitors to avoid certain places.

In fact, several researchers have also agreed that climate change has a significant influence on the tourism sector (Hoogendoorn and Fitchett, 2016; Liu, 2016; Scott et al., 2012). Studies on the impacts of climate change have highlighted several implications to tourism for instance shifts in tourists flow, shifts in destination choice of tourist and discomfort in transportation (Anup, 2017; Ngxongo, 2021). These integrated effects of climate change are believed can stimulate risks and opportunities to tourism market segment and sustainable tourism development (Buckley et al., 2015; Scott, 2006).

Since tourism encompasses a highly diversified range of sustainable destination types for instance nature-base tourism, cultural tourism, sun and beach tourism, adventure tourism and urban tourism, climate change can also impact tourism in many different ways. Despite differential impacts of climate change, Scott (2021) suggests the need to adapt to climate change, whether to manage risks or to capitalize on new opportunities associated with impacts on regional or global competitors. Further, Filho (2021) suggests that urgent measures are needed in respect of adjustments in the tourism sector and even though adaptation to climate change is a long-term process, it makes a strategic approach to cope with the various challenges posed by a changing climate.

Problem Statement and Objective

Considering tourism mostly as a nature-based destination, the impact of climate change can be highly seen through the changes in rainfall pattern which result either in floods or drought and cause deterioration of infrastructure, huge loss of wildlife populations and conflict and competition of resources (Nyamwange, 2016). Climate change is also impacting sustainable tourism destination in Malaysia for instance the coastal areas. It has been identified that Malaysia's coastal communities face rising temperatures (Kwan et al., 2011); rising sea levels (Awang and Abdul Hamid, 2013) unstable rain patterns and thunderstorms (Wan Azli, 2010); strong wind and waves (Muzathik et al., 2011).

These changes have had a profound effect on the coastal community, which is heavily reliant on natural resources such as the sea, the coast, and mangrove areas for fisheries, tourism, small- and medium-sized enterprises (SME), and social activities (Shaffril et al., 2013). To deal with climate change threats on sustainable tourism, an adaptation strategy

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demand actions from affected bodies within the industry particularly the community of the destination. Several studies have indicated the important of investigating the community perceptions toward impact of tourism as it will affect the future tourism development (Almeida-García et al., 2016; Halim et al., 2022; Nafi and Ahmed, 2017). Currently, Eluwole et al. (2022) highlight that by giving host communities more power will encourage them to get involved in the destination development. Hence, it is important to collectively formulate an adaptation strategy to address what must be considered the greatest challenge to overcome the climate change impacts on sustainable tourism through the perspectives of the community. The main purpose of this study is highly to investigate the community awareness and perceptions on the adaptation strategies to overcome the impacts of climate change on sustainable tourism in Malaysia.

LITERATURE REVIEW

Tourism is a rising multinational industry, with average growth rates of more than 5% (UNWTO, 2018). Unexpectedly, tourism emissions are also increasing, accounting for around 8% of anthropogenic greenhouse gas emissions in 2013 (Lenzen et al., 2018). As such, the focus of the tourism industry in its policy priorities has been increased on biodiversity (UNWTO, 2019) and climate change (Scott and Gossling, 2018). It is a fact that research on climate change and the information it brings to the development of tourism has widely being studied. For instance, Xiong et al. (2022) investigated 21 tourism provinces in China and found that climate change affected tourism development in terms of changes in annual precipitation and mean annual temperature on inbound overnight visitors. They further proposed that western China should receive policy support and fully utilized the positive spatial spillover effect of the number of inbound overnight visitors and at the same time enriched several tourist attractions. The impacts of climate change on tourism have affected both supply and demand of tourism services which eventually distrupted the quality and the management of environmental attributes which indicating the needs for designing effective climate policies at tourism destinations (Arabadzhyan et al., 2020).

Hence, sustainable tourism is considered important as it presents the needs of present tourists and host regions while protecting and enhancing opportunities for the future. Malaysia eventually has adopted the National Climate Change Policy (NCCP) and the National Green Technology Policy (NGTP) in 2009 to report the persistent concerns of climate change in the country. Taking seriously the impacts of climate change in the country, several policies have been addressed in the 5-year Malaysia Plans including the Environmental Quality Act 1974, National Forestry Act 1984, National Policy on Biological Diversity 1998 and the National Wetland Policy 2004. These policies however focus more into the mitigation aspect rather than adaptation and further, none is addressed in the context of tourism.

