

DEMOGRAPHIC DRIVERS OF PRO-ENVIRONMENTAL BEHAVIOUR IN AGRITOURISM: THE ROLES OF AGE, GENDER AND INCOME

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Abstract: Agritourism is increasingly positioned as a practical route to encourage more responsible environmental behaviour by bringing tourists into direct contact with farms, local landscapes, and everyday sustainability practices. Building on established measurement work on key pro-environmental constructs, this paper takes a narrower and more applied step by testing whether gender, age, and income meaningfully differentiate tourists' environmental awareness, concern, values, knowledge, attitudes, and pro-environmental behaviour in agritourism settings. A quantitative survey was administered to tourists participating in agritourism activities in Kashmir, India, India. Using purposive sampling, 700 tourists were approached and 560 usable responses were obtained (80% response rate). Gender differences were assessed using an independent-samples t-test, while age (below 30 years, 31–50 years, above 50 years) and income groups were examined using one-way ANOVA. The findings show a limited but informative role of demographics. Gender differences were significant only for environmental awareness, where female tourists reported higher awareness than male tourists. Age differences were significant for environmental attitude (stronger among tourists below 30 years) and for pro-environmental behaviour (highest among tourists aged 31–50 years). Income-based differences were significant for environmental knowledge, environmental attitude, and pro-environmental behaviour, with higher-income groups reporting consistently higher scores. Thus, the results provide segmentation-ready evidence that can help agritourism operators and destination planners tailor sustainability communication, experience design, and pricing or behavioural nudges to visitor groups with different constraints and response tendencies.

Keywords: agritourism, pro-environmental behaviour, demographics, gender, age, income, sustainable tourism

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INTRODUCTION

Tourism is no longer being measured based on the number of visitors that it brings, but also on the type of visitors that it is attracting to a disaster-prone destination (Alloh et al., 2024). Due to the increasing visibility of climate and biodiversity pressures in people's daily lives, destinations and tourism operators face increasing pressure to promote low-impact decisions, responsible consumption, and the well-being of local ecosystems (Badia et al., 2024). Similarly, Agritourism is one of the promising areas of this change, as tourists will stop merely sightseeing, but they will be involved in agriculturally based activities, have local food experiences, and experience the rural lifestyle (Ting & Cheng, 2017).

Since agritourism is based on the actual landscapes, labour, and utilisation of resources, it can render the environmental issues less abstract and more personal (Ohorodnyk & Finger, 2024). The experience of agritourism has suggested that agritourism participation can be linked to both the public sphere and the private sphere sustainable behaviours, suggesting that the experience may not only reinforce greener practices during the process of travel but may also extend to other areas (Brune et al., 2022). Simultaneously, agritourism is frequently framed as a rural sustainability and local wellbeing avenue, where environmental protection is connected to the local developmental goals (Ciolac et al., 2019).

An important factor as to why agritourism is important in sustainability is that it is able to turn the concept of environment into a slogan into a sight and touch experience for the tourists (Shi & Liao, 2025). As visitors see how the resources are saved, waste management, soil management and how food is produced in seasons, they are introduced to sustainability as a collection of daily choices and not a far-fetched policy argument (Wu et al., 2024; Zhang et al., 2024).

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Research on farm tourism and other tourism in a rural setting demonstrates that these experiences have the potential to bridge personal values and environmentally responsible decision-making, which supports the idea that sustainability is partially related to what individuals value and how they understand their contribution to visiting (Hassan et al., 2024). In a broader sense, tourism studies have long held that internal factors (including knowledge, attitudes, and values) are significantly connected to intentions and behaviour, albeit the level of connection depends on the situation and the kind of behaviour under investigation (Gao et al., 2016). That is, the psychological pathway is substantive, but it does not work in empty space.

This is where the role of demographic differences comes in as a practical factor. Tourism managers seldom enjoy the privilege of creating a single sustainability message or a single green experience that will be equally effective on all. Age, gender, and income usually determine the affordability of the tourists, their priorities, responsibility interpretations, and their readiness to abandon routine behaviours (Pinho & Gomes, 2024). Within the hotel and destination contexts, it has been observed that there are systematic circular attitude differences as well as environmental behaviours across socio-demographic lines, some of the results indicated that women expressed greater circular behaviours compared to men and willing to pay higher to access greener establishments may also differ depending on their socio-demographic background (Rodríguez et al., 2020). On the same note, gender work in tourist settings has demonstrated that the connections among individual elements and pro-environmental behaviour may vary between men and women so that they indicate that what drives green behaviour may not be the same among men and women (López-Bonilla et al., 2020). The issue of income is also significant as it may serve as an enabler (possibility to afford greener alternatives) and be a barrier (price sensitivity and competing needs). Indicatively, studies on green product purchasing behaviours of tourists show that there is a noteworthy variation in the environmentally friendly purchasing behaviour across income classes (Pekerşen & Canoz, 2022). More recent findings on the relevance of socio-demographics (such as age, gender, and income) in explaining or moderating sustainable travel decisions and associated behavioural patterns are also reported in India (Naik et al., 2025). Combined, the literature direction is clearly pointed that demographic segments may vary, but the trend of variations may be situation-specific and has to be verified in the context under investigation.

It is in this context that the current paper takes a very narrow and pragmatic approach. The most important constructs in the pro-environmental behaviour chain such as Environmental Awareness, Environment Concern, Environment Value, Environmental Knowledge, Environmental Attitude and Pro-environmental Behaviour have already been discussed in previous research work in terms of their concept divisions as well as the relationship of one with another (Ansari et al., 2021; Bilynets & Knezevic Cvelbar, 2022; Fatoki, 2019; Foroughi et al., 2022; Li et al., 2022).

There have been least studies that might have studied the role of demographic variables. Thus, this study focuses on whether there are any significant differences in the mean scores of these constructs across significant demographic groups in an agritourism setting. The study would create practical demographic segmentation knowledge to agritourism operators and destination planners by isolating the variation in demographic in this manner.

These understandings can be used to make the communication of sustainability more accurate, experience design, and pricing or behavioural nudges so that the practitioners can better reach out to groups with the highest response rates and also account for the limits and incentives that could be driving less responsive groups.

The rest of the paper will be structured in the following way. Section 2 demonstrates the theoretical framework and hypotheses of the study. Section 3 describes the research design, sampling method, construct measurement and the analytical methods. In section 4, the findings of the empirical research are reported. In Section 5, the results will be discussed, the most important limitations identified, and the way future research should be carried out.

Theoretical Framework

Agritourism provides a setting where tourists encounter the natural environment and food production systems in a direct, experience-based way (Alloh et al., 2024; Karthik & Gajanand, 2017). Unlike conventional tourism, where sustainability may remain a background message, agritourism makes environmental issues visible through land-based activities, local food consumption, and interaction with rural communities (Jamaliah et al., 2021).

