Understanding the influence of environmental triggers on tourists' pro-environmental behaviors in the Pakistan's tourism industry

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Abstract

Purpose – *The research analyzes the influence of three environmental triggers, i.e. awareness, concern and knowledge on environmental attachment and green motivation that affect tourists' pro-environmental behavior in the Pakistan's tourism industry. Furthermore, this study has analyzed the moderating role of moral obligation concerning environmental attachment and green motivation on tourists' pro-environmental behavior.*

Design/methodology/approach – *Data were gathered via a structured questionnaire by 237 local (domestic) tourists of Pakistan. Furthermore, the data were examined by employing SmartPLS.*

Findings – *Findings demonstrate that all three environmental triggers have a positive and significant relationship with environmental attachment and green motivation. Accordingly, environmental attachment and green motivation promote tourists' pro-environmental behavior. Furthermore, the moderating role of moral obligations has also been incorporated in the study. The finding reveals a strong and positive relationship among environmental attachment and tourists' pro-environmental behaviors during high moral obligations. In contrast, moral obligations do not moderate association between green motivation and tourists' pro-environmental behavior. Therefore, competent authorities should facilitate tourists to adopt environmentally friendly practices; which will ultimately promote pro-environmental behavior.*

Originality/value – *This study provides useful insights regarding the role of tourism in fostering environmental attachment and green motivation that sequentially influence tourist pro-environmental behavior. Secondly, this research has employed moral obligations as a moderator to identify the changes in tourists' pro-environmental behavior based on individuals' ethical considerations. Hence, the study provides an in-depth insight into tourists' behavior. Lastly, the present research offers effective strategies for the tourism sector and other competent authorities to increase green activities that can embed the importance of the environment among individuals.*

Keywords *Environmental triggers, Tourist pro-environmental behavior, Tourism sector, SmartPLS*

Paper type *Research paper*

1. Introduction

Pollution, habitat destruction, the greenhouse effect and resource depletion contaminate long-term sustainability of ecological systems (Wang *et al.*, 2020). Primarily, these environmental issues are correlated with the negligent activities of individuals (Hopkins, 2020; Wu *et al.*, 2020). Several scholars believe that complex problems can be addressed and overcome by changing environmentally sustainable human conduct (Steg and Vlek, 2009; Han, 2020). Modifying an individual's consumption behavior is a crucial criterion for sustainable development, including consuming, approaching and acquiring items in an eco-friendly manner (Halder *et al.*, 2020). The importance of environmental responsibility and sustainable consumer behavior has been

receiving growing attention in the consumer sector and academia (Garvey and Bolton, 2017; Dong *et al*., 2020). However, for sustainable development, several sectors such as tourism, hospitality and others are taking corrective actions (Foster *et al*., 2022). Among them, massive growth is being observed in the tourism sector (Arshad *et al*., 2018). This sector is growing in popularity, attracting visitors from all over the world to explore its beautiful natural surroundings and cultural heritage. However, the rapid expansion of tourism raises concerns about the environmental consequences of growing visitor numbers (Pata and Balsalobre-Lorente, 2022). Understanding the factors determining tourists' pro-environmental behaviors (TPB) is becoming increasingly important as the tourism industry strives for sustainability. Steg and Vlek (2009) define pro-environmental behavior as an individual's conduct to avoid any action that may damage the environment; generally, it includes eco-friendly and sustainable practices and responsible behaviors. A range of environmental triggers, such as awareness, concern and knowledge, influence TPB, these triggers have a fundamental effect on tourists' perspectives and behavior regarding the environment (Li and Wu, 2020). Awareness motivates people to notice the fragility of ecosystems and the importance of adopting environmentally friendly practices (Ballantyne *et al*., 2021). As travelers develop a sense of duty and concern for environment, a desire to safeguard and preserve natural resources grows. Knowledge provides tourists with the information they need to make informed decisions and engage in pro-environmental behavior. These triggers collectively impact tourists' attitudes and activities, influencing the tourism industry's sustainability (Priatmoko *et al*., 2021). Therefore, with increasing demand and growing awareness regarding environmental issues, several tourism agencies are increasingly willing to take proactive steps to convert traditional products and operations into eco-friendly products (Hopkins, 2020).

Furthermore, environmental awareness (EAW) is a significant factor in driving green motivation (GM). People who are aware of environmental challenges, their consequences and the need for sustainable practices actively engage in pro-environmental behaviors (Yusliza *et al*., 2020). Environmental behavior refers to environmentally friendly behaviors that encourage tourists to engage and participate in sustainable practices such as environmental efforts, recycling products, preserving sustainable policies and wisely using natural resources (De Roeck and Farooq, 2018). According to Ahmed *et al*. (2020), these triggers positively influence environmental attachment (EAT) and GM by enhancing tourists' engagement in green behavior that results in sustainability of environment.

Tourists feel a sense of attachment to the place because of its beauty, nature and atmosphere and exhibit a close connection with it. Furthermore, tourists emotionally involved with the environment exhibit an intention to participate in sustainable practices (Daryanto and Song, 2021). EAT signifies a deep sense of belonging to the environment; it is an emotional link between a tourist's environmental motivation and EAT (Ramkissoon *et al*., 2018). Tourists' emotional attachment, sense of motivation and moral obligation encourage green behavior by improving their corporate dedication, green commitment and their environmental goals. Moreover, moral obligation (MO) is another major factor influencing tourist intentions. According to Chen (2020), MO refers to ethical responsibility of people to protect environment. It entails social responsibility of individuals to contribute to preservation and well-being of environment. Moral obligation also validates that the environment is intrinsically significant and worthy of moral respect. EAT and motivations are the fundamental factors to accomplish moral responsibility (Raineri and Paillé, 2016). Individuals who are emotionally engaged with the environment are more likely to understand their MO to safeguard it and to take measures that support its well-being (Afsar and Umrani, 2020). This emotional connection serves as an effective foundation to support personal investment and responsibility for the environment.

Correspondingly, motivation is a crucial aspect that plays an essential part in fulfilling MO to the environment. According to Mullen and Widener (2022) recognizing environmental problems, understanding potential repercussions of inactivity and having a sense of environmental justice, serves as motivators for individuals to protect environment. Knowledge related to moral obligation prompts realizing and understanding the significance and consequences of these environmental

issues on the current and future generations (Mohiuddin *et al*., 2022). In terms of environmental attachment and motivation, MO implies accepting our responsibility to safeguard the natural environment. Individuals are more inclined to fulfill their moral obligations to promote the well-being and preservation of environment when they develop a connection with the environment and are motivated by a sense of duty and equal opportunity. Empirical research has found that MO has a significant influence in determining tourist behaviors and intentions (Han *et al*., 2017). The current study incorporates moral obligation to evaluate its moderating impact on relationship of EAT and GM on TPB.

Pakistan is a country blessed with natural beauty, with its magnificent scenery, rich cultural heritage, friendly hospitality and vibrant customs. However, it is currently experiencing severe climatic changes, which are causing environmental quality to deteriorate year after year (EPI, 2020). As a result, Pakistan is consistently ranked as the most polluted country on the planet (Anjum *et al*., 2021) negatively hurting the tourism industry. Unfortunately, pro-environmental behavior among the Pakistani tourists is typically poor or inadequate. Despite the attractiveness of Pakistan's mountains, lakes and forests, the tourism industry's influence and environmental consequences have not been successfully regulated.