Studies on climate change and tourism have proven the consequences particularly the negative aspects to tourism development. The impacts of climate change on tourism exist in different channels (Simpson et al., 2008), ranging from direct impacts such as predicted higher temperatures (Hein et al., 2009), rising sea level (Jones and Phillips, 2015), to indirectly changing the natural resources on which tourist destinations depend, such as reduced snow cover and snow seasons, coral reef bleaching (Piggott-McKellar, 2015), increasing risks of wildfires, coastal erosion (Zhang et al., 2004), and others. Further, climate change has also found to be significantly affected tourism in mountain regions. A systematic review by Steiger et al. (2022) indicated that climate change creates consequences particularly on the economic and socio-political for mountain communities. Hence, they suggested to increase multidisciplinary understanding of potential of climate impacts through addressing liability and regulatory risks. Their study on 276 papers regarding impacts of climate change on tourism has led to the vital aspect of developing adaptation strategies by looking into the communites perspectives.

Previous study by Ngxongo (2021) found that climate change provides greater negative impacts on tourism particularly on the ecological landscape of tourist destinations. The study on Central Drakensberg Area in Kwazulu-Natal found that climate change has affected several aspects of tourists' visiting the destination including their behaviour, travel decision process and spending habits. Hence, to accommodate visitors' year-around to the destination, the study suggested an implementation of adaptation measures to counter the effects, and explore alternatives such as soft tourism and non-climate-dependent activities. Previously study by Steiger et al. (2019) reported that climate change indicates less days of ski tourism and an increased chance of snow in winter. Moreover, the chances for marginal snow levels will also rise in key winter months and start later and finish sooner. In other study conducted by Wobus et al. (2017), they found that a certain percentage change in the duration of a ski season is also assumed to mean a change in demand of the same degree.

One of the strategic principles described in the literature in order to mitigate and prevent the impacts of climate change is through adaptation. Adaptation relies on climate change responses to minimize the detrimental effects they cause, while prevention focuses on reducing pollution from tourist practices that lead to global warming (Hernandez and Ryan, 2011). Becken (2005) explores the adaptation steps taken in Fiji in view of their negative and positive effects on prevention, the economy and environmental management. A few adaptation steps were suggested that may have negative or neutral effects on mitigation or the economy include the installation of seawalls to avoid coastal flooding, beach nutrition, air conditioning, desalination, visitor water proofing, business diversification, guest and employee education, construction of beachfront facilities, storage of rainwater. An interdisciplinary approach was taken in Serbia to develop and execute climate change adaptation measures (Pietrapertosa et al., 2017).

Awareness was also a significant problem in both Serbia and Croatia, with many attempts to improve capacity while dealing with climate change consequences. In particular, they intended to improve crop selection advising services and increase local people' involvement in sustainable forest management. Community awareness regarding this matter is considered a vital aspect in determining the adaptation measures. In fact, Alim et al. (2021) conclude in their study that communities play a major role in the future development such as delivering tourist services, attractions, and accommodation. Hence, any tourism development requires the host community support to attain long term success.

METHODOLOGY

As this study attempts to investigate the residents' perceptions on the adaptation strategies to overcome the impacts of climate change on sustainable tourism, a quantitative approach was applied involving questionnaire survey. Data collection was basically based on sets of data at two levels. The diversity of climate change information as a secondary data was investigated and obtained from reports, newspapers, the Ministry of Energy, Science, Technology, Environmental and Climate Change (MESTECC), the Ministry of Tourism, Arts and Culture (MOTAC) and mostly were from previous literature. The primary data collection involved a distribution of questionnaire to the respondents which are directly affected by climate change and living in the sustainable tourism areas such as ecotourism, natural-park, beach tourism, wildlife tourism and agro-tourism. Since there is no available data or sampling frame to identify the number of community in the identified tourism areas, the study based on the current population of Malaysia in 2021 which is 32,776,194 (Macrotrends, 2021) to determine the size number of respondents. The number was determined according to Krejcie and Morgan's (1970) model which stated that the ideal number of respondents to represent a total population of more than 1,000,000 is 384.

The questionnaire was presented with a cover letter explaining the purpose of the study and consisted of three parts. Part 1 asked the respondents to provide their socioeconomic characteristics. The following part of the questionnaire was designed to investigate the respondent's awareness towards the impact s of climate change on sustainable tourism and consisted of 11 items taking from previous literature for instance, Becken and Hay (2012) and Hamdan (2018).