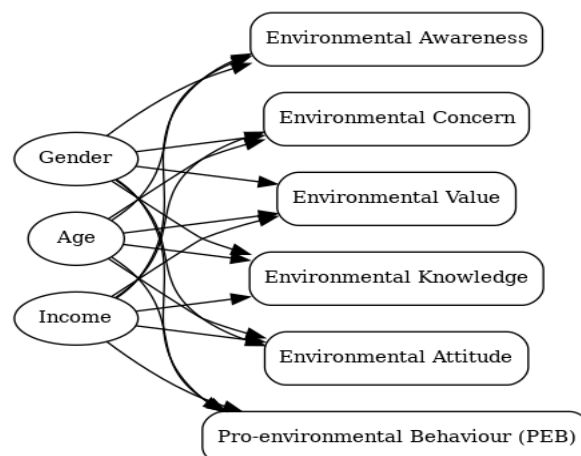


Figure 1. Research Framework

This matters because pro-environmental behaviour in tourism is shaped not only by what people believe in principle, but also by what the setting makes salient and easy to practise (Brune et al., 2022). The present model (Figure 1) is intentionally framed as a segmentation model, not a causal behavioural model. The model assumes that gender, age, and income function as distal determinants that can create meaningful differences in tourists' environmental orientations and actions. This is consistent with the broader literature, which recognises that demographic characteristics often shape socialisation, resources, and constraints, and therefore influence environmental attitudes and behaviours (Stern, 2000). In tourism settings, socio-demographic profiling has been used to explain why some tourists exhibit stronger environmentally responsible or circular practices than others, suggesting that demographic segmentation is useful for sustainability planning (Rodríguez et al., 2020).

Hypotheses development

Gender-based differences in pro-environmental factors and behaviour

A large body of literature suggests that gender can shape pro-environmental attitudes and behaviour, although the direction and strength of this effect vary across settings. Early work by Zelezny et al. (2000) showed that women often report stronger environmental concern and a greater tendency towards environmentally responsible behaviour than men. More recent evidence also supports this pattern. For example, Li et al. (2022), in a study from China, found that women showed higher environmental concern and engaged in several greener everyday practices than men. Within tourism and hospitality, Han et al. (2009) reported that the relationships between green attitudes, hotel image, and behavioural intentions were generally stronger among female guests in a green hotel context. Similarly, Moise et al. (2021) found that gender moderated the effects of hotel green practices on guest responses, suggesting that women may respond more positively to environmentally responsible hospitality initiatives in some contexts. At the same time, the evidence is not fully consistent. MacDonald & Hara (1994) found only weak gender differences in environmental concern, with males showing slightly higher concern in their sample of college students. In another study, Mostafa (2007) reported significant gender differences in green purchase behaviour among Egyptian consumers, showing that such variation is highly context-dependent rather than universal. Patel et al. (2017), using evidence from India, also reported that men displayed higher pro-environmental behaviour than women in their sample. Taken together, these findings suggest that gender may influence pro-environmental factors and behaviour, but the pattern is shaped by cultural context, type of behaviour, and research setting. In view of these mixed findings, the following hypothesis is proposed:

H1: Male and female tourists do not differ significantly with respect to pro-environmental factors (environmental awareness, environmental concern, environmental value, environmental knowledge, environmental attitude) and pro-environmental behaviour.

Age-based differences in pro-environmental behaviour

Age is widely used as a demographic variable in sustainability research because different life stages are often associated with different values, routines, responsibilities, and consumption habits (Farmaki et al., 2026; Sadeque et al., 2026). However, the relationship between age and pro-environmental behaviour is far from straightforward. Some studies suggest that younger consumers may be more receptive to green appeals, especially where environmental behaviour is linked with identity, innovation, and social influence (Khairy et al., 2026). Lee (2008), for instance, showed that young consumers can be an important segment for green marketing. In hospitality research, Han et al. (2009) found that age had a moderating role in the relationship between green attitudes and behavioural intentions in a hotel setting. These findings indicate that younger groups may be especially responsive to green communication in some market environments. Other studies point in a different direction. Wang et al. (2021), using cross-national evidence from 31 countries, found a positive relationship between age and pro-environmental behaviour, with older people more likely to participate in environmentally responsible actions. Sun et al. (2019) also found that age affects green consumption behaviour, although its effect operates within a broader system of demographic and environmental influences. In tourism specifically, Wang et al. (2020) reported that age significantly influenced green purchase attitudes towards green hotel selection in China. By contrast, Akehurst et al. (2012) argued that psychographic factors are often more important than socio-demographic variables in explaining green purchase behaviour, which suggests that age alone may not be a reliable predictor in every context. Patel et al. (2017) likewise found that middle-aged consumers scored higher on pro-environmental behaviour than both younger and older groups, reinforcing the idea that age effects are present but not uniform. Given this mixed yet meaningful evidence, the following hypothesis is proposed:

H2: Tourists across different age categories differ significantly in mean pro-environmental behaviour.

Income-based differences in pro-environmental behaviour

The role of income in pro-environmental behaviour remains one of the most debated issues in this literature. One line of research suggests that higher income can support greener behaviour because it reduces the financial burden associated with eco-friendly products, green premiums, or sustainable service choices (Buckley et al., 2025; Wang & Zhang, 2020). Khare (2015) found that income influenced environmentally friendly behaviour among Indian consumers, while Wang et al. (2020) reported that income significantly affected both green purchase attitudes and behavioural intention towards green hotel selection in China. These studies support the argument that financial capacity may make it easier for consumers to translate environmental concern into action, particularly when sustainable choices involve higher cost or perceived sacrifice (Pang & Jiang, 2026). Yet another line of evidence suggests that income is neither simple nor consistently positive as a predictor of green behaviour. Akehurst et al. (2012) concluded that psychographic variables were more relevant than socio-

demographic ones in explaining ecologically conscious consumer behaviour. Sun et al. (2019) similarly found that while several demographic factors matter, overall consumption levels did not have a significant impact on green consumption in their multilevel model. More recent evidence further complicates the picture. Berthold et al. (2023) found that higher income was associated with lower willingness to engage in certain pro-environmental behaviours, while subjective financial scarcity also reduced willingness to act sustainably. This suggests that both objective resources and subjective financial experience can shape environmental behaviour in different ways (Voss et al., 2026). Therefore, the effect of income appears to be context-sensitive and dependent on the type of behaviour being measured. In light of these mixed findings, the following hypothesis is proposed:

H3: Tourists across different income categories differ significantly in mean pro-environmental behaviour.

METHODOLOGY

This paper investigates how key demographic variables shape tourists' pro-environmental behaviour in agritourism settings in Kashmir, India. In line with the study's central purpose, the analysis focuses on whether age, gender, and income significantly differentiate tourists' pro-environmental behaviour, rather than re-examining the already well-established causal links among environmental values, beliefs, attitudes, norms, perceived behavioural control, and behavior (Forleo & Bredice, 2025; Majid et al., 2025). This focus is practically important because agritourism operators and destination planners need clear segmentation-based evidence to design sustainability messages, visitor experiences, and behavioural interventions for different categories of tourists. To address this objective, the study adopted a quantitative survey design and gathered systematic evidence from tourists who had participated in agritourism activities in the region. The target sample comprised 700 domestic and international tourists, and purposive sampling was used to ensure that all respondents had direct experience of agritourism in Kashmir. Before the main survey, the questionnaire was piloted with 80 respondents to assess clarity, relevance, and logical flow in line with the studies (Malik et al., 2025; Mehraj et al., 2025; Mehraj & Qureshi, 2022a; Qureshi & Mehraj, 2022; Tanzeela et al., 2024). Based on the pilot feedback, minor revisions were made to improve the final instrument. The structured questionnaire consisted of two main sections. The first section captured the demographic profile of respondents, including age, gender, nationality, education, occupation, and income. The second section measured the major pro-environmental constructs using established scales drawn from earlier studies.



