INFLUENCING TOURISTS' ENVIRONMENTALLY RESPONSIBLE BEHAVIOR THROUGH GREEN DESTINATION BRAND EQUITY: MEDIATING ROLE OF GREEN DESTINATION TRUST AND MODERATING ROLE OF DESTINATION GREEN INNOVATION

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Abstract

Purpose – Based on the simulation-organism-response theory, the purpose of the research is to investigate the effect of green destinations brand equity (GDBE) on tourists' environmentally responsible behavior (ERB). The study has further explained the relationship between GDBE and tourists' ERB through the mediation of destination green trust (DGT) and the moderation of destination green innovation (DGI).
Methodology/Design/Approach – The study adopted a survey-based casual research design and gathered data through a self-administrative survey technique with structured questionnaires. Questionnaires were distributed to one thousand tourists visiting selected nature parks, and 821 were returned.
Findings – Results for the four dimensions of GDBE and tourists ERB indicated that perceived destination awareness has an insignificant effect on tourists' ERB, while perceived destination quality, perceived destination image, and perceived destination loyalty have significantly influenced tourists' ERB. Further, results showed significant mediation of DGT. Finally, the results of the study indicated significant moderation of DGI between GDBE and tourists' ERB.
Originality of the research – Using signalling theory, study has enhanced the understanding of GDBE in shaping tourists' ERB. Moreover GDT as a mediator and DGI as a moderator in the framework have extended the current literature.
Keywords Destination green innovation, Green destination brand equity, Environment responsible behavior, Green destination trust, Simulation-Organism-Response.

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INTRODUCTION

The tourism industry makes a significant contribution to the economic development of several countries by creating jobs and supporting local businesses (Han, 2021). While contributing to the country's economic growth, tourism can also have negative environmental impacts (Ritchie & Crouch, 2003). Destinations attract tourists due to their natural resources, but these destinations are now facing the harmful effects of environmental degradation (Aziz & Niazi, 2023a). Destination managers have identified irresponsible behavior by tourists as a serious threat to the natural environment of nature-based destinations (Zhang et al., 2020). Both planned and unplanned tourist actions, such as littering, feeding animals, polluting water, and damaging vegetation, pose significant risks to the natural surroundings of these destinations (Li et al., 2021).

Despite implementing various pro-environmental strategies, including green services, recycling, green energy sources, and environmental protection awareness seminars, tourists still lack the motivation to behave responsibly at destinations (Vicente, 2024). The primary concern of tourism stakeholders, including researchers and destination managers, is to develop long-term sustainable strategies to influence the irresponsible behaviour of tourists (Sørensen & Grindsted, 2021). Consequently, much importance has been placed on understanding tourists' environmentally responsible behaviour (ERB) and identifying factors that influence it (Aziz & Niazi, 2023b). Tourists' ERB refers to the voluntary actions tourists take to protect natural resources and prioritize the natural environment over their personal goals at the destination (Fjelldal et al., 2022).

Currently, environmental sustainability is a primary focus for many businesses. Marketing plays a crucial role in guiding companies to develop sustainable business practices through green marketing strategies (Chang, 2011). By implementing these environmentally friendly practices, brands can attract customers who are eager to support sustainable products (Aziz et al., 2023). Consequently, companies feel forced to adopt green marketing and branding strategies to meet their customers' expectations. Green branding in the tourism industry is a relatively new and attractive concept. Tourist destinations are developed as brands and differentiated by creating unique and memorable images (Pike, 2009). Applying green branding concepts, such as creating a unique eco-friendly destination identity, enhancing quality by providing environmentally friendly services, personalizing the experience for environmentally conscious tourists, and establishing a strong environmentally friendly visual identity, can influence tourists' destination selection and satisfaction. Specifically, Green destination branding strategies aim to establish a strong emotional connection with tourists through' green engagement (Barnes et al., 2014). Recently, green branding strategies

have been found to be useful in enhancing the green destination image and increasing tourists' satisfaction (Aziz & Niazi, 2025a). Tourist destinations, tourist agencies, restaurants, hotels, and resorts have developed strong green brands to attract tourists through a differentiated green image, heightened green awareness, perceived green quality, and competitive eco-friendly services. These green branding strategies have helped to develop green brand equity, which refers to customers' perception of a brand's superiority in quality and utility based on green practices compared to similar brands (Matiza & Slabbert, 2024).