The final part asked the respondents to provide their perceptions towards the adaptation strategies for impacts of climate change on sustainable tourism. This part included of 10 items taken from studies such as Brown and Sonwa (2015), Rahman and Alam (2016), Hamdan (2018) and Schlingmann et al. (2021). All these items were tested using a 5-point Likert scale. Due to the Covid-19 pandemic and the implementation of Movement Control Order (MCO) in Malaysia at the time the study was conducted, the questionnaire was distributed through online survey using a Google form link.

Questionnaires were emailed to several email portals of government organizations and also through the WhatsApp platform. A control question was provided to the respondent asking only those who are living in the specific sustainable tourism areas such as ecotourism, natural-park, cultural heritage and agro-tourism which are directly affected by climate change. This is very important to make sure that their respond is valid and reliable. The Google link was closed within three weeks once the number of the returned questionnaire reached 400. The data gained from the Google form were presented into an Excel format which were then transferred into Statistical Package for Social Sciences (SPSS). The test involved three major analyses namely factor analysis, reliability test and descriptive statistics analysis. Figure 1 depicts the flow chart of the methods taken for the study.

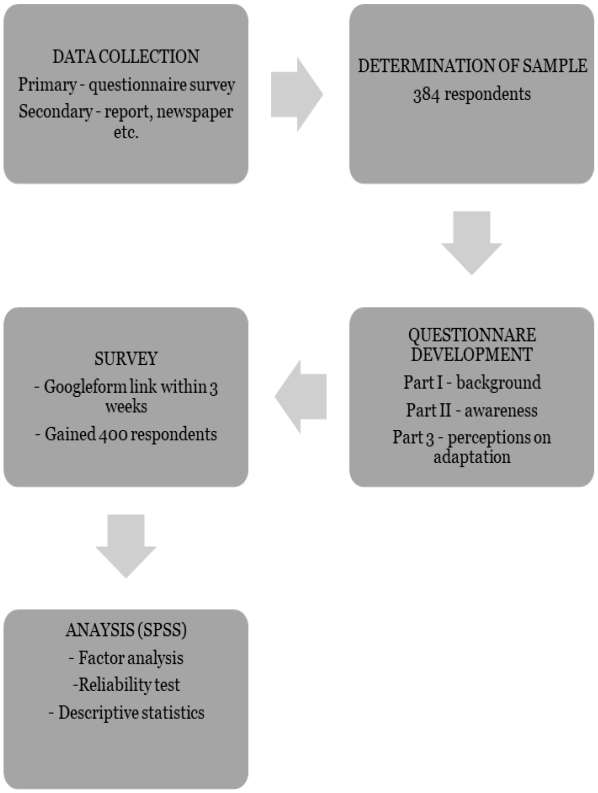

Figure 1. Flow chart of the methodology

FINDINGS

Socioeconomic Characteristics of the Respondents

This section describes the findings regarding the socioeconomic characteristics of the respondents. It is revealed that majority of the respondents were female (63%) and followed by male (37%). Most of them were under the category of age below 25 years old (41%), followed by the category of 25-35 years old (28%) and then other categories as shown in Figure 2.