Figure 2. Methodological Flow Diagram (Source: Prepared by the authors)

Specifically, pro-environmental values were adapted from Stern et al. (1999), pro-environmental beliefs from Dunlap et al. (2000), pro-environmental attitude from Kaiser et al. (1999), social norms from Cialdini et al. (1990), environmental conscientiousness from Hirsh (2010), perceived behavioural control from Ajzen (1991), and pro-environmental behaviour

from Kaiser (1998). All items were rated on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. Of the 700 questionnaires distributed, 560 valid responses were received, giving a response rate of 80 per cent. In line with the study's segmentation objective, respondents were grouped by age into below 30 years (26 per cent), 31-50 years (50 per cent), and above 50 years (24 per cent). Gender was evenly distributed between male (50 per cent) and female (50 per cent) respondents. Monthly income was classified into five brackets: below ₹20,000 (15 per cent), ₹20,000-₹50,000 (30 per cent), ₹50,001-₹100,000 (25 per cent), ₹100,000-₹200,000 (20 per cent), and above ₹200,000 (10 per cent). For the statistical analysis, an independent-samples t-test was used to examine gender-based differences, while one-way ANOVA was applied to test differences across age and income groups. Thus, the study seeks to identify which categories of tourists display higher or lower levels of pro-environmental behaviour in agritourism settings and to generate practical insights for more targeted and effective sustainability strategies as shown in Figure 2.

RESULTS

Analysis for Gender

To examine whether Environmental Awareness, Environmental Concern, Environmental Value, Environmental Knowledge, Environmental Attitude, and Pro-environmental Behavior differ based on gender, an independent sample t-test was conducted. The results, presented in Table 1, indicate that Environmental Awareness is the only construct where a statistically significant difference was observed between male and female respondents ($t = -2.43$, $p = 0.015$). Females ($M = 3.75$, $SD = 1.07$) reported higher environmental awareness compared to males ($M = 3.52$, $SD = 1.15$), suggesting that women tend to be more environmentally conscious in agritourism settings. The Levene's test for equality of variances ($F = 5.75$, $p = 0.017$) indicates that variance was not equal, so adjustments were made in the t-test calculations. For Environmental Concern, there was no statistically significant difference between males and females ($t = -0.718$, $p = 0.473$), with mean scores of 3.61 ($SD = 1.05$) for males and 3.67 ($SD = 1.06$) for females, indicating that both genders exhibit similar levels of concern for environmental issues. Similarly, Environmental Value showed no significant difference ($t = 0.542$, $p = 0.588$), with males ($M = 3.66$, $SD = 0.967$) and females ($M = 3.61$, $SD = 0.956$) reporting comparable perceptions of sustainability importance in agritourism. The results in Table 4.24 also show no significant gender differences in Environmental Knowledge ($t = -0.383$, $p = 0.702$), with males ($M = 3.68$, $SD = 1.00$) and females ($M = 3.71$, $SD = 0.990$) demonstrating similar levels of knowledge regarding sustainability in agritourism. Likewise, Environmental Attitude did not show a significant difference between males ($M = 3.53$, $SD = 1.00$) and females ($M = 3.59$, $SD = 1.04$), with $t = -0.648$ and $p = 0.518$, indicating that both genders hold comparable attitudes towards environmental sustainability.

For Pro-environmental Behavior, the results show no statistically significant difference ($t = -0.088$, $p = 0.930$), as both males ($M = 3.62$, $SD = 1.05$) and females ($M = 3.62$, $SD = 1.05$) reported identical levels of environmentally responsible actions in agritourism settings. Overall, the findings in Table 1 suggest that gender plays a role in Environmental Awareness, with females demonstrating higher awareness levels than males, while there are no significant differences in other environmental constructs, including Concern, Value, Knowledge, Attitude, and Pro-environmental Behavior. These results indicate that while awareness-based interventions may need to be customized based on gender, other sustainability initiatives can be implemented uniformly across male and female tourists in agritourism settings.

Table 1. Independent Sample t-Test Results for Gender

Constructs	Gender	Mean	Std. Deviation	Levene's Test		T	Sig..
				F	Sig..		
Environmental Awareness	Male	3.52	1.15	5.75	.017	-2.43	.015
	Female	3.75	1.07				
Environmental Concern	Male	3.61	1.05	.004	.951	-.718	.473
	Female	3.67	1.06				
Environmental Value	Male	3.66	.967	.193	.660	.542	.588
	Female	3.61	.956				
Environmental Knowledge	Male	3.68	1.00	.248	.618	-.383	.702
	Female	3.71	.990				
Environmental Attitude	Male	3.53	1.00	1.174	.279	-.648	.518
	Female	3.59	1.04				
Pro-environmental Behavior	Male	3.62	1.05	.164	.685	-.088	.930
	Female	3.62	1.05				

Analysis for Age

To assess whether Environmental Awareness, Environmental Concern, Environmental Value, Environmental Knowledge, Environmental Attitude, and Pro-environmental Behavior vary across different age groups, a one-way ANOVA test was conducted. The results, presented in Table 2, provide insights into whether significant differences exist among three age groups: below 30 years, 31-50 years, and above 50 years. The analysis reveals that Environmental Attitude and Pro-environmental Behavior show statistically significant differences across age groups. Environmental Attitude ($F = 5.96$, $p = 0.003$) differs significantly, with respondents below 30 years ($M = 3.84$, $SD = 0.793$) reporting higher environmental attitudes than those in the 31-50 years ($M = 3.46$, $SD = 1.07$) and above 50 years ($M = 3.52$, $SD = 1.05$) age groups. This suggests that younger tourists are more likely to hold positive environmental attitudes in agritourism settings. Similarly, Pro-environmental Behavior ($F = 4.25$, $p = 0.015$) exhibits significant differences, where

respondents aged 31-50 years ($M = 3.71$, $SD = 1.12$) report higher engagement in pro-environmental actions compared to those under 30 years ($M = 3.38$, $SD = 0.953$). This indicates that middle-aged tourists demonstrate stronger environmentally responsible behaviors in agritourism, possibly due to greater life experience and awareness of sustainability practices. For Environmental Awareness ($F = 2.07$, $p = 0.126$), Environmental Concern ($F = 1.31$, $p = 0.269$), Environmental Value ($F = 0.044$, $p = 0.957$), and Environmental Knowledge ($F = 1.50$, $p = 0.224$), no significant differences were found across age groups ($p > 0.05$). This suggests that age does not play a significant role in shaping awareness, concern, value, or knowledge related to environmental sustainability in agritourism. Overall, the findings in Table 2 indicate that younger tourists exhibit stronger environmental attitudes, while middle-aged individuals demonstrate higher pro-environmental behaviors. However, awareness, concern, knowledge, and value remain consistent across age groups, suggesting that sustainability efforts in agritourism appeal broadly across different age demographics. These insights can guide targeted sustainability initiatives, ensuring that awareness campaigns focus on attitude development among older groups while reinforcing behavioral commitment among younger tourists.