One of the key challenges is tourists' lack of awareness and information about sustainable behaviors (Guan *et al*., 2023). Domestic tourists visiting Pakistan are frequently unaware of the fragility of the ecosystems in the areas they visit as well as the long-term consequences of their actions, such as trash, pollution and environmental degradation. Inadequate waste management infrastructure and a lack of facilities exacerbate sustainability concerns (Mousazadeh *et al*., 2023). Insufficient waste disposal and recycling facilities contribute to increased pollution and environmental degradation in tourist areas (Abubakar *et al*., 2022). Domestic tourists may also participate in activities that destroy natural resources, such as deforestation, uncontrolled hunting or fishing, off-road driving or excessive trekking in vulnerable areas (Baloch *et al*., 2023).

Furthermore, tourism holds significance for global environmental sustainability (Purwanda and Achmad, 2022). As more people travel, it is becoming increasingly important to comprehend the elements that influence TPB (Farrukh *et al*., 2023). One area of research that has received attention is the association between tourist motivation and their attachment to pro-environmental behavior. Several studies have looked into this connection and discovered that particular kinds of tourist motivations are associated with pro-environmental attitudes and behaviors (Daryanto and Song, 2021; Loureiro *et al*., 2022) and according to Kim *et al*. (2018), the tourists who are driven to study and gain knowledge while traveling are significantly more inclined to build a strong attachment to pro-environmental behavior. However, there is also a negative relationship between tourist motivation and attachment to pro-environmental behavior (Ramkissoon *et al*., 2013; Xu *et al*., 2020). One likely cause is a preference for mass tourism and leisure-oriented experiences. Tourists that value hedonistic activities, leisure and entertainment may put their satisfaction ahead of environmental concerns (Hsieh *et al*., 2018). Tourists may value ease, luxury and quick gratification over sustainability, which can lead to a lack of attachment or concern for pro-environmental behavior (Talwar *et al*., 2022). Being aware of the potential negative relationship between tourist motivation and attachment to pro-environmental behavior, introducing a moderating variable such as MO can be a good choice.

Furthermore, only a few existing researches have explored the moderating role of MO in the relationship between EAT, GM and pro-environmental behavior. According to Gosling and Williams (2010), EAT and GM alone may not always be sufficient to motivate pro-environmental behavior among tourists because factors such as convenience, expense and a lack of knowledge or infrastructure can all make it difficult to turn positive intentions into sustainable behavior. Therefore, there is a need to introduce a moderating variable. The addition of MO aims to determine whether it strengthens or weakens the association between green motivation and pro-environmental behavior and between attachment and pro-environmental behavior. Further exploration of this aspect is necessary to better understand the factors influencing tourists' environmental behaviors. Therefore, current research will add up to an existing body of knowledge

in following ways: firstly, it will augment understanding of three environmental triggers, i.e. EAW, concern and knowledge which will promote tourists' EAT and GM; ultimately, influencing TPB. As research studies have focused on these three triggers regarding tourists' behavior. Hence, this study will contribute to tourism and environment literature. Secondly, this study has targeted the domestic tourists of Pakistan, because domestic visitors make up a sizable component of the tourism sector. Their actions and attitudes might reveal information about the overall influence of tourism on the environment in the country. Understanding domestic visitors' pro-environmental behavior might assist guide policies and programs targeted at encouraging sustainable tourism practices within the country at large. This understanding can help to reduce negative environmental consequences while increasing positive contributions from tourism. Thirdly, this study will benefit other highly polluted areas by providing them an in-depth insight into tourists' pro-environmental behavior at different traveling destinations consistent with the environmental triggers. Through this approach, the tourism sector of different areas of the world can play its role in protecting the environment. Also, it will assist in the formulation of tourism strategies. Moreover, the study will also contribute to Pakistan's future tourism by providing awareness, protection and ways to improve TPB. Finally, we have employed MO as a moderator to explore how tourists' ethical responsibilities affect the proposed associations. Previous research studies have examined moral obligation as an antecedent or mediator but rarely examined its role as a moderator.

The remaining research is structured as follows: Chapter 2 explains theoretical prescriptive and literature of study. Chapter 3 explains research methodology applied. Chapter 4 explains research findings and results. Chapter 5 depicts conclusion, implication and future recommendations of study.

2. Literature review

2.1 Theoretical background

2.1.1 Norm activation theory (NAT). The theory applied in this study is "norm activation theory" proposed by Schwartz (1977). It declares personal norms as fundamental factors influencing a person's behavior, awareness regarding problems, implications and the attribution of responsibility. This concept is built around personal norms (Klockner, 2013). According to Schwartz (1997) these norms are feelings of moral duty rather than intentions. According to the NAT personal norms predict behavior of individuals. According to the framework, two variables influence personal norms: the sense of responsibility for completing the specified task and knowledge inferences (Schwartz, 1977). Moreover, it states that individuals create self-expectations about their prosocial behavior. Han (2020) and Schwartz (1977) have utilized the norm activation theory for explaining pro-environmental behavior (Rosenthal and Ho, 2020; Denley *et al*., 2020). This study employed the NAT to explain association among environmental triggers and tourist behavior. Steg and Vlek (2009) claimed when tourists have the knowledge and awareness of environmental degradation issues, they are more concerned with ecological activities and exhibit green behaviors; for instance, safeguarding the natural environment, using resources wisely and suggesting eco-friendly solutions (Afsar *et al*., 2016). According to Schwartz (1977), engaging in moral obligations despite the personal norm of an individual; thus, directs pro-environmental behavior. De Groot and Steg (2009) claims occurrence of norm activation takes place when a person gets to know about their ecologically irresponsible behavior consequences while accepting personal responsibility.

2.1.2 Attitude–behavior gap. The attitude–behavior gap is proposed by Homer and Kahle (1988). The attitude–behavior gap refers to psychological phenomena which propose a gap among individual's attitudes or beliefs and their behaviors. In other words, it is the gap between what people claim to do or think (their attitudes) and what they do (Kokolakis, 2017). This gap manifests when people have positive views toward the environment or have green intentions but fail to translate them into pro-environmental behaviors. According to ElHaffar *et al*. (2020), EAT and GM are the two factors that may contribute to the attitude-–behavior gap. EAT represents the

emotional connection and care individuals develop toward the natural environment or specific places, while GM reflects their intrinsic drive to engage in eco-friendly behaviors. These attitudes, in turn, influence tourists' behavior to partake in pro-environmental actions during their travels. However, the research recognizes that attitudes and intentions do not always align with actual behavior, leading to the attitude–behavior gap. Consequently, the study delves into understanding whether tourists' expressed attitudes and intentions regarding pro-environmental behavior indeed translate into observable actions.

GM refers to the innate drive or desire to engage in ecologically responsible behaviors. It includes personal values, beliefs and environmental concerns (Zhao *et al*., 2021). Individuals who are motivated by the environment may have a strong desire to embrace sustainable activities and have positive attitudes about ecological preservation. However, similar to EAT, the attitude–behavior gap can arise when people who are motivated by the environment do not consistently display pro-environmental behaviors (Maqsoom *et al*., 2023). This may be influenced by variables such as external barriers, a lack of information or skills or the influence of social norms. Despite their drive, people may struggle to put their intentions into action, which leads to the attitude–behavior gap (Yu and Yu, 2017).