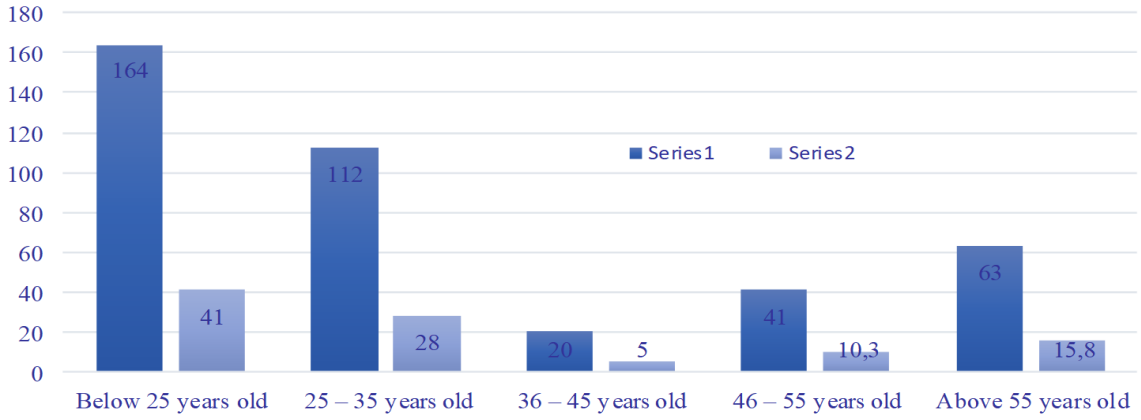

Figure 2. Respondents' age categories

Further, the findings noted that half of the respondents were still single (50%) and followed by those who were married (47.3%). As for the level of education, the findings emphasized that majority of the respondents had tertiary education (86.8%) and with only a few of them had no formal education (0.6%). In terms of household size, most of the respondents had less than 5 people in the house (51%). Surprisingly, it can be seen that most of the respondents had no occupation (44.5%). The question regarding the respondents' income showed that majority of them had between RM1000 – RM5000 income per month (34.8%), followed with those who had no income (32.8%) and a few with income of more than RM5000 (22.8%). As presented in Figure 3, the findings also revealed that majority of the respondents are living in sustainable tourism area which related to beach/island (20%), followed by urban tourism (13.8%) and ecotourism (13.3%). Some of the respondents' are living in agro-tourism area (11%), cultural heritage tourism (9.8%) and natural park tourism (9%).

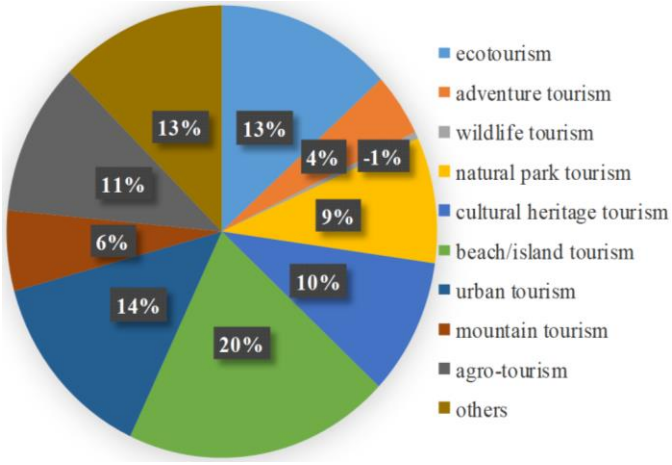

Figure 3. Respondents' Living Area

Further, the findings of the study showed that majority of the respondents had lived in the area for more than 20 years (48.3%). Interestingly, the findings revealed that majority of them understood the meaning of climate change (80%) and only a few did not understand climate change (2.5%). Table 1 depicts the overall findings on the respondents' socioeconomic characteristics.

Table 1. Socioeconomic characteristics of the respondents (N=400)

Items		Frequency	Percent
Gender:	Male	148	37.0
	Female	252	63.0
Age:	Below 25 years old	164	41.0
	25 – 35 years old	112	28.0
	36 – 45 years old	20	5.0
	46 – 55 years old	41	10.3
	Above 55 years old	63	15.8
Marital status:	Single	200	50.0
	Married	189	47.3
	Divorced	6	1.5
	Others	5	1.3
Level of education:	Primary	18	4.5
	Secondary	33	8.3
	Tertiary	347	86.8
	No formal education	2	0.6
Household size:	Less than 5 people	204	51.0
	5 – 10 people	192	48.0
	More than 10 people	4	11.0
Occupation:	Government servant	87	21.8
	Private sector	87	21.8
	Own business	46	11.5
	No occupation	178	44.5
	Missing data	2	0.5
Income per month:	Less than RM1000	37	9.3
	RM1000 – RM5000	139	34.8
	More than RM5000	91	22.8
	No income	131	32.8
	Missing data	2	0.5
Types of sustainable tourism area			
	Ecotourism	53	13.3
	Adventure tourism	18	4.5
	Wildlife tourism	2	0.5
	Natural park tourism	36	9.0
	Cultural heritage tourism	39	9.8
	Beach/island tourism	80	20.0
	Urban tourism	55	13.8
	Mountain tourism	23	5.8
	Agro-tourism	44	11.0
	Others	50	12.5
Number of years living in the area			
	Less than 5 years	68	17.0
	5 – 10 years	70	17.5
	11 – 20 years	68	17.0
	More than 20 years	193	48.3
	Missing data	1	0.3
Do you understand the meaning of climate change?	Yes	318	80.0
	No	16	2.5
	Not sure	65	17.5
	Missing data	1	0.3