Table 2. One-way ANOVA Results for Age

Constructs	Age	Mean	Std. Deviation	F	Sig..
Environmental Awareness	<30 yrs	3.80	1.01	2.07	.126
	31-50 yrs	3.60	1.18		
	above 50 yrs	3.54	1.11		
	Total	3.62	1.12		
Environmental Concern	<30 yrs	3.72	1.01	1.31	.269
	31-50 yrs	3.56	1.07		
	above 50 yrs	3.69	1.06		
	Total	3.63	1.06		
Environmental Value	<30 yrs	3.66	.829	.044	.957
	31-50 yrs	3.64	1.01		
	above 50 yrs	3.63	.965		
	Total	3.64	.961		
Environmental Knowledge	<30 yrs	3.83	.920	1.50	.224
	31-50 yrs	3.64	.992		
	above 50 yrs	3.68	1.05		
	Total	3.69	.998		
Environmental Attitude	<30 yrs	3.84	.793	5.96	.003
	31-50 yrs	3.46	1.07		
	above 50 yrs	3.52	1.05		
	Total	3.56	1.02		
Pro-environmental Behavior	<30 yrs	3.38	.953	4.25	.015
	31-50 yrs	3.71	1.12		
	above 50 yrs	3.65	1.00		
	Total	3.62	1.05		

Analysis for Income

To assess whether Environmental Awareness, Environmental Concern, Environmental Value, Environmental Knowledge, Environmental Attitude, and Pro-environmental Behaviour vary across different income groups, a one-way ANOVA was conducted. The results are summarised in Table 3, comparing five income categories: below ₹20,000, ₹20,000–₹50,000, ₹50,001–₹100,000, ₹100,001–₹200,000, and above ₹200,000. The findings show that Environmental Knowledge, Environmental Attitude, and Pro-environmental Behaviour differ significantly across income groups. Environmental Knowledge displays a statistically significant difference ($F = 2.74$, $p = 0.028$), with mean scores rising steadily across income brackets. Respondents earning above ₹200,000 report the highest knowledge levels ($M = 3.95$, $SD = 0.86$), compared to those earning below ₹20,000 ($M = 3.50$, $SD = 0.99$). This suggests that higher-income tourists may have greater exposure to sustainability information or may be more familiar with sustainability concepts relevant to agritourism experiences.

A similar pattern is observed for Environmental Attitude ($F = 3.11$, $p = 0.015$). Tourists in the highest income bracket show more favourable environmental attitudes ($M = 3.80$, $SD = 0.94$) than those in the lowest bracket ($M = 3.38$, $SD = 1.07$). This indicates that income-based segmentation may be relevant for attitude-building interventions, especially for groups that score comparatively lower on environmental attitude. Most importantly, Pro-environmental Behaviour also shows significant income-based variation ($F = 4.48$, $p = 0.002$). Behavioural engagement increases with income, with the lowest-income group reporting the lowest behavioural score ($M = 3.30$, $SD = 1.02$) and the highest-income group reporting the highest ($M = 3.95$, $SD = 0.98$). One plausible interpretation is that some pro-environmental actions in agritourism (such as paying for eco-activities, purchasing local sustainable products, or opting for greener services) may be easier to adopt when tourists face fewer financial constraints. For Environmental Awareness ($F = 0.62$, $p = 0.650$), Environmental Concern ($F = 0.41$, $p = 0.802$), and Environmental Value ($F = 0.29$, $p = 0.883$), no statistically significant differences were found ($p > 0.05$). This indicates that, regardless of income level, tourists hold broadly comparable awareness, concern, and value orientations, while differences emerge more strongly in knowledge, attitude, and actual behaviour. Overall, Table 3 suggests that sustainability efforts in agritourism resonate across income groups at the level of general awareness and concern, but income-based segmentation becomes more important when the focus shifts to knowledge depth, attitude strength, and behavioural uptake.

Table 3. One-way ANOVA Results for Income

Constructs	Income	Mean	Std. Deviation	F	Sig.
Environmental Awareness	below ₹20,000	3.55	1.10	0.62	.650
	₹20,000–₹50,000	3.60	1.14		
	₹50,001–₹100,000	3.62	1.12		
	₹100,001–₹200,000	3.66	1.08		
	above ₹200,000	3.70	1.05		
	Total	3.62	1.12		
Environmental Concern	below ₹20,000	3.58	1.09	0.41	.802
	₹20,000–₹50,000	3.61	1.08		
	₹50,001–₹100,000	3.64	1.05		
	₹100,001–₹200,000	3.67	1.03		
	above ₹200,000	3.70	1.01		
	Total	3.63	1.06		
Environmental Value	below ₹20,000	3.60	0.98	0.29	.883
	₹20,000–₹50,000	3.63	0.97		
	₹50,001–₹100,000	3.64	0.96		
	₹100,001–₹200,000	3.66	0.95		
	above ₹200,000	3.70	0.93		
	Total	3.64	0.96		
Environmental Knowledge	below ₹20,000	3.50	0.99	2.74	.028
	₹20,000–₹50,000	3.62	1.01		
	₹50,001–₹100,000	3.72	0.97		
	₹100,001–₹200,000	3.82	0.93		
	above ₹200,000	3.95	0.86		
	Total	3.69	1.00		
Environmental Attitude	below ₹20,000	3.38	1.07	3.11	.015
	₹20,000–₹50,000	3.50	1.03		
	₹50,001–₹100,000	3.58	1.01		
	₹100,001–₹200,000	3.68	0.98		
	above ₹200,000	3.80	0.94		
	Total	3.56	1.02		
Pro-environmental Behaviour	below ₹20,000	3.30	1.02	4.48	.002
	₹20,000–₹50,000	3.50	1.06		
	₹50,001–₹100,000	3.65	1.05		
	₹100,001–₹200,000	3.80	1.01		
	above ₹200,000	3.95	0.98		
	Total	3.62	1.05		

The demographic tests show a clear “mixed picture”, which is exactly why it is sensible to test differences rather than assume that all visitor groups behave the same way. For H1 (gender), the results indicate a statistically significant difference only for Environmental Awareness (female tourists scoring higher), while Environmental Concern, Environmental Value, Environmental Knowledge, Environmental Attitude, and Pro-environmental Behaviour do not differ significantly by gender. In other words, H1 is largely supported, but not fully, because awareness does vary by gender. For H2 (age), the one-way ANOVA shows that Pro-environmental Behaviour differs significantly across age groups, so H2 is supported. For H3 (income), the one-way ANOVA indicates that Pro-environmental Behaviour differs significantly across income categories, so H3 is also supported. Notably, the income analysis also suggests meaningful differences for Environmental Knowledge and Environmental Attitude, even though the core hypothesis focused on behaviour.

DISCUSSION

This research was purposefully limited by a specific objective to establish whether there are significant differences in pro-environmental behaviour of tourists in an agritourism context by gender, age, and income, as opposed to re-evaluating a well-established logic of values, beliefs, attitudes, norms, control that prevails in the research in environmental behaviour (Salim et al., 2022). The significance of that decision is practical as it is not sufficient that the operators of agritourism should know what predicts behaviour in general, but rather what visitor groups have dissimilar reactions, and that a one-size-fits-all sustainability policy will perform worse (Patwary et al., 2023).

Beginning with gender, what is interesting about the results is, in fact, that it is modest. The environmental awareness amongst female tourists is higher but they do not have statistically significant greater concern, knowledge, attitude, and pro-environmental behaviour in the agritourism visit per se (Mehraj, et al., 2025). A possible way to interpret it is that awareness is commonly more of a more cognitive and more self-reported disposition whereas behaviour in a destination is determined by the situational characteristics of what is convenient, what is expected to be done on-destination socially, and what experience design predisposes to do easily. In cases where the setting is very strong structuring behaviour (farm rules, guided activities, waste systems, local-produce prompts), the gender gaps may reduce as everyone is nudged towards the same direction by the environment (Jeaheng et al., 2026).