On the other hand, environmental attachment is an emotional connection or devotion that people form for a specific environment or natural area. It can be influenced by variables such as aesthetic enjoyments, personal experiences or a sense of belongings. Individuals who have a strong environmental attachment may have favorable attitudes about environmental conservation and a desire to safeguard and preserve natural resources (Schmitt and Zarantonello, 2013; Jin *et al*., 2023). According to Nursey-Bray *et al*. (2019) and Chu (2020), an attitude–behavior gap, occurs when persons with environmental attachment do not usually participate in pro-environmental behaviors. This could be due to a variety of causes such as convenience, a lack of knowledge about sustainable practices or competing priorities. Although People may feel emotionally attached to their surroundings, this emotional connection may not necessarily be reflected in their behavior.

According to research, there can be an absence between people's attitudes and their actual behavior. This can be demonstrated in the context of tourism when tourists exhibit positive views about the environment but engage in destructive or unsustainable behaviors (Li and Wu, 2020). As a result, it is critical to investigate elements that can bridge this gap and support pro-environmental behavior. Furthermore, while motivation and attachment to a place or the environment can influence tourists' behavior, they do not always directly transfer into pro-environmental behavior (Juvan and Dolnicar, 2014). Tourists, for example, may be compelled to visit a beautiful natural place and feel emotionally tied to its beauty, but their actions may not always reflect environmentally friendly practices. Convenience, lack of information or competing priorities can all be factors that impede the translation of motivation and attachment into pro-environmental behavior. As a result, focusing merely on motivation and attachment may not be sufficient to foster sustainable behavior among tourists (He *et al*., 2021).

Chwialkowska *et al*. (2020) claim moral obligations can help bridge the attitude–behavior gap and encourage pro-environmental behavior. MO include individual sense of responsibility, ethical standards and environmental values. People are more inclined to behave in ways consistent with their attitudes when they believe they have a moral obligation to maintain and protect the environment (Tyler and Darley, 1999). MO can be a powerful motivation, breaking down barriers and pushing people to adopt sustainable habits (Copp, 1995). Researchers and practitioners can design interventions and methods that encourage responsible behavior among domestic visitors by considering MO in the context of tourism. As a result, to gain useful insights and improve the depth and accuracy of research findings, the current study has used moral obligations as a moderator between EAT, GM and TPB.

2.2 Hypotheses development

2.2.1 Environmental awareness (EAW). EAW is an individual's understanding of how different factors affect the environment, e.g. how the environment is affected by human behavior (Afsar

et al., 2016). Previous research studies indicate EAW as a multidimensional concept (Wan *et al*., 2017; Darvishmotevali and Altinay, 2022). EAW is widely acknowledged as critical aspects of building EAT. Individuals become aware of environmental concerns, difficulties and the interconnectivity of ecosystems when they acquire a connection and attachment to the natural world (Wijesooriya and Brambilla, 2021). Several studies have validated the connection between EAW and EAT. Harris (2021) investigates the influence of environmental education in developing environmental attachment. Its findings highlight that improved environmental knowledge (EK) leads to a better emotional relationship with nature. Deville *et al*. (2021) emphasize the significance of EAW in fostering a sense of inclusion and attachment to nature. It underlines knowledge and awareness of environmental concerns considerably contributes to enhancing people's emotional attachment to the environment. Yu *et al*. (2019) explore individuals' emotional connection with attachment and conclude EAW is positively correlated with a stronger sense of attachment. When individuals recognize the importance of environmental challenges and their association with nature, they feel a sense of responsibility and are motivated to protect and preserve the environment.

Furthermore, EAW is a significant factor in driving GM. People who are aware of environmental challenges, their consequences and the need for sustainable practices actively engage in pro-environmental behaviors. Understanding environmental concerns and solutions improves individuals' comprehension of their impact on the environment and empowers them to make sustainable decisions. The awareness of environmental protection in terms of importance and repercussions urges individuals to participate in sustainability efforts, support green projects and advocate for environmental changes. EAW catalyzes GM that induces people to actively participate in preserving the environment and adopting sustainable behaviors. Janmaimool and Khajohnmanee (2019) investigate link between environmental attitudes, behavioral problems and actual behavior, emphasizing the role of environmental awareness in encouraging pro-environmental motivations. Zhao *et al*. (2021) look at the connection between the social context, personal norms and public transportation use, emphasizing the role of EAW in shaping GM. Farrukh *et al*. (2022) underline importance of EAW in determining motivation for engaging in pro-environmental initiatives. Therefore, following hypotheses were put forth:

H1a. Environmental awareness influences environmental attachment.

H1b. Environmental awareness influences green motivation.

2.2.2 Environmental concern (EC). Environmental concern (EC) is an individual's attitude linked to behavioral intentions (Ahmed *et al*., 2020). It refers to a person's perspectives on various environmental issues; for instance, concerns regarding the insufficient control of air pollution. Pro-environmental behavior demonstrates one's consciousness of a natural and stable environment (Iyer *et al*., 2013). EC serves as a motivator, triggering people's desire to protect and care for environment, resulting in a stronger attachment and greater dedication to environmental initiatives for preservation (Chow *et al*., 2019). EAT is significantly influenced by expressing environmental concern. This bond motivates people to engage in pro-environmental behaviors and actively assist in environmental protection and development (Sovacool *et al*., 2019). Chawla (2020) investigates the impact of EC and emotional attachment to nature by encouraging individuals to conserve the environment. The findings revealed that a stronger emotional attachment to nature is related to higher degrees of environmental concern. Similarly, Devine-Wright and Batel (2017) indicate that individuals who exhibit greater concern for the environment should cultivate a profound attachment to their surroundings. Ramkissoon and Mavondo (2017) measure individuals' emotional concern and attachment to nature and discover that individuals' concern toward the environment has a stronger sense of attachment.

Ansari *et al*. (2021) state environmental concerns positively affect green motivation, by inspiring individuals to engage in pro-environmental behaviors and take corrective action to address environmental problems. EC serves as a stimulus for GM and encourages individuals to contribute

toward a more sustainable and environmentally friendly environment (Channa *et al*., 2022). Numerous studies have ascertained the association among EC and GM. Such as, Larson *et al*. (2020) discovers environmentally concerned people are more motivated to engage in ecological practices. Additionally, Iftikar *et al*. (2022) ascertain EC as one of the primary motivators lead people to take environmentally responsible activities. Pop *et al*. (2020) reveal that higher the environmental concern motivates individual to purchase organic food and green items. Hu *et al*. (2022) explore that a key factor in ensuring green environmental performance is the green motivation of individuals, which reflects their commitment and concern for the environment. Based on the above discussion, the following hypotheses have been formulated:

H2a. Environmental concerns influence environmental attachment

H2b. Environmental concerns influence green motivation

2.2.3 Environmental knowledge (EK). Knowledge is an individual interpretation of information conforming to their abilities, competencies and experiences (Ahmed *et al*., 2020). EK is the information used to describe environmental approaches and problems; it allows an individual to transform knowledge into power (Zsóka *et al*., 2013). EK is a crucial aspect of developing EAT (Daryanto and Song, 2021) and Ansari *et al*. (2021) state that individuals develop an enhanced relationship, gratitude and sense of responsibility for environment with the increased comprehension and knowledge of the natural world. Individuals are empowered by EK to become active stewards of the environment, leading to its preservation and establishing a sustainable relationship with nature. Individuals with better awareness of environmental challenges, mechanisms and ecosystem connectivity acquire a sense of connection, care and responsibility for the environment (Gislason *et al*., 2021). Individuals with EK are better equipped to make informed decisions, engage in sustainable behaviors and advocate for environmental preservation. Various studies have validated the association between EK and EAT. Hansmann *et al*. (2020) claim higher levels of EK are positively connected with stronger EAT and greater probability of engaging in pro-environmental behaviors. Cicatiello *et al*. (2020) imply that people with adequate EAW should form a stronger emotional bond with the natural world. Daryanto and Song (2021) discover people with eligible EK have a stronger attachment to natural destinations that augment higher engagement toward pro-environmental behavior.