Awareness of Climate Change on Sustainable Tourism

This section presents the findings of analysis for Part 2 of the survey questionnaire. Three analyses were conducted, firstly, factor analysis was tested to reduce and classify the items into specific domain presenting the awareness of climate change. Secondly, the items in the domains were then tested for the reliability. Finally, the items were measured using descriptive analysis to further answer the questions based on the Likert scale provided in the survey questionnaire. The Principal Component Analysis using varimax rotation showed that two domains extracted from 11 items regarding the awareness of climate change (Table 2). The first domain named as affected tourism and community revealed 9 items with high factor loading values ranged from .605 - .838, eigenvalues of 5.911 and accounted for 53.733% of the total variance. Meanwhile, the second domain named as physically affected consisted of two items with factor loading values of .571 and .943, eigenvalues of 1.050 and accounted for 9.542% of the total variance.

The items were then further tested for reliability using Cronbach's Alpha test. Table 3 presents findings of the reliability test for the two domains extracted in factor analysis. The affected tourism and community showed a high coefficient alpha value of .913. Additionally, all the nine items of the domain also showed acceptable alpha values of more than .40. The coefficient alpha value for physically affected also showed a significant value of .622 with acceptable alpha values for the two items of more than .40. Hence, each sub-scale of item-total correlation for these domains were considered good and strongly reliable which reflects the constructs that they are measuring. The main question of Part 2 asked the respondents to provide answers regarding their awareness of climate change. This section presents findings in line with the two domains derived from factor analysis. Table 4 depicts the findings based on number and percentage of respondents. It can be seen that the nine items of affected tourism and community revealed positive

findings on the respondents' awareness of climate change. It is noted that 65.4% of the respondents were highly aware that climate change effects the natural environment. In fact, 27.6% of them were slightly aware of the issue. Further, it is also noted from the findings that 64.3% of the respondents were highly aware and 28.6% of them were slightly aware that climate change affects human life. Most of the respondents also specified they were highly aware that climate change is caused by human activities (58.3%) and some of them were slightly aware about the issue (31.4%). Surprisingly, the findings indicated that the majority of the respondents were highly aware that the community is responsible for climate change (55.4%). Only a few of them were highly unaware regarding the issue (2.5%). Majority of them were also highly aware that the government is responsible to solve the climate change issues (52.9%) whilst only a few were highly unaware of it (1.3%).

Table 2. Factor analysis for items regarding the awareness of climate change on sustainable tourism (N=400)

No.	Statement	1	2
	Affected tourism and community		
1	Climate change affects natural environment.	.838	
2	Climate change is caused by human activities.	.812	
3	Community is responsible for climate change.	.811	
4	Climate change is one of the most serious challenges in the world.	.794	
5	Climate change affects human life.	.793	
6	There is a relationship between climate change and tourism activities.	.692	
7	Climate change can be solved by having adaptation strategies.	.672	
8	The government is responsible to solve climate change issues.	.611	
9	Climate change destroys tourism activities.	.605	
	Physically affected		
1	Climate change is all about rainfall.		.943
2	Climate change is all about rising temperature.		.571
	Eigenvalues 5.911 1.050		
	% of Variance 53.733 9.542		
	Cumulative % 53.733 63.274		

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization

Table 3. Reliability test for items regarding the awareness of climate change on sustainable tourism (N=400)

No	Statement	Item-total correlation	Total items	Coefficient Alpha
	Affected tourism and community		**9**	**.913**
1	Climate change affects natural environment.	.762		
2	Climate change is caused by human activities.	.735		
3	Community is responsible for climate change.	.789		
4	Climate change is one of the most serious challenges in the world.	.678		
5	Climate change affects human life.	.751		
6	There is a relationship between climate change and tourism activities.	.665		
7	Climate change can be solved by having adaptation strategies.	.678		
8	The government is responsible to solve climate change issues.	.639		
9	Climate change destroys tourism activities.	.605		
	Physically affected		**2**	**.622**
1	Climate change is all about rainfall.	.455		
2	Climate change is all about rising temperature.	.455		