This is in line with more general literature that indicates that demographic influences on pro-environmental behaviour are contextual and can be influenced by social expectations and opportunity structures rather than individual disposition. In the case of agritourism, the message that should be practiced is that gender differences might be more applicable to an awareness-building communication, but behavioural design on-site might not need to be radically different between male and female tourists as long as the aim is to increase actual eco-actions (Papp-Váry & Hajeer, 2026).

The results of the age comparison are more subtle and, actually, more realistic than the typical young people are greener argument. The environmental attitude is highest among the tourists who are below 30 years of age, whereas the pro-environmental behaviour is reported to be higher among the 31-50 category of tourism.

Such division is in line with a general trend in sustainable tourism studies that individuals may have high pro-environmental ideologies, but behavioural choices are influenced by lived restrictions, habits, perceived costs, and the short-term costs of acting in a sustainable way (Sharma & Gupta, 2020). Younger tourists might have more sustainability principles and identity-based stances, which can be reflected in the attitudes, but might not necessarily translate into behaviour in a destination situation, particularly when behaviour is associated with trade-offs or effort. Middle aged visitors, on the other hand, can be more apt to exert behavioural follow through since they are more inertially habitual and more generally more inclined to planning routines and (often) more able to assimilate small expenditures.

Notably, generation stories may get sloppy when they overload the generational stereotypes. Tourism studies warn against assumed age effects, they are to be tested and that a lot of so-called generational differences fail when you start to look at the larger period effects and situational impacts (Chen & Cheung, 2025). Your results are well consonant to that warning: here age is important, but in a particular sense, and not in all the constructs of the environment.

Switching to income, the findings indicate that income is not closely correlated with the variables of awareness, concern and value which are a baseline orientation but is correlated to depth of knowledge, strength of attitude and pro-environmental behaviour. That trend is behaviourally sound in the tourism. The agritourism context has some sustainable behaviours that are correctly free (conforming to regulations, not littering, not damaging the ecology of the farm), whereas other actions can be more easily accomplished when tourists are able to pay a premium (buying locally grown organic food, participating in fee-based eco-tourism, selecting greener service options) (Mehraj & Qureshi, 2022). Income disparities are more likely to be conspicuous where behaviour is concerned with financial trade-offs. Once again, the broader literature has been identifying that demographic and socioeconomic factors influence pro-environmental behaviour in part due to social and structural limitations, rather than in part because of willingness.

In the case of agritourism, this is important, since it implies an issue of fairness as well as marketing: when sustainable options are charged so that they are not accessible to visitors with lower incomes, then green tourism may be seen as something people believe in ideally but cannot perform in reality at the present. In all three demographics, this trend supports one of the major ideas of sustainable tourism research, it may not always be the most difficult task to create positive attitudes, but bridging the gap between positive orientations and systemic behaviour (Woolf et al., 2026).

It is then where the design of interventions would be important. Tourism is also becoming an area of research that focuses on the effectiveness of behavioural interventions and choice architecture, and proactive prompts to make tourists make carbon-intensive decisions and follow pro-environmental follow-through (Liu et al., 2025). Similarly, the design and interpretation of messages might be relevant: effective interpretation messages have been found to enhance pro-environmental reactions of tourists in a heritage environment and the same reasoning can be used agritourism where learning, meaning, and place-based identity are the focus of experience (Khan et al., 2024). To put it briefly, your demographic outcomes are not differences on a table. They indicate where the operators need to be more message based (to acquire awareness and attitude) and less friction reducing and behavioural designing (to acquire actual behaviour).

CONCLUSION

This research paper investigates the existence of differences in age, gender, and income among tourists in the context of pro-environmental behaviour in agritourism environments in kashmir, India.

The main contribution is that it does not consider demographics as background information, but rather as pragmatic segmentation variables that can inform on-ground sustainability decisions in agritourism. Instead of retesting the known relationships between the values, beliefs, attitudes, norms and behavioural control, the research separated demographic variation to provide an answer to a more practical question, that is, which visitor groups behave.

First, this setting does not have a lot of gender differences. The women tourists are more environmentally aware; however, the study does not find any gender differences in concern, value, knowledge, attitude, or pro-environmental behaviour. It implies that the agritourism settings might already offer a relatively normalised behaviour scheme that minimises gender disparities in real eco-behaviours. The gender factor seems to have the greatest impact at the level of awareness, which is commonly shaped by exposure, attention, and information processing and not by situational constraints (Mehraj et al., 2025; Mehraj & Qureshi, 2020).

Second, there is age variance that is significant yet construct-varying. The younger tourists (under 30) show a better level of environmental attitudes, whereas the middle-aged tourists (31-50) show a better level of pro-environmental behaviour. This trend confirms the fact that positive attitudes are not always associated with consistent behaviour in tourism situations, like time, effort, habit and perceived cost are the factors that influence what tourism visitors actually do (Pícha & Navrátil, 2019). It also conforms to the larger warning that claims of age need to be approached with caution and should not be forced into oversimplistic generational narratives (Subramaniam et al., 2020).

Third, the difference in incomes is the most convincing at the behavioural level, where the pro-environmental behaviour, attitudes and environmental knowledge are higher in higher income groups. Simultaneously, the awareness, concern, and values seem to be rather similar regardless of the income group, meaning that lower-income tourists do not seem to be generally less eco-conscious, but simply have fewer opportunities to make sustainable decisions that might mean premium payment or reduced convenience. This supports the view that structural feasibility, rather than motivation alone, also influences pro-environmental behaviour (Kaur et al., 2026).

The findings, combined, go towards giving the study the practical motivation: demographic segmentation can assist the agritourism operators in determining where to focus. The larger point is that agritourism can be used as a powerful tool in the sustainability platform, but only to the extent that the experience created encourages the visitor to transition to a more precise action rather than remaining in an overall positive state. The growing literature on tourism argues that the attitude-behaviour gap needs to be filled with prompts and interventions, but not merely more information (López-Bonilla et al., 2020; Steg et al., 2014). The immersive and educative nature of Agritourism makes it ideally placed to do just that, so long as its sustainability plans are aimed at the behavioural implications of various classes of visitors.

Implications of the study

The findings of the study have practical and operational implications, as agritourism operators make day-to-day decisions on the design of experiences, prices and communication which have a direct impact on visitor behaviour (MacInnes et al., 2025). The results indicate that a one-size-fits-all sustainability message sent to the group of tourism consumers will be less effective than a more targeted strategy that acknowledges the influence of demographics on what visitors observe, how they perceive sustainability signals, and what they can physically, practically, and effectively do on a visit (He & Filimonau, 2020). The first implication is related to experience design and behavioural friction. Gender differences are insignificant in actual behaviour, so operators would be more concerned with default-green systems, which would make the sustainable choice the one of least effort among all. This involves well-defined waste disposal locations, visible refill locations, and organised instructions in dealing with the farms as well as simple cues when doing an activity. These factors minimize the motivation and assist in transferring the positive attitudes into practice. Tourism behavioural intervention studies indicate that high-carbon decisions decrease when prompted and choice structures are designed adequately, and sustainable choices are reinforced without necessarily employing persuasive tactics (López-Bonilla et al., 2020). In the case of agritourism, a similar shift is to ensure that the visits are structured in such a way that pro-environmental behaviour of low effort occurs naturally in the experience flow.