EK strongly affects green motivation, because it encourages people to engage in pro-environmental behaviors, also take corrective actions for solving environmental problems. Correspondingly, individuals are more motivated to act and make environmentally conscious decisions when they have an adequate understanding of environmental challenges, the effects of human actions and viable solutions (Afsar and Umrani, 2020). Farrukh *et al*. (2022) suggest an individual's EK is connected with their motivation to engage in pro-environmental behaviors. Cheema *et al*. (2020) claim individuals with higher degrees of EK are more motivated to engage in ecological behavior. Yusliza *et al*. (2020) investigate drivers and impediments of pro-EK. It emphasizes EK is a crucial driver of GM and increased adoption of eco-friendly products. Wang *et al*. (2021a, b) analyzed effect of EK in motivating people toward environmentally sustainable practices. It reveals higher levels of EK are connected with more positive attachment and greater motivation to engage in environmentally friendly activities. Therefore, hypothesis proposed is put forth:

H3a. Environmental knowledge influences environmental attachment

H3b. Environmental knowledge influences green motivation

2.2.4 Environmental attachment (EAT). EAT is a psychological phenomenon that instigates tourists to respect natural environment. It is an emotional trait that encourages tourists to appreciate the intrinsic value of nature and exhibit feelings of environmental curiosity, gratitude, sympathy and remorse (Zhang *et al*., 2014; Loureiro *et al*., 2022). The cognitive and emotional aspects of pro-EAT predict pro-environmental behavior without contextual constraints and are fundamentally

connected to pro-environmental morality (Xu *et al*., 2020). Therefore, environmental attachment is substantial in TPB (Xu *et al*., 2020). Additionally, Ahmad *et al.* (2021) asserts that psychological factors impact tourists' pro-environmental behavior and tourist attitudes to environmental activities. Sustainable tourism is heavily influenced by EAT, which involves feelings of the natural world (Ramkissoon and Mavondo, 2015; Fox and Xu, 2017). According to Whitburn *et al*. (2019), a meta-analysis of 37 papers reveals tourists' engagement with the environment exhibits higher levels of pro-environmental behavior. Furthermore, a study conducted in Australian national park by Ramkissoon *et al.* (2013) revealed EAT to be strongly linked with pro-environmental behaviors. Similarly, individuals with a higher EAT will exhibit pro-environmental behavior in various situations. As a result, the study proposed the hypothesis mentioned below:

H4. Environmental attachment influence pro-environmental behavior

2.2.5 Green motivation (GM). According to Yusliza *et al*. (2020), TPB and willingness to pay for eco-friendly goods motivate tourists to participate in green buying behavior. However, tourists using eco-friendly products as a part of their green lifestyle feel motivated and exhibit pro-environmental behavior. Motivated tourists are environmentally well aware and sensitive to their actions; thus, encouraging pro-environmental behaviors to support environmental concerns. Motivation is a significant aspect of tourism and traveling research; this notion is thoroughly reviewed, as individuals' psychological and biological needs affecting their decision-making are called motivation. The two types of motivations have been identified, i.e. intrinsic and extrinsic (Barszcz *et al*., 2022). Extrinsic motivation is linked to external reinforcement or social acceptance such as receiving advantages, while intrinsic motivation is linked to internal desires such as values or attitudes. A previous study has demonstrated intrinsic motivation as an important component in influencing TPB (Gronhoj and Thogersen, 2017; Linder *et al*., 2022). According to Fishbein and Ajzen (1974) and Qureshi *et al*. (2022), the intention is an immediate antecedent of motivation. Furthermore, if tourists have a high motivation, toward protection of the environment they will then predict a high pro-environmental behavior (Yadav and Pathak, 2017). Furthermore, Chaudhary and Bisai (2018) state that people's motivation encourages individuals to buy green items. Similarly, GM refers to how people buy green products which are not harmful to environment and easily recycled (Mostafa, 2006). The study aims to identify factors influencing an individual's decision to participate in green tourism. The current research aims to recognize intrinsic and extrinsic motivations to comprehend green tourism behaviors to comprehend people's needs and promote effective green tourism services.

H5. Green motivation influence pro-environmental behavior

2.2.6 Moderating role of moral obligations (MO). Moral obligations (MO) refer to people's psychological aspects determining their responsibility to behave morally or immorally while confronting ethical issues (Ahmad *et al.*, 2021). According to prior studies, MO affect individuals' desire to engage in pro-environmental activities (Li *et al*., 2019). MO serve as a moderator among tourists encouraging pro-environmental behavior by putting a strong emphasis on sustainability and responsible travel (Han *et al*., 2018). It contributes to promoting awareness and understanding of tourists about environmental protection and sustainable practices. It also encourages them to make environmentally friendly decisions, save resources, support small businesses, promote responsible travel concepts, address EC within the tourist community and gain knowledge about current issues and environmentally friendly practices (Ibnou-Laaroussi *et al*., 2020). Mittal and Dhar (2016) state that MO promote a culture of sustainability and environmental respect among tourists by satisfying these commitments.

MO can play a critical role in moderating the association between environmental attachment and pro-environmental behavior (Wu *et al*., 2021). Individuals who have high moral commitments to the environment are more likely to have a stronger emotional connection and a feeling of responsibility for nature. This increased bond may improve the potential for pro-environmental behavior (Ito *et al*.,

2020). MO may be transformed by environmental attachment into specific pro-environmental behaviors. While environmental attachment might lead to positive views and concern for the environment, it is moral obligations that can translate these sentiments into tangible behavior (Zhang *et al*., 2014). MO provide individuals with a framework and motivation to act in ways that are consistent with their moral values. They serve as a guiding framework for individuals to connect their behaviors with their sincere values (Chen, 2020). When there is a substantial moral commitment to the environment, individuals seek moral consistency by acting in ways that are compatible with their moral values. This consistency leads to a stronger association between environmental attachment and pro-environmental behavior, as individuals are more willing to act on their attachment when it corresponds with their moral obligations (Rawal, 2019).