Additionally, the findings found that most of the respondents were highly aware about the issue of climate change as one of the most serious challenges in the world (49.4%). In fact, the findings also noted that 40.1% of the respondents were slightly aware that climate change as one of the most serious challenges in the world. As for the relationship between climate change and tourism activities, 48.1% of the respondents stated that they were highly aware and 38.1% were slightly aware about the relationship whilst only a few of them were highly unaware of the relationship (0.8%). In line to this question, the study found that most of the respondents were highly aware that climate change destroys tourism activities (41.2%). Eventually, the findings showed that the respondents were also highly aware that the climate change can be solved by having adaptation strategies (40.4%). The findings also found positive answers regarding the two items of the physically affected. Majority of the respondents were slightly aware that climate change is all about rainfall (42.5%) and rising temperature (44.8%).

Adaptation Strategies for Impacts of Climate Change on Sustainable Tourism

This part firstly explains the findings of factor analysis tested to reduce and classify the items in the survey questionnaire into specific domain. The Principal Component Analysis using varimax rotation showed that two domains extracted from the 10 items regarding the adaptation strategies used to overcome the impacts of climate change on sustainable tourism. It can be seen from Table 5 that the first domain named as enhance awareness and capacity development revealed seven items with high factor loading values ranged from .683 - .840, eigenvalues of 6.014 and accounted for 60.137% of the total variance. The second domain on the other hands, named as diversification of sustainable tourism activities consisted of three items with factor loading values ranged from .676 - .868, eigenvalues of 1.096 and accounted for 10.960% of the total variance. The items were then further tested for reliability using Cronbach's Alpha test.

Findings of the reliability test for the two domains extracted in factor analysis is presented in Table 6. The enhance awareness and capacity development revealed a high coefficient alpha value of .924. The coefficient alpha value for diversification of sustainable tourism activities also revealed a significant value of .808. All items in the domains showed acceptable alpha values of more than .40, ranged from .692 - .822. Hence, each sub-scale of item-total correlation for these domains were considered good and strongly reliable which reflects the constructs that they are measuring.

Table 4. Respondents' perceptions on the awareness of climate change on sustainable tourism (N=400)

No.	Item	Highly unaware	Slightly unaware	Not aware at all	Slightly aware	Highly aware
	Affected tourism and community					
1	Climate change affects natural environment.	8 (2.0%)	10 (2.5%)	10 (2.5%)	110 (27.6%)	261 (65.4%)
2	Climate change affects human life.	5 (1.3%)	12 (3.0%)	11 (2.8%)	114 (28.6%)	256 (64.3%)
3	Climate change is caused by human activities.	10 (2.5%)	21 (5.3%)	10 (2.5%)	125 (31.4%)	232 (58.3%)
4	Community is responsible for climate change.	10 (2.5%)	21 (5.3%)	14 (3.5%)	133 (33.3%)	221 (55.4%)
5	The government is responsible to solve climate change issues.	5 (1.3%)	23 (5.8%)	25 (6.3%)	134 (33.8%)	210 (52.9%)
6	Climate change is one of the most serious challenges in the world.	9 (2.3%)	17 (4.3%)	16 (4.0%)	160 (40.1%)	197 (49.4%)
7	There is a relationship between climate change and tourism activities.	3 (0.8%)	24 (6.0%)	28 (7.0%)	152 (38.1%)	192 (48.1%)
8	Climate change can be solved by having adaptation strategies.	5 (1.3%)	19 (4.8%)	31 (7.8%)	183 (45.9%)	161 (40.4%)
9	Climate change destroys tourism activities.	4 (1.0%)	26 (6.5%)	34 (8.5%)	170 (42.7%)	162 (41.2%)
	Physically affected					
1	Climate change is all about rainfall.	23 (5.8%)	58 (14.6%)	75 (18.8%)	169 (42.5%)	73 (18.3%)
2	Climate change is all about rising temperature.	13 (3.3%)	19 (4.8%)	28 (7.0%)	159 (39.8%)	179 (44.8%)

Table 5. Factor analysis results for climate change adaptation strategies (N = 400)