Green brand equity involves creating green brand awareness, a unique eco-friendly brand image, distinctive brand quality by providing consistent eco-friendly services, and strong brand loyalty towards a green destination. Tourism literature has discussed green brand equity in relation to green destination awareness, quality, image, and loyalty dimensions (Junaedi & Harjanto, 2020). Green destination brand equity (GDBE) offers a unique insight into tourists' relationships with destinations, reflecting the efforts of destination marketers to establish a strong brand (Konecnik et al., 2014). Applying GDBE, destination managers develop strong promotional strategies that highlight the green initiatives of destinations to create awareness. GDBE helps destinations develop emotional bonding through personalized green tour experiences and enhanced environmental consciousness, thereby increasing tourists' satisfaction (Aziz et al., 2025a). Costa Rica is a leading country in adopting green practices at tourist destinations and has been declared a green-certified destination. The country's commitment to sustainable tourism has resulted in significant tourism growth and provided it with a strong competitive advantage. Tortuguero National Park, one of Costa Rica's natural parks, is recognized as a green destination dedicated to protecting various species of turtles. It employs renewable energy sources, supports the local community, conserves natural resources, preserves local culture, manages waste effectively, and maintains a zero-tolerance policy for water pollution. In 2024, nearly 2.6 million tourists visited this destination, generating almost $5 billion in revenue. Green destinations, such as Tortuguero National Park, have utilized these green initiatives to establish strong GDBE destinations. Green destination awareness by promoting its green initiative on different online social websites, web pages, blogs, and tourist communities influences tourists' ERB. Eco-friendly services at the destination help build a strong green image and foster loyalty.

Although green branding concepts such as green brand awareness, brand association, green brand image, and green brand loyalty have been extensively applied in the marketing field over the past seven decades, their application for achieving a sustainable tourism environment is not as well established (Yang et al., 2015). As a result, creating a destination as a green brand and applying green branding strategies, such as increasing green brand awareness, image, and loyalty, to influence tourists' ERB requires further exploration. Previous literature has indicated that GDBE is extensively applied to influence tourists' consumption patterns, including destination selection, visit intention, and satisfaction with restaurant and hotel choices. However, the impact of GDBE on shaping tourists' ERB is an important area that deserves further exploration in tourism literature.

Previous literature has highlighted the positive impact of GDBE on tourists' perceptions, attitudes, and behaviors, which in turn leads to financial benefits for the destination. However, its influence on shaping environmentally responsible behaviors of tourists at a destination needs further exploration. The existing literature thoroughly examines how GDBE activities affect tourists' consumption behavior, including their choices about destination selection and intentions to visit or revisit a destination. However, there is a lack of research explaining the effect of GDBE on tourists' ERB. This highlights a gap in the current literature regarding the role of GDBE on tourists' willingness to engage in volunteer activities aimed at protecting a destination's natural environment.

Considering the potential role of destination brand equity, this study addresses the existing gap in the literature using the theoretical lens of S-O-R. The S-O-R theory is a significant concept in marketing that helps examine how various marketing activities, such as promotion, brand awareness, and brand quality, affect customers' attitudes and behaviors (Li et al., 2021). According to S-O-R theory, marketing efforts like promotion and brand image, along with brand quality (the stimuli), influence the internal emotional state of the customer (the organism), which ultimately leads to customer actions and behaviors (the response) (Su et al., 2020).

In the study, GDBE is described as a simulation (S) that influences tourists' ERB as a response (R). Dimensions of destination brand equity (awareness, quality, Image, and loyalty) simulate and trigger tourists' ERB (Zhou & Chen, 2023). Managers enhance destination awareness through social media platforms and word of mouth, helping to form a distinctive destination image. Providing high-quality services at the destination fosters a positive image, which in turn leads to perceptions of quality and increased loyalty. Sharing pictures, videos, and information about destinations encourages the consumption behavior of potential tourists. These strategies enhance GDBE and act as stimuli that influence tourist behavior. According to the S-O-R theory, the relationship between simulation and response is explained through the organism (O). The study has explained the tourists' ERB with the mediating role of GDT. GDT fosters tourists' confidence in the environmentally responsible activities of destinations (Chen, 2010).

Usually, destination managers develop green images through social media campaigns and claim to be eco-friendly destinations. Tourists' belief in a destination's green claims influences their visit intentions, and their degree of belief in these claims reflects the trust in the green destination. During their visit to the destination, tourists evaluate the green claims of the destination against its actual performance, and in response, their level of GDT is expressed through ERB. Further, DGI employed as a moderator to explain the relationship between GDBE and tourists' ERB. DGI refers to the innovation in the destinations' services and processes to achieve a sustainable environment (García-Pozo et al., 2016). Green innovation involves a destination's efforts to protect natural resources and minimize environmental impact by developing effective and efficient daily operations. Eco-friendly initiatives such as filtering and processing rainwater for drinking purposes, using recyclable materials at destinations, and protecting wildlife at destinations can significantly influence tourists' ERB.