GM refers to the psychological factors that motivate people to engage in environmentally friendly behaviors and have pro-environmental attitudes (Ansari *et al*., 2021). In green literature, there are many recent researches available that studied the association between GM and pro-environmental behavior (Faraz *et al*., 2021; Naz *et al*., 2023) but none consider the moderator between them. Including a moderator in the relationship between green motivation and pro-environmental behavior can provide a more comprehensive view of the factors influencing individuals' environmental behaviors (Ling and Xu, 2020). Moral obligations act as a crucial moderator between GM and pro-environmental behavior, influencing the strength and direction of this relationship. When individuals perceive environmental protection as a moral duty, their GM is intensified, leading to a deeper commitment to pro-environmental actions. This strong sense of ethical responsibility fosters intrinsic motivation, helps overcome barriers, promotes consistency between beliefs and actions, shapes social norms and enhances emotional connections to environmental issues, all of which collectively contribute to more sustainable and environmentally friendly behavior (Sharpe *et al*., 2022). According to Li *et al*. (2021) individuals having a high sense of MO are more motivated to engage in pro-environmental behavior. Based on the above discourse, the following hypotheses have been proposed:

H6a. Moral obligations moderate the relationship between environmental attachment and pro-environmental behavior

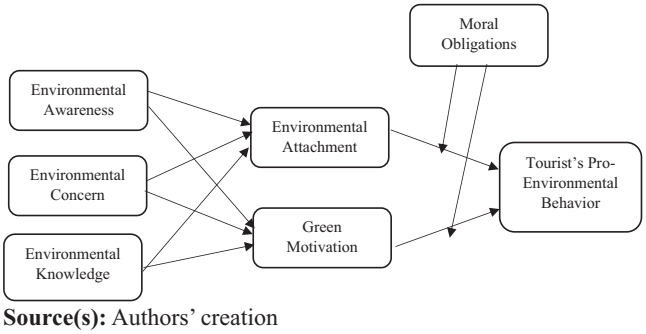
H6b. Moral obligations moderate the relationship between green motivation and pro-environmental behavior

3. Methodology

3.1 Research model

Figure 1 illustrates a conceptual framework comprising three environmental triggers, i.e. awareness, concern and knowledge. It also includes EAT and GM. The dependent variable is TPB. Furthermore, the present research has incorporated the moderating role of moral obligations.

Figure 1 Conceptual model



Source(s): Authors' creation

3.2 Data collection and instrumentation

This study utilizes a quantitative approach to explain impact of three environmental triggers on pro-environmental behavior with a moderating effect of moral obligation. The data were collected using a cross-sectional survey and structured questionnaire. For this reason, we targeted the local (domestic) tourists by using a convenience sample approach. The convenience sampling method is a non-probability strategy to collect data from people who are easily accessible (Qureshi, 2018). Therefore, 250 online questionnaires were distributed among the tourists on social media traveling pages; 13 questionnaires with missing values were further eliminated. Hence, the final sample includes the responses of 237 tourists. According to Ahmed *et al*. (2020) and Nguyen (2021), convergence criteria for a sample size of 100 are sufficient. Anderson and Gerbing (1984) recommended a sample of 150 for data analysis. Thus, a sample size of study is adequate for the estimation. We considered the local tourists (residents of Pakistan traveling to other cities of Pakistan for tourism) to comprehend pro-environmental behavior among them. Increasing pollution and rapid climate change urge the need to study local TPB so that in the future, the government and tourist sector can take precautions for a better and healthy environment based on local tourists' environmental behavior. A closed-ended question was created to obtain data from respondents. According to Rathi and Ronald (2022) when there are a large number of respondents, the questionnaire tool is extremely useful. The data were obtained using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). According to Croasmun and Ostrom (2011), Likert scales are effective in social science and attitude studies. Symonds (1924) states a five-point scale provides the best reliability. The survey questionnaire is valid because the questions have been adapted from several major studies published in renowned journals. For example, the items of EK have been derived from Kaiser *et al*. (1999), having 2,348 citations. The items of Environmental awareness have been adapted from Özden (2008) having 246 citations. EC items were adapted from the report of Minton and Rose (1997) having 860 citations. The items of green motivation were adapted from Baker and Ozaki (2008) having 1,525 citations. Similarly, Environmental attachment items were taken from Fox and Xu (2017) having 27 citations. Finally, the items of pro-environmental behavior were adopted by Juvan and Dolnicar (2016) having 245 citations. Hence, it is an evident that the questionnaire used in this research is valid. The researchers have acquired participants' consent and ethical considerations regarding participant identity that were strictly followed throughout the data collection process. Further details such as constructs, measurement items and scale have been stated in Table 1.

3.3 Demographics

The demographic summary includes gender, age and education. Results are shown in Table 2. According to demographic data, 53.6% of respondents were men and 46.4% were women. In terms of age, 12.7% of respondents were less than 25 years old, 58.6% were between ages of 25 and 30 years old, 16.5% were between ages of 31 and 36 years old, 8.9% were between ages of 37 and 40 years old and 3.4% were older than 42 years old. Finally, according to education, 7.2% of respondents were undergraduates, 82.7% were graduates and the remaining 8.4 and 1.7% were postgraduates and others.

4. Data analysis and results

In this study, the partial least square structural equation modeling (PLS-SEM) technique was applied. The current study adhered to the criteria established by Raza *et al*. (2020). Therefore, we used the bootstrapping approach using 5,000 sub-samples to calculate significance value for each path coefficient. PLS-SEM was performed in two phases: firstly, the measurement model is evaluated and the structural model is evaluated in the second phase. We examined construct validity and discriminant validity criteria in the measurement model; and R^2, F^2, PLS prediction and path coefficient significance in the structural model. PLS-SEM is utilized because it is a dependable statistical approach for examining the validity of theory using statistical facts and figures (Ringle,

Table 1 Constructs

Constructs	*Items*	*Scale*
Environmental attachment (EAT)	*EAT1:* Nature is quiet *EAT2:* Nature is fascinating *EAT3:* Nature is powerful *EAT4:* I love nature very much and am very interested in natural tourist destinations *EAT5:* I feel relaxed and happy in the natural environment	1 = Strongly disagree/ 5 = Strongly agree
Green motivation (GM)	*GM1:* I enjoy coming up with new green ideas *GM2:* I enjoy trying to solve environmental tasks on job *GM3:* I enjoy tackling environmental tasks that are completely new *GM4:* I enjoy executing existing green ideas at my job *GM5:* I feel excited when I have new green ideas	1 = Strongly disagree/ 5 = Strongly agree
Tourism pro-environmental behaviors (TPB)	*TPB1:* I usually buy environmentally friendly tourism products *TPB2:* I usually buy accommodation products with eco-labels *TPB3:* I often walk instead of driving if short distance *TPB4:* I pick up the garbage left by others *TPB5:* I persuade others to protect the natural environment	1 = Strongly disagree/ 5 = Strongly agree
Moral obligation (MO)	*MO1:* I have a moral obligation to protect the environment *MO2:* Moral obligation to be environmentally responsible in all purchases and consumption	1 = Strongly disagree/ 5 = Strongly agree
Environmental awareness (EAW)	*EAW1:* Individuals should be informed about the environment through media (TV, newspapers, magazines and others) *EAW2:* Products made of recyclable materials should be preferred even though they are more Expensive *EAW3:* Drinks in plastic bottles should not be preferred since they are difficult to recycle *EAW4:* Energy-saving light bulbs should be used even though they are expensive *EAW5:* Individuals should gain awareness about the environment at all levels of education starting from kindergarten	1 = Strongly disagree/ 5 = Strongly agree
Environmental concern (EC)	*EC1:* I feel angry and frustrated when I think about the harm being done to plant and animal life by pollution *EC2:* I think we are not doing enough to save scarce natural resources from being used up *EC3:* Environmental issues are overrated and do not concern me	1 = Strongly disagree/ 5 = Strongly agree
Environmental knowledge (EK)	*EK1:* The world climate will probably massively change if CO continues to be emitted into the atmosphere in as huge amounts as it is now *EK2:* Fossil fuels (e.g. gas, oil) produce carbon dioxide in the atmosphere when burned *EK3:* A change in climate caused by increased levels of carbon dioxide in the atmosphere is called the greenhouse effect *EK4:* A reduced number of species may interrupt the food chain, affecting some subsequent species in the chain *EK5:* Poisonous metals are introduced into the food chain, for instance, via ground water	1 = Strongly disagree/ 5 = Strongly agree

Source(s): Authors' creation

2005). The current study employs the variance-based technique to analyze hypothetical models. PLS-SEM is carried out via SmartPLS software, as it is an appropriate method for examining and studying the multiple integrated models (Henseler *et al.*, 2009).