No.	Statement	1	2
	Enhance awareness and capacity development		
1	Communicate and raise awareness regarding climate change and sustainable tourism through websites and current technology.	.840	
2	Provide early warning and response capability of climate change.	.813	
3	Educate the community on climate change and sustainable tourism.	.811	
4	Involve the community in monitoring the impacts of climate change on sustainable tourism.	.780	
5	Develop strong collaborations between stakeholders in the sustainable tourism area.	.758	
6	Create emergency response center in the sustainable tourism area due to the impacts of climate change.	.698	
7	Invest innovation in measurement systems and resources of climate change pertaining to sustainable tourism in the area.	.683	
	Diversification of sustainable tourism activities		
1	Relocate sustainable tourism activities that are affected due to climate change.		.868
2	Offering substitute attractions as sustainable tourism activities in the area.		.824
3	Implement water quality for sustainable tourism in the area.		.676
	Eigenvalues 6.014 1.096		
	% of Variance 60.137 10.960		
	Cumulative % 60.137 71.097		

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization

Table 6. Reliability test results for climate change adaptation strategies (N = 400)

No.	Statement	Item-total correlation	Total items	Coefficient Alpha
	Enhance awareness and capacity development		**7**	**.924**
1	Communicate and raise awareness regarding climate change and sustainable tourism through websites and current technology.	.804		
2	Provide early warning and response capability of climate change.	.822		
3	Educate the community on climate change and sustainable tourism.	.802		
4	Involve the community in monitoring the impacts of climate change on sustainable tourism.	.737		
5	Develop strong collaborations between stakeholders in the sustainable tourism area.	.653		
6	Create emergency response center in the sustainable tourism area due to the impacts of climate change.	.767		
7	Invest innovation in measurement systems and resources of climate change pertaining to sustainable tourism in the area.	.757		
	Diversification of sustainable tourism activities		**3**	**.808**
1	Relocate sustainable tourism activities that are affected due to climate change.	.822		
2	Offering substitute attractions as sustainable tourism activities in the area.	.755		
3	Implement water quality for sustainable tourism in the area.	.692		

Table 7 depicts the findings on the respondents' perceptions toward the adaptation strategies to overcome the impacts of climate change on sustainable tourism. It is noted that the majority of the respondents revealed positive perceptions about the adaptation strategies to overcome the impacts of climate change on sustainable tourism. As for the first domain derived - enhance awareness and capacity development, the findings indicated that 49.9% of the respondents agreed that communicate and raise awareness on climate change and sustainable tourism through websites and current technology as adaptation strategy to overcome the impacts. Most of them also agreed (49.8%) and strongly agreed (44%) that providing early warning and response capability of climate change as one of the adaptation strategies

to overcome the impacts. Further, the findings revealed that most of the respondents (47.4%) positively perceived that educating the community about climate change and sustainable tourism as one of the strategies to overcome the impacts. Additionally, 53.3% of the respondents agreed with the strategy to involve the community in monitoring the impacts of climate change on sustainable tourism. The findings of the survey also noted that majority of the respondents (55.1%) positively agreed that develop strong collaborations between stakeholders in the sustainable tourism area as an adaptation strategy to overcome the impacts. Meanwhile, majority of the respondents (53.0%) agreed that creating emergency response center in the sustainable tourism area as an adaptation strategy due to the impacts of climate change. The findings further noted that 51.2% of the respondents agreed that strategy to invest innovation in the measurement systems and resources in climate change can overcome the impacts on the sustainable tourism area.

As for the second domain, the diversification of sustainable tourism activities, the findings revealed that 50.4% of the respondents agreed that sustainable tourism activities which are affected due to climate change need to be relocated to other areas (50.4%). Some of the respondents (55.1%) agreed with the strategy to substitute new attractions to the community as sustainable tourism activities (55.1%). Implement water quality for sustainable tourism activities in the area was significantly perceived by the respondents as one of the adaptation strategies to overcome the impacts of climate change, with majority of them had agreed (52.1%) and had strongly agreed (36.1%) with it.

Table 7. Respondents' perceptions toward the adaptation strategies to overcome the impacts of climate change (N = 400)