The second implication is the message strategy based on the demographic segment, particularly age. The attitude score of younger tourists is higher than that of the 31–50 age bracket, but the behavioural score of the younger tourists is lower due to which the operators should work towards persuading the under-30 tourists to change attitude to action.

This can be implemented in the sense of providing younger visitors with identity-related and actionable actions and participation that is observable and visible, critical of the visit, little conservation actions, and brief explanations that relate farm activities to outcomes that tourists are interested in. In comparison, the 31-50 segment already exhibits comparatively better behaviour and thus, the message can be reinforcing and commitment-based, i.e. offering loyalty-based incentives to encourage repeat eco-actions or family-sustainable activities that bring behaviour out in the open and make it sharable. A third implication is associated with income and fair sustainability design. As pro-environmental behaviour is income-dependent, operators must not construct sustainability as a new premium experience.

Provided that the most sustainable choices can be obtained only with the help of paid upgrades, less affluent visitors might be willing to be supportive in attitude, but incapable of being able to act completely sustainably, which can silently contribute to the difference between the intentions towards green and the actual green behaviour.

This is a method that employs segmentation but not sustainability as exclusivity. It is also part of the broader argument that socioeconomic conditions can impact behaviour in part because of feasibility and constraint, but not exclusively due to values (Kaur et al., 2026). The fourth implication is one to interpretation and learning design.

Agritourism is a form of education, and recent research in tourism cases indicates that interpretation messages can significantly lead to an increase in pro-environmental reactions, through influence on how visitors interpret their presence in the place they are exploring (Wang et al., 2025). In the case of agritourism in Kashmir, India, interpretation can be integrated into a little bit practical means: brief, informative, why this practice is important, explanations when you go and see a farming demonstration, the signs that will relate consumption of local food to environmental results, and the stories of staff people who will relate sustainability to the livelihood of the people.

Well done, interpretation minimizes abstract preaching, and instead, it creates place-based meaning.

Lastly, the research has an implication on destination planning and targeting. These findings can be used by tourism planners to target campaigns: campaigns should resonate with female tourists more by focusing more on awareness, younger audiences should be encouraged by the design to behave sustainably, and differentiated products may be required to ensure sustainability is inclusive and still financially viable. All in all, the findings contribute to the assumption that sustainable tourism outcomes are best achieved when the operators combine persuasive communication with behavioural design, as opposed to using either of them (Mehraj & Kaur, 2022).

Limitations and scope for future research

There are a number of limitations in this study, which must be considered during the interpretation of the findings. One, the study is cross-sectional and self-reported, which implies that the study focuses on perceived orientations and reported

behaviours at a single point in time. The research on sustainable tourism has repeatedly that self-reports have the possibility of inflating behaviour, particularly when social desirability leads to sustainability, and future research would be more robust with behavioural observation or post-visit follow-up. Second, the sample was in Kashmir agritourism locations, which was through judgmental (purposive) sampling. It is suitable to make sure that the participants are relevant with regard to experience, but it restricts the degree to which the research findings can be extrapolated to other agritourism environments. This could be useful for future research in several ways. Recreation in other states in India and in other types of rural tourism would help ascertain the question of whether the demographic trends are unique to Kashmir or universal.

The researchers could also examine whether properly tailored interventions, like interpretation-based messaging or behavioural prompts, would lead to demographic bridges in behaviour, based on previous studies that have emphasised the usefulness of target interventions in influencing sustainable tourist decisions.

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REFERENCES

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Akehurst, G., Afonso, C., & Gonçalves, H. M. (2012). Re-examining green purchase behaviour and the green consumer profile: New evidences. *Management Decision*, 50(5), 972-988. <https://doi.org/10.1108/00251741211227726>
- Alloh, K., Abraham, J., Sanova, P., Čermák, M., Petrzilka, S., & Schilla, F. (2024). Sustainability of shared economy in the agri-food, tourism, and hospitality industries. In *Frontiers in Sustainable Food Systems* 8. <https://doi.org/10.3389/fsufs.2024.1369089>
- Ansari, N. Y., Farrukh, M., & Raza, A. (2021). Green human resource management and employees pro-environmental behaviours: Examining the underlying mechanism. *Corporate Social Responsibility and Environmental Management*, 28(1), 229-238. <https://doi.org/10.1002/CSR.2044>
- Badia, F., Galeone, G., & Shini, M. (2024). Sustainable strategies of industrial tourism in the agri-food business: an exploratory approach. *British Food Journal*, 126(1), 327-346. <https://doi.org/10.1108/BFJ-11-2022-1031>
- Berthold, A., Cologna, V., Hardmeier, M., & Siegrist, M. (2023). Drop some money! The influence of income and subjective financial scarcity on pro-environmental behaviour. *Journal of Environmental Psychology*, 91, 102149. <https://doi.org/10.1016/j.jenvp.2023.102149>
- Bilynets, I., & Knezevic Cvelbar, L. (2022). Tourist pro-environmental behaviour: The role of environmental image of destination and daily behaviour. *Annals of Tourism Research Empirical Insights*, 3(2). <https://doi.org/10.1016/j.annale.2022.100070>
- Brune, S., Knollenberg, W., Stevenson, K., & Barbieri, C. (2022). Investigating predictors of public- and private-sphere sustainable behaviors in the context of agritourism. *Sustainability*, 14(2), 663. <https://doi.org/10.3390/su14020663>
- Buckley, R. C., Zhang, Z. J., Liddon, M., Underdahl, S., Cooper, M. A., & Brough, P. (2025). Nature and adventure tourism rarely generate awe or pro-environmental behaviours: Conceptual and methodological rejoinder. *Tourism Management*, 107, 105088. <https://doi.org/10.1016/J.TOURMAN.2024.105088>
- Chen, X., & Cheung, L. T. O. (2025). Balancing nature-based tourism and sustainable well-being: Exploring aesthetic quality, environmental benefits, and pro-environmental behaviour. *Asia Pacific Journal of Tourism Research*. <https://doi.org/10.1080/10941665.2025.2470639>
- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, 58(6), 1015-1026. <https://doi.org/10.1037/0022-3514.58.6.1015>
- Ciolac, R., Iancu, T., Brad, I., Popescu, G., Marin, D., & Adamov, T. (2020). Agritourism activity- A "smart chance" for mountain rural environment's sustainability. *Sustainability*, 12(15), 6237. <https://doi.org/10.3390/su12156237>
- Dunlap, R.E., Van Liere, K.D., Mertig, A.G. and Jones, R.E. (2000), New Trends in Measuring Environmental Attitudes: Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale. *Journal of Social Issues*, 56: 425-442. <https://doi.org/10.1111/0022-4537.00176>
- Farmaki, A., Pappas, N., Stergiou, D., & Apostolakis, A. (2026). Pro-environmental behavioural intentions of sharing economy users. *Society and Business Review*, 21(3), 468-496. <https://doi.org/10.1108/SBR-07-2025-0291>
- Fatoki, O. (2019). Hotel employees' pro-environmental behaviour: Effect of leadership behaviour, institutional support and workplace spirituality. *Sustainability*, 11(15), 4135. <https://doi.org/10.3390/su11154135>
- Forleo, M. B., & Bredice, M. (2025). Italian Gen Z and sustainable coastal tourism: a segmentation analysis of knowledge, attitudes and pro-environmental behaviours. *Journal of Tourism Futures*. <https://doi.org/10.1108/JTF-07-2024-0146>