Table 2 Demographic profile (N = 237)

Demographics	*Categories*	*Frequencies*	*Percentage*
Gender	Male	127	53.6
	Female	110	46.4
	Total	237	100.0
Age	Less than 25	30	12.6
	25–30	139	58.6
	31–36	39	16.5
	37 and 42	21	8.9
	More than 42 years	8	3.4
	Total	237	100.0
Education	Undergraduate	17	7.2
	Graduate	196	82.7
	Postgraduate	20	8.4
	Others	4	1.7
	Total	237	100.0

Source(s): Authors' estimation

4.1 Measurement model

Several experiments have been performed under the measurement paradigm to provide comparative measurements of validity and reliability of constructs. The construct reliability, individual item reliability, convergent validity and discriminant validity of the model are used to assess its competence. PLS evaluates convergent validity using Cronbach's alpha, composite reliability and AVE. All variables, as indicated in Table 3, have Cronbach's alpha and composite reliability more than 0.7, matching Straub's (1989) criterion. Furthermore, individual item reliability for all components is greater than 0.7, indicating that Churchill's (1979) criteria have been met. The instrument's dependability is demonstrated by all cross-loading values greater than 0.7 (Raza and Khan, 2021). Furthermore, the AVE for all variables exceeds 0.50, meeting Fornell and Larcker (1981) criteria.

The following approaches were used to assess discriminant validity: i.e. heterotrait-monotrait (HTMT). Therefore, adequacy of discriminant validity is clarified. In Table 4, none of the HTMT metrics has a value greater than 0.9, i.e. HTMT ratio of associations (Raza *et al.*, 2021). The measurement model confirms variables' convergent and discriminant validity, allowing the structural model to proceed.

4.2 Structural model

Another component of SEM is the structural model, which connects latent variables. SEM is a technique for evaluating validity of a hypothesis using statistical data. The uniform paths were used to examine the structural models, while each path represents a hypothesis. In PLS, path coefficient examines the structural models and hypotheses. The criteria on which a hypothesis get accepted/rejected are based on p-value, i.e. if p-value is less than 0.01 or 0.05 or 0.10, then the hypothesis is considered significant (Ahmed *et al.*, 2021). Also, the structural model was evaluated using degree of significance and coefficient of determination (R^2) and the model's performance was evaluated using predictive relevance (Q^2). Further, results are portrayed in Tables 5–7 and Figure 2.

4.3 Discussion of the results

In Table 5, according to H1a, EAW positively and significantly impacts environmental attachment ($B = 0.136$, $p < 0.05$). The findings reveal a strong and positive relationship among variables consistent with Han *et al*. (2017) and Ahmad *et al.* (2021). Findings conclude tourists' awareness regarding environmental activities results in EAT. Therefore, awareness is vital in promoting a sense

Table 3 Measurement model results

	Items	*Loadings*	*Cronbach's alpha*	*Composite reliability*	*Average variance extracted*
EAT	EAT1	0.826			
	EAT2	0.785			
	EAT3	0.739	0.826	0.878	0.589
	EAT4	0.755			
	EAT5	0.729			
EAW	EAW1	0.791			
	EAW2	0.743			
	EAW3	0.711	0.795	0.859	0.550
	EAW4	0.739			
	EAW5	0.722			
EC	EC1	0.849			
	EC2	0.798	0.753	0.858	0.669
	EC3	0.806			
EK	EK1	0.742			
	EK2	0.793			
	EK3	0.821	0.819	0.874	0.581
	EK4	0.731			
	EK5	0.719			
GM	GM1	0.736			
	GM2	0.762			
	GM3	0.748	0.800	0.862	0.556
	GM4	0.710			
	GM5	0.771			
MO	MO1	0.986	0.967	0.983	0.967
	MO2	0.981			
TPB	TPB1	0.836			
	TPB2	0.744			
	TPB3	0.789	0.851	0.894	0.627
	TPB4	0.756			
	TPB5	0.830			

Note(s): EAT = Environmental attachment; EAW = Environmental awareness; EC = Environmental concern; EK = Environmental knowledge; GM = Green motivation; MO=Moral obligations; TPB = Tourists pro-environmental behavior
Source(s): Authors' creation

Table 4 Heterotrait-monotrait ratio (HTMT)

	EAT	*EAW*	*EC*	*EK*	*GM*	*MO*	*TPB*
EAT							
EAW	0.590						
EC	0.692	0.822					
EK	0.699	0.554	0.636				
GM	0.806	0.659	0.716	0.853			
MO	0.078	0.097	0.058	0.065	0.056		
TPB	0.637	0.537	0.688	0.758	0.673	0.145	

Note(s): EAT = Environmental attachment; EAW = Environmental awareness; EC = Environmental concern; EK = Environmental knowledge; GM = Green motivation; MO=Moral obligations; TPB = Tourists pro-environmental behavior
Source(s): Authors' creation

of attachment toward the green environment. Additionally, less environmental awareness among tourists will result in low pro-environmental behavior. However, individuals become aware of EC, difficulties and the interconnectivity of ecosystems, when they acquire connection and attachment to the natural world (Wijesooriya and Brambilla, 2021).

Table 5 Results of path analysis

Hypothesis	*Regression path*	*Effect type*	*β-Coeff*	p-*value*	f^2	*Remarks*
H1a	EAW → EAT	Direct effect	0.136	0.045	0.020	Supported
H1b	EAW → GM	Direct effect	0.178	0.007	0.042	Supported
H2a	EC → EAT	Direct effect	0.276	0.002	0.074	Supported
H2b	EC → GM	Direct effect	0.182	0.012	0.040	Supported
H3a	EK → EAT	Direct effect	0.386	0.000	0.188	Supported
H3b	EK → GM	Direct effect	0.521	0.000	0.434	Supported
H4	EAT → TPB	Direct effect	0.302	0.000	0.085	Supported
H5	GM → TPB	Direct effect	0.354	0.000	0.123	Supported

Note(s): EAT = Environmental attachment; EAW = Environmental awareness; EC = Environmental concern; EK = Environmental knowledge; GM = Green motivation; TPB = Tourists pro-environmental behavior
Source(s): Authors' creation

Table 6 Moderating role of moral obligations

Hypothesis	*Regression path*	*Effect type*	*β-Coeff*	p-*value*	f^2	*Remarks*
H6a	EAT*MO → TPB	Indirect effect	0.103	0.075		Supported
H6b	GM*MO → TPB	Indirect effect	0.059	0.338	0.037	Not supported