No.	Item	Disagree	Not sure	Agree	Strongly agree
	Enhance awareness and capacity development:				
1	Communicate and raise awareness regarding climate change and sustainable tourism through websites and current technology.	10 (2.5%)	26 (6.5%)	199 (49.9%)	164 (41.1%)
2	Provide early warning and response capability of climate change.	10 (2.5%)	15 (3.8%)	199 (49.8%)	176 (44.0%)
3	Educate the community on climate change and sustainable tourism.	8 (2.0%)	19 (4.8%)	188 (47.4%)	182 (45.8%)
4	Involve the community in monitoring the impacts of climate change on sustainable tourism.	12 (3.0%)	39 (9.8%)	212 (53.3%)	135 (33.9%)
5	Develop strong collaborations between stakeholders in the sustainable tourism area.	8 (2.0%)	47 (11.8%)	220 (55.1%)	124 (31.1%)
6	Create emergency response center in the sustainable tourism area due to the impacts of climate change.	12 (3.0%)	20 (5.0%)	212 (53.0%)	156 (39.0%)
7	Invest innovation in measurement systems and resources of climate change pertaining to sustainable tourism in the area.	6 (1.5%)	40 (10.0%)	205 (51.2%)	149 (37.3%)
	Diversification of tourism activities:				
1	Relocate sustainable tourism activities that are affected due to climate change.	24 (6.0%)	75 (18.8%)	201 (50.4%)	99 (24.8%)
2	Offering substitute attractions as sustainable tourism activities in the area.	18 (4.5%)	37 (9.3%)	220 (55.1%)	124 (31.1%)
3	Implement water quality for sustainable tourism in the area.	7 (1.8%)	40 (10.0%)	208 (52.1%)	144 (36.1%)

DISCUSSION

It is demonstrated that the community's perceptions towards the impacts of climate change on tourism is encouragingly positive. Previous study has proven that, the perception of the community on the impacts of climate change is absolute. This can be seen on the findings made by Canalejo (2016), which took place in Sal and Boa Vista Island, Afrika. Based on the study, it can be seen that community perceives raising awareness and education on adaptation in climate change is very important. Previous study also implies that a process of risk normalization may take place, in which individuals who are more exposed and aware of dangers reduce their risk perception in order to psychologically manage with the hazards they encounter. According to the recommendations for climate empowerment (UNFCCC, 2018), public awareness may reach individuals of all ages and walks of life in order to increase community involvement, creativity, and expertise in the search for climate change solutions. Additionally, international collaboration will increase cooperation, collaborative efforts, and knowledge sharing. This will provide an excellent springboard for resolving the issue. Education on climate change prevention may influence the public's behaviors over time, fostering a greater awareness of and ability to address climate change and its effects.

The community also considers enhancing the capacity development as a vital adaptation strategy to overcome the impacts of climate change in tourism in Malaysia. Several previous research and evaluations have explored how climate-related severe occurrences might have more damaging socioeconomic consequences, jeopardizing critical development objectives (IPCC, 2013; Peduzzi et al., 2009). The diversification of tourism activities is thought to be a vital component by the community as the findings is also in line to the study taken by Hambira and Saarinen (2015).

Eventually, in this era of globalization, it is very important to preserve the earth by implementing the green campaign and practicing the new norm of green in order to overcome the climate change. One of the approaches for adaptation strategies for sustainable tourism is green infrastructure which is significantly supported by Demuzere et al. (2014). It is also important to involve the public as a part of the planning process in order to raise awareness of climate impacts and the importance of adapting to them (Baptiste et al., 2015).

CONCLUSIONS

Implication of the Study

The study significantly contributes to various stakeholders in Malaysia. The policy makers, tourist planners, and community members are able to gain greatly from the climate change adaption approach. Tourist officials and policymakers would benefit from the implementation of the adaption strategy since it helps in sustainable tourism

development. Malaysia has more than several policies in adaptation of climate change. Malaysia joined in the Asia Pacific Climate Change Adaptation Project Preparation Facility (ADAPT) in order to improve access to funds for climate change adaptation and to encourage regional knowledge exchange (Gass et al., 2011). Rather than coping with the overall effects of climate change on regional agriculture, this sort of adaptation could be considered as an additional effort to raise the capacity and competence of the low-yielding group (Alam et al., 2017). Providing an adaptation plan for climate change complements the MESTECC's social innovation aim, which focuses on sustainable communities. MESTECC also highlights social creative practise via the creation and use of innovative solutions to meet social needs and through the establishment of a social partnership to promote human welfare. Additionally, the adaptation strategy as suggested by the communities would assist Malaysia in its national climate change policy by providing a long-term plan for the tourist industry in Malaysia particularly on the regional tourism drivers, which include destination attractiveness, product content, business revenue, infrastructure preparation, and investment. Further, the communities would be able to mitigate and overcome climate change-related challenges and take essential measures to preserve the tourism sector.

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