- Foroughi, B., Arjuna, N., Iranmanesh, M., Kumar, K. M., Tseng, M. L., & Leung, N. (2022). Determinants of hotel guests' pro-environmental behaviour: Past behaviour as moderator. *International Journal of Hospitality Management*, 102. <https://doi.org/10.1016/j.ijhm.2022.103167>
- Gao, Y. L., Mattila, A. S., & Lee, S. (2016). A meta-analysis of behavioral intentions for environment-friendly initiatives in hospitality research. *International Journal of Hospitality Management*, 54, 107-115. <https://doi.org/10.1016/j.ijhm.2016.01.010>
- Han, H., Hsu, L.-T. J., & Lee, J.-S. (2009). Empirical investigation of the roles of attitudes toward green behaviors, overall image, gender, and age in hotel customers' eco-friendly decision-making process. *International Journal of Hospitality Management*, 28(4), 519-528. <https://doi.org/10.1016/j.ijhm.2009.02.004>
- He, L., & Filimonau, V. (2020). The effect of national culture on pro-environmental behavioural intentions of tourists in the UK and China. *Tourism Management Perspectives*, 35, 100716. <https://doi.org/10.1016/j.tmp.2020.100716>
- Hirsh, J. B. (2010). Personality and environmental concern. *Journal of Environmental Psychology*, 30(2), 245-248. <https://doi.org/10.1016/j.jenvp.2010.01.004>
- Jamaliah, M. M., Mgonja, J. T., Alazaizah, M. M., & Powell, R. B. (2021). How does interpretive tour guiding promote tourists' pro-environmental behaviour? Evidence from Tanzania. *Tourism Recreation Research*. <https://doi.org/10.1080/02508281.2021.1992953>
- Jeaheng, Y., Sakdaar, P., Phrommana, J., & Nakphin, S. (2026). Integrated Community-Based Tourism Management For Sustainable Development: A Case Study Of Coastal Geosites In Southern Thailand. *Geojournal Of Tourism And Geosites Year Xix*, 66(2spl), 1367-1376. <https://doi.org/10.30892/gtg.662spl10-1771>
- Kaiser, F. G. (1998). A general measure of ecological behavior. *Journal of Applied Social Psychology*, 28(5), 395-422. <https://doi.org/10.1111/j.1559-1816.1998.tb01712.x>
- Kaiser, F. G., Wölfling, S., & Fuhrer, U. (1999). Environmental attitude and ecological behaviour. *Journal of Environmental Psychology*, 19(1), 1-19. <https://doi.org/10.1006/jevp.1998.0107>
- Karthik, D., & Gajanand, P. (2017). *Agri-tourism: An overview*. Biotech Articles, ICAR-National Dairy Research Institute, Karnal, India.
- Kaur, S., Mehraj, D., & Singh, A. (2026). Influencing Pro-Environmental Behavior in Tourists Through Agritourism Initiatives. *International Journal of Tourism Research*, 28(1), e70221. <https://doi.org/10.1002/IJTR.70221>
- Khare, A. (2015). Influence of green self-identity, past environmental behaviour and income on Indian consumers' environmentally friendly behaviour. *Journal of Global Scholars of Marketing Science*, 25(4), 379-395. <https://doi.org/10.1080/21639159.2015.1073423>
- Khairy, H. A., Salama, W. M. E., Suliman, M. A., Haliem, A., & Awad, I. (2026). Fostering Sustainable Work Behavior In Hotel And Tourism Enterprises: Unpacking The Roles Of Adaptive Leadership, Resilience, And Green Self-Efficacy. *Geojournal of Tourism and Geosites Year XIX*, 66(2spl), 1286-1298. <https://doi.org/10.30892/gtg.662spl03-1764>
- Lee, K. (2008). Opportunities for green marketing: Young consumers. *Marketing Intelligence & Planning*, 26(6), 573-586. <https://doi.org/10.1108/02634500810902839>
- Li, J., Lee, T. J., Chen, N., & Park, K. S. (2022). Pro-environmental behaviour of the residents in sensitive tourism destinations. *Journal of Vacation Marketing*, 22(2). <https://doi.org/10.1177/13567667221101406>
- Li, Y., Wang, B., & Saechang, O. (2022). Is female a more pro-environmental gender? Evidence from China. *International Journal of Environmental Research and Public Health*, 19(13), 8002. <https://doi.org/10.3390/ijerph19138002>
- López-Bonilla, J. M., Reyes-Rodríguez, M. D. C., & López-Bonilla, L. M. (2020). Interactions and relationships between personal factors in pro-environmental golf tourist behaviour: A gender analysis. *Sustainability*, 12(1), 332. <https://doi.org/10.3390/su12010332>
- MacDonald, W. L., & Hara, N. (1994). Gender differences in environmental concern among college students. *Sex Roles*, 31(5-6), 369-374. <https://doi.org/10.1007/BF01544595>
- MacInnes, S., Grün, B., & Dolnicar, S. (2022). Habit drives sustainable tourist behavior. *Annals of Tourism Research*, 92, 103329. <https://doi.org/10.1016/j.annals.2021.103329>
- Majid, G. M., Tussyadiah, I., Kim, Y. R., & Chen, J. L. (2025). Promoting pro-environmental behaviour spillover through chatbots. *Journal of Sustainable Tourism*, 33(11), 2440-2458. <https://doi.org/10.1080/09669582.2024.2393256>
- Malik, I. A., Mehraj, D., u Nissa, V., & Wani, A. K. (2025). Unveiling the Dynamics of Sustainable Development: A Holistic Examination of Green Organizational Learning, Innovation, and Performance in Indian SMEs. *Business Strategy and Development*, 8(1), e70060. <https://doi.org/10.1002/bsd2.70060>
- Mehraj, D., & Kaur, S. (2022). Green process innovations and firm marketing performance in the emerging markets. *Business Strategy and Development*, 5(4), 424-436. <https://doi.org/10.1002/bsd2.208>
- Mehraj, D., & Qureshi, I. H. (2020). Determinants of green marketing mix in developing economies: Conceptualisation and scale validation approach. *Business Strategy & Development*, 3(4), 522-530. <https://doi.org/10.1002/BSD2.114>
- Mehraj, D., & Qureshi, I. H. (2022a). Does green brand positioning translate into green purchase intention? A mediation-moderation model. *Business Strategy and the Environment*, 31(7), 3166-3181. <https://doi.org/10.1002/BSE.3069>
- Mehraj, D., Nissa, S. N. U., Nissa, P. U., & Gulzar, S. (2025). The Mediating Role of Financial Self-Efficacy in the Relationship Between Financial Inclusion and Poverty Alleviation. *Business Strategy and Development*, 8(3). <https://doi.org/10.1002/bsd2.70146>
- Moise, M. S., Gil-Saura, I., & Ruiz Molina, M. E. (2021). The importance of green practices for hotel guests: Does gender matter? *Economic Research-Ekonomska Istraživanja*, 34(1), 3508-3529. <https://doi.org/10.1080/1331677X.2021.1875863>
- Mostafa, M. M. (2007). Gender differences in Egyptian consumers' green purchase behaviour: The effects of environmental knowledge, concern and attitude. *International Journal of Consumer Studies*, 31(3), 220-229. <https://doi.org/10.1111/j.1470-6431.2006.00523.x>
- Naik, S., & Chanda, R. S. (2025). Examining the impact of factors on sustainable tourism practices: An empirical study in the Indian context. *Cogent Social Sciences*, 11(1), 2460704. <https://doi.org/10.1080/23311886.2025.2460704>
- Ohorodnyk, V., & Finger, R. (2024). Envisioning the future of agri-tourism in Ukraine: from minor role to viable farm households and sustainable regional economies. *Journal of Rural Studies*, 108. <https://doi.org/10.1016/j.jrurstud.2024.103283>
- Pang, X., & Jiang, J. (2026). How does destination soundscape promote tourists' pro-environmental behaviour? A Reasonable Person Model. *Tourism Recreation Research*. <https://doi.org/10.1080/02508281.2025.2611770>
- Papp-Váry, Á., & Hajeer, A. (2026). Slogans Of The World: A Cross-Continental Analysis of Tourism Country Branding Through Rhetoric, Sentiment, And Brevity. *Geojournal of Tourism and Geosites*, 66(2spl), 1257. <https://doi.org/10.30892/gtg.662spl01-1762>
- Patel, J. D., Modi, A., & Paul, J. (2017). Pro-environmental behavior and socio-demographic factors in an emerging market. *Asian Journal of Business Ethics*, 6(2), 189-214. <https://doi.org/10.1007/s13520-016-0071-5>
- Patwary, A. K. (2023). Examining environmentally responsible behaviour, environmental beliefs and conservation commitment of tourists: A path towards responsible consumption and production in tourism. *Environmental Science and Pollution Research*, 30, 5815-5824. <https://doi.org/10.1007/s11356-022-22577-w>