Note(s): EAT = Environmental attachment; EK = Environmental knowledge; GM = Green motivation; TPB = Tourists pro-environmental behavior
Source(s): Authors' creation

Table 7 R-square and Q-square

	R square	*Q square*
EAT	0.444	0.249
GM	0.555	0.300
TPB	0.389	0.231

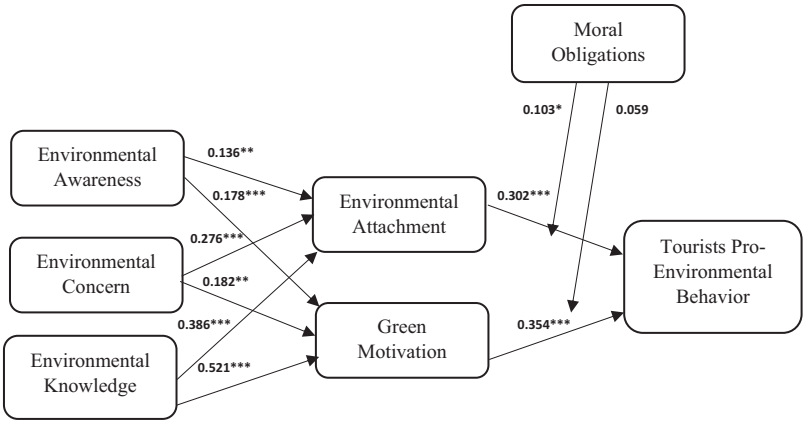
Note(s): EAT = Environmental attachment; GM = Green motivation; TPB = Tourists pro-environmental behavior
Source(s): Authors' creation

H1b highlights EAW positively affects GM (B = 0.178, $p < 0.01$). The findings conclude tourists' awareness regarding green activities will motivate green behaviors. Thus, this hypothesis is accepted. A country can protect its natural resources and beauty from tourist footprints by taking necessary initiatives and creating awareness. Higher EAW will increase GM among tourists. People who are aware of environmental challenges, their consequences and the need for sustainable practices actively engage in pro-environmental behaviors.

H2a shows that EC has a positive and significant relationship with EAC (B = 0.276, $p < 0.01$). The findings are in line with study of Cheng *et al.* (2015), which indicates that a higher degree of tourist attachment is associated with a greater level of concern for natural environment of a certain destination. EAT is significantly influenced by expressing EC. This bond motivates people to engage in pro-environmental behaviors and actively assist in environmental protection and development (Sovacool *et al.*, 2019).

Correspondingly, tourists with environmental concerns are more attached to environment and exhibit pro-environmental behavior. H2b also indicates that environmental concerns positively and significantly affect green motivation (B = 0.182, $p < 0.05$). EC serves as a motivator for GM that encourages individuals to contribute toward a more sustainable and environmentally friendly environment (Channa *et al.*, 2022). So, it confirmed that environmental concern helps in increasing tourists' motivation. The findings are consistent with studies of Kianpour *et al.* (2014) and Herman *et al.* (2021).

Figure 2 Results of regression analysis



Note(s): *denotes significance at 10%
** denotes significance at 5%
***denotes significance at 1%

Source(s): Authors' creation

The findings of H3a and H3b represent EK to be positively and significantly associated with EAT (B = 0.386, $p < 0.01$) and GM (B = 0.521, $p < 0.01$). The findings are aligned with study of Cheng *et al.* (2015). The researchers concluded that tourists with significant knowledge regarding the environment would be more attached to environment. Similarly, tourists are motivated to take preventive measures to protect the environment; for instance, biodegradable items, using paper bags instead of plastics, avoiding littering and taking part in the plantation. It also includes the safety of the natural resources of that destination. According to our results, EK and GM are highly impactful and beneficial.

H4 indicates that EAT positively affects tourists' pro-environmental behavior (B = 0.302, $p < 0.01$). Similarly, H5 reveals that GM is positively and significantly associated with tourists' pro-environmental behavior (B = 0.354, $p < 0.01$). The findings are consistent with study of Ghodeswar and Kumar (2012). According to the results, when tourists are environmentally attached and motivated to prevent further degradation, it fosters their pro-environmental behavior. Thus, tourists will play a significant role in saving ecosystems. Hence, environmental triggers lead to attachment and motivation, resulting in introducing tourists to eco-friendly practices. Furthermore, the sense of attachment and motivation will encourage individuals to take small or big steps to impact the environment significantly.

Table 7 also shows the value of effect size analysis, i.e. f^2. Scholars have established the following benchmarks to assess the impact of effect size (f^2), <0.02 as a minor effect, <0.15 as a medium effect and <0.35 as a high effect (Cohen, 1988). Following the current study findings, Environmental awareness (EAW) has a minor effect on Environmental attachment (EAT) and a medium effect on Green motivation (GM). Environmental concern (EC) also depicts a medium effect on environmental attachment and green motivation. However, environmental knowledge has a high effect on environmental attachment and green motivation. Additionally, environmental attachment shows a medium effect and green motivation shows a high effect on tourists pro-environmental behavior.

4.4 Moderating the role of moral obligations

Table 6 demonstrates the results of regression analysis which specifies indirect (moderating) relationships between variables. The path coefficient provides outcomes of the structural model. The path coefficient's significance was measured through the bootstrapping method (5,000

subsamples) for evaluating hypotheses. The criterion for a hypothesis to get accepted is that the p-value should not be greater than 0.01 (1%) or 0.05 (5%) or 0.1 (10%) (Madden *et al.*, 2015; Ahmed *et al.*, 2021). The findings highlight that MO moderates the association between EAT and TPB ($B = 0.103, p = 0.075, p < 0.1$). The result of the moderation effect is supported based on the criteria of 10% significance, which enables us to accept the said result because 0.075 is less than 10%. In contrast, the MO does not moderate the association between GM and TPB ($B = 0.059, p = 0.338, p > 0.1$). The result of the moderation effect is not supported because the p-value is greater than 10% significance which enables us to reject the said result. The results are in line with study of Wang *et al.* (2021a, b) and Zhang *et al.* (2020). Therefore, positive relationship among EAT and tourist pro-environmental behavior is more substantial, while MO among tourists are high. However, in the case of GM, the results represent a positive but insignificant association. Subsequently, tourists follow green practices when they consider protecting the environment their duty; thus, strengthening link among tourists' EAT and pro-environmental behavior. Hence, tourists with high MO are willing to save Earth from hazardous activities (Han *et al.*, 2017; Wu *et al.*, 2021). Therefore, educating tourists is required regarding the benefits of a green and sustainable environment in Pakistan to encourage green behavior (World Bank, 2019). Increasing one's confidence is one of the most effective strategies to impact one's desire to engage in green behavior (Wu *et al.*, 2021). Tourists internalize societal norms before implementing green behavior, and they participate in pro-environmental behaviors primarily to fulfill self-imposed MO (Collado, 2019). Table 6 also shows the value of effect size analysis, i.e. f^2. According to the current study findings, MO symbolizes a medium effect between GM and TPB.

Table 7 shows the results of R^2 and Q^2. Q-square and R-square of endogenous latent variables were computed. The blindfolding technique of PLS-SEM provides evidence for the model's fitness. To find the overall effect size measured in the path model, value of R-square (also called coefficient of determination) of endogenous latent variables is computed. R-square infers the extent to which the independent variables explain variance-dependent variables. Cohen (1992) suggested that the value of R-square above 0.60 is substantial, 0.33 is moderate and 0.19 is small. Hence, the table denotes that the value of EAT, GM and TBP is moderate (the values 0.444%, 0.555% and 0.389% fall between 0.33 and 0.60), respectively. Furthermore, as suggested by Geisser (1975) and Stone (1974), the acceptable Q^2 value should be greater than zero (i.e.> 0). Thus, the model has predictive significance if the value of the Q^2 is greater than 0 (Garson, 2016), while a Q^2 of less than 0 indicates that model lacks predictive relevance (Fornell and Cha, 1993). The results of existing research show all values of Q^2 are greater than 0 (i.e. 0.249, 0.300 and 0.231), respectively.

5. Conclusion, implications and limitations

5.1 Conclusion

The study examines the influence of three environmental triggers (specifically EK, concern and awareness) on EAT and GM, which affect tourists' pro-environmental behavior. Moreover, research employs moderating role of moral obligation. Increasing environmental degradation and rapid climatic changes have attracted the attention of several sectors toward environmental friendly practices. Similarly, the tourism industry is also worried about the environmental footprints regarding tourists' preferences at different destinations. Hence, this study aims to study tourists' pro-environmental behavior by utilizing the norm activation theory to help authorities by suggesting preventive measures and adequate policies. Additionally, it provides an in-depth analysis of tourist behavior, demonstrating environmental triggers, attachment and GM that will promote TPB. Furthermore, PLS-SEM is utilized to test association between proposed variables. The findings reveal all environmental triggers are positively and significantly linked with EAT and GM.

Furthermore, the findings highlight that MO moderates the association between EAT and TPB. In contrast, the MO does not moderate the association between GM and TPB. However, it means that environmentally aware, knowledgeable and concerned tourists have a high MO and sense of attachment to the environment. The study's findings will help Pakistan's future tourism by

providing awareness, protection and ways to improve TPB. Furthermore, it will encourage tourists to be actively involved in green activities and green buying behavior; thus, this practice and activities will promote green tourism in Pakistan. Additionally, the government should devote more attention to improving the Pakistan's tourism sector and implement better regulations to attract more foreign tourists.

5.2 Theoretical implications

This study makes significant theoretical contributions to the existing literature, particularly within the unique national context of Pakistan. By examining the impact of environmental triggers on EAT, GM and pro-environmental behavior among domestic tourists in Pakistan, the research sheds light on the intricacies of sustainable tourism practices in the country.

Firstly, the study's focus on Pakistan's domestic tourists is crucial in understanding the specific environmental perspectives and behaviors of this particular group. It allows the researchers to uncover how environmental triggers influence eco-conscious behavior. This context-specific analysis is essential for developing targeted interventions and strategies that align with the societal norms of Pakistan, thereby enhancing the effectiveness of sustainability initiatives in the tourism industry.

Secondly, the utilization of the Schwartz's norm activation model (NAM) in this national context provides a comprehensive understanding of tourist behavior concerning environmental consciousness. NAM's applicability to Pakistan's domestic tourists highlights the relevance of cultural norms and personal values in shaping pro-environmental behaviors. By incorporating NAM, the study enhances the theoretical understanding of the underlying psychological mechanisms that drive eco-friendly behavior in the context of Pakistan.

Thirdly, the inclusion of MO as moderators in the relationships between EAT, GM and pro-environmental behavior is particularly pertinent in the national context of Pakistan. This aspect of the research acknowledges the potential disconnect between individuals' attachment to the environment and their actual environmentally responsible actions. By exploring how MO influence the translation of attachment and motivation into eco-friendly behavior among domestic tourists in Pakistan, the study provides valuable insights regarding a role in shaping sustainable tourism practices in the country.

5.3 Practical implications

Consistent with the findings, the following implications have been proposed for tourists, tourist guides, the government, the tourism sector, policymakers and other competent authorities. The significance of adequate environmental management has become essential for a country like Pakistan, as most tourism destinations experience environmental difficulties (Rustam *et al*., 2020). Pakistan's natural resources are severely endangered due to irresponsible resource exploitation and uncontrolled ecotourism by tour companies and tourists. According to this study, environmental challenges can be minimized if tour firms and tourism-related businesses encourage green behavior among travelers.

The outcomes confirm environmental triggers play significant role in promoting EAT and GM, ultimately increasing TPB. Therefore, we suggest competitive authorities work on environmental triggers to promote eco-friendly behavior. For instance, tourism agencies, organizations, government, nongovernmental organizations, educational institutions and city planners should arrange environmental education seminars, workshops, webinars and green campaigns to emphasize and elaborate on importance of pro-environmental behaviors at tourist destinations. Moreover, tour guides should educate tourists regarding numerous environmental problems and challenges faced by local citizens and tourism sites because of human behavior and activities.

Adequate environmental knowledge, serious concern regarding climate changes, environmental degradation and awareness related to the environmental aspects promotes tourists' GM and

attachment to the environment; these two factors result in improved pro-environmental behavior. Therefore, the local government of tourist destinations should provide tourists with opportunities for motivating them to portray pro-environmental behavior, such as eco-friendly transportation, access to biodegradable products and availability of litter and recycling bins.

There is a dire need to work on the MO of society. Hence, Pakistan environmental protection agencies and tourist agencies should initiate the idea humans have a MO to safeguard environment; since human actions can cause majority of environmental issues. Accordingly, environmental protection implies a significant attempt to protect humanity. Moreover, people will be more inclined to exhibit pro-environmental conduct, especially after acquiring the philosophical discipline, i.e. humans' moral and ethical duty to the environment.

5.4 Limitations and future recommendations

This study has certain limitations that researchers address in future research. First, the study's sample size was 237 tourists. It is advised that future studies enhance the sample size to include a broader and more diverse population to acquire an in-depth understanding from the diverse perspective. By increasing the sample size, researchers can enhance both the generalizability of their findings and the validity of their conclusions. Second, the data in this study was gathered primarily from domestic tourists in Pakistan. Future research must target tourists originating from various countries so that researchers can gain a broader understanding of how different cultural backgrounds, surroundings and mindsets influence eco-conscious behavior in the context of sustainable tourism. Also, the data from international tourists helps assess long-term trends and the cumulative environmental impact of tourism, guiding efforts to promote sustainability on a global scale. Third, this study adopted a quantitative approach, collecting data using questionnaires for statistical analysis. Future research could incorporate qualitative or mixed methodologies to acquire a greater understanding of tourist behavior. Qualitative research approaches, such as interviews or focus groups, can provide a more in-depth understanding of the fundamental factors and experiences that drive tourists' behavior. A mixed methods approach that combines quantitative and qualitative methodologies can provide a more thorough and nuanced examination of the topic. Finally, this research explored the role of MO in encouraging pro-environmental behavior. Future studies can expand their research model by adding other potential moderators. Such as, green values or tourist well-being can be used as moderators in forthcoming research. Green values are individuals' beliefs and attitudes toward the environment and sustainability. Including them as moderators in research can reveal how these values interact with environmental triggers, influencing pro-environmental behavior. On the other hand, studying tourist well-being and pro-environmental behavior highlights the significance of sustainable tourism experiences that cater to tourists' emotional needs and satisfaction.

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