- Pekərşen, Y., & Canöz, F. (2022). Tourists' attitudes toward green product buying behaviours: The role of demographic variables. *Tourism & Management Studies*, 18(4), 7-16. <https://doi.org/10.18089/tms.2022.180401>
- Pícha, K., & Navrátil, J. (2019). The factors of lifestyle of health and sustainability influencing pro-environmental buying behaviour. *Journal of Cleaner Production*, 234, 233-241. <https://doi.org/10.1016/j.jclepro.2019.06.072>
- Pinho, M., & Gomes, S. (2024). Generation Z as a critical question mark for sustainable tourism – An exploratory study in Portugal. *Journal of Tourism Futures*, 10(3), 486-503. <https://doi.org/10.1108/JTF-07-2022-0171>
- Qureshi, I. H., & Mehraj, D. (2022). Identifying the factors of internal green marketing: a scale development and psychometric evaluation approach. *International Journal of Manpower*, 43(3), 786–804. <https://doi.org/10.1108/IJM-06-2020-0276>
- Rodríguez, C., Jacob, M., & Florido, C. (2020). Socioeconomic profile of tourists with a greater circular attitude and behaviour in hotels of a sun and beach destination. *International Journal of Environmental Research and Public Health*, 17(24), 9392. <https://doi.org/10.3390/ijerph17249392>
- Sadeque, S., Swapan, M. S. H., & Ashikuzzaman, M. (2026). Influence of love, pride and reputation on residents' pro-environmental behaviours. In J. Wen, M. Kozak, J. Aston, & W. Wang (Eds.), *Interdisciplinary Research Tourism, Sustainability, Law and Marketing*, 48–60, Routledge, Abingdon, United Kingdom. <https://doi.org/10.4324/9781003500230-5>
- Shi, L., & Liao, X. (2025). From poverty to common prosperity: an evaluation of agricultural-cultural-tourism integration and its impact on economic growth. *Frontiers in Sustainable Food Systems*, 9. <https://doi.org/10.3389/fsufs.2025.1600264>
- Stern, P. C. (2002). New environmental theories: Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues*, 56(3), 407-424. <https://doi.org/10.1111/0022-4537.00175>
- Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review*, 6(2), 81-97.
- Sun, Y., Liu, N., & Zhao, M. (2019). Factors and mechanisms affecting green consumption in China: A multilevel analysis. *Journal of Cleaner Production*, 209, 481-493. <https://doi.org/10.1016/j.jclepro.2018.10.241>
- Tanzeela Kumar, D., & Mehraj, D. (2024). Determinants of Success for Women Entrepreneurs: An Examination of Small and Medium-Sized Women-Led Businesses in India's Emerging Market. *Business Strategy and Development*, 7(4). <https://doi.org/10.1002/bsd2.70053>
- Ting, D. H., & Cheng, C. F. C. (2017). Developing pro-environmental behaviour: ecotourism fieldtrip and experiences. *International Journal of Sustainability in Higher Education*, 18(7), 1212–1229. <https://doi.org/10.1108/IJSHE-03-2016-0052>
- Voss, S., Andre, H., Kock, F., Karl, M., & Josiassen, A. (2026). Guiding pro-environmental behaviour: examining the impact of cognitive and behavioural interventions on sustainable food choices in hospitality. *Journal of Sustainable Tourism*, 34(1), 21–41. <https://doi.org/10.1080/09669582.2024.2439983>
- Wang, H., Tong, Y., & Zeng, H. (2025). Driving tourists' pro-environmental behaviour through heritage interpretation messages. *npj Heritage Science*, 13, 182. <https://doi.org/10.1038/s40494-025-01731-w>
- Wang, L., Wong, P. P. W., & Narayanan, E. A. (2020). The demographic impact of consumer green purchase intention toward Green Hotel Selection in China. *Tourism and Hospitality Research*, 20(2), 210-222. <https://doi.org/10.1177/1467358419848129>
- Wang, X., & Zhang, C. (2020). Contingent effects of social norms on tourists' pro-environmental behaviours: the role of Chinese traditionality. *Journal of Sustainable Tourism*, 28(10). <https://doi.org/10.1080/09669582.2020.1746795>
- Wang, Y., Hao, F., & Liu, Y. (2021). Pro-environmental behavior in an aging world: Evidence from 31 countries. *International Journal of Environmental Research and Public Health*, 18(4), Article 1748. <https://doi.org/10.3390/ijerph18041748>
- Wu, J., Wang, X., Ramkissoon, H., Wu, M. Y., Guo, Y., & Morrison, A. M. (2024). Resource Mobilization and Power Redistribution: The Role of Local Governments in Shaping Residents' Pro-Environmental Behavior in Rural Tourism Destinations. *Journal of Travel Research*, 63(6). <https://doi.org/10.1177/00472875231191983>
- Zelezny, L.C., Chua, P.-P. and Aldrich, C. (2000). New Ways of Thinking about Environmentalism: Elaborating on Gender Differences in Environmentalism. *Journal of Social Issues*, 56: 443-457. <https://doi.org/10.1111/0022-4537.00177>
- Zhang, H., Zhang, X., Yang, Y., & Ma, J. (2024). From nature experience to visitors' pro-environmental behavior: the role of perceived restorativeness and well-being. *Journal of Sustainable Tourism*, 32(5). <https://doi.org/10.1080/09669582.2023.2184314>