Previous literature has emphasized the impact of brand equity on tourists' purchasing and consumption behaviors. In contrast, this study aims to extend current knowledge by examining the role of GDBE on social behaviors, such as ERB, of tourists at the destination. Previous literature primarily concentrated on tourists' behaviors related to commercial activities, including spending patterns, destination choices, and entertainment preferences. The current study applies the concept of green brand equity to understand the environmentally conscious behavior of tourists. This approach will diversify the application of GDBE in relation to the environmental behavior of tourists at the destination. Further, there is a lack of research to understand tourists' ERB at green destinations. Green destinations tend to have a greater influence on tourists' behaviour compared to other types of destinations because they are certified and recognized for their sustainability initiatives. These initiatives often include the use of renewable energy, effective waste management, and efforts to protect wildlife and natural landscapes. As a result, green destinations attract environmentally conscious tourists and encourage tourists to engage in responsible behaviour during their visits. Furthermore, green destinations often impose strict fines and penalties for tourists who act irresponsibly. So, this research will explain tourists' ERB at green destinations.

The study extends the application of the Stimulus-Organism-Response (S-O-R) theory, enhancing its relevance in the fields of branding and tourism. Originally developed in psychology, the S-O-R theory is applied here to better understand the factors that drive sustainable tourism. Through this framework, the research provides valuable insights into concepts such as green trust and green innovations, which are essential for understanding the impact of Green Destination Branding and Equity (GDBE) on ERB. Green destination trust is a significant contribution to the framework, as credible green activities can significantly influence the tourists' ERB. The study is among the few that consider GDT as a mediator to explain the influence of GDBE on tourists' ERB. GDT can influence the brand equity efforts as all four dimensions of GDBE, including green destination awareness, image, quality, and loyalty, are trust-dependent. So, GDT can significantly enhance the impact of green branding activities on tourists' ERB. Furthermore, DGI demonstrates a destination's commitment to sustainable practices. While green innovation is usually examined in the context of technology-based products, its implications within the tourism sector are relatively new. Eco-tourism has encouraged destinations to creatively protect their natural environments, but research on the relationship between green destination innovation and tourists' ERB is limited. This study aims to explore this relationship, taking into account different levels of DGI.

Employing the S-O-R framework, this study presents a comprehensive research model that examines the influences of GDBE, green trust, and green innovations on tourists' ERB. This research will pave the way for future studies in sustainable tourism, tourist behavior, and green tourism practices. Additionally, it offers guidance on how branding and marketing strategies can be used to comprehend and affect tourists' behaviors. Based on the S-O-R theory, the study sets three objectives. The first objective is to examine the direct effect of GDBE on tourists' ERB. The second objective is to explain the mediating role of DGT between GDBE and tourists' ERB. The final objective is to analyze the moderating role of GDI in explaining tourists' ERB.
In developing countries like Pakistan, tourist destinations often prioritise economic benefits over environmental protection. Environmental degradation has become a global issue, encouraging both government and non-government organisations to focus on ensuring a sustainable environment in the tourism sector. For instance, the United Nations Development Programme (UNDP) has implemented the "Eco-Tourism & Camping Villages Project" in Pakistan, aimed at raising awareness of green destinations in the country. Several destinations in Pakistan are currently aligning with the Sustainable Development Goals (SDGs) to offer eco-friendly tourism experiences for tourists. Managers of these destinations build green destination equity based on green strategies and practices. This study aims to analyse the relationship between GDBE and tourists' ERB at Pakistani nature parks, following SDG guidelines to protect the natural environment.

The study implies several theatrical and practical implications. Theoretically, the study provides a comprehensive model based on GDBE and S-O-R theory to explain the tourists' ERB. The study will help analyze the mediating role of DGT on tourists' ERB. Further study has analyzed the moderating role of GDI at both high and low levels, highlighting its importance in shaping tourists' ERB. The model will enable researchers to analyze the behavior of green, pro-environmental, and socially responsible tourists. For instance, the study's findings can be used to design more effective branding strategies that encourage tourists' ERB. Considering GDA, GDQ, GDI, and GDL, the study will highlight which dimension of GDBE has the most significant effect on tourists' ERB. DGT will help managers understand the importance of green activities at the destination. Lastly, the study will emphasize the importance of innovative green activities that support the destination's environment and influence tourists' ERB.

1 LITERATURE REVIEW

1.1 Theoretical Background: S-O-R Theory

Destination managers consider tourists' irresponsible behaviour as a major threat to the destinations' environment. Researchers have examined tourists' ERB using various theoretical approaches, including social identity theory, the theory of self-efficacy, and reasoning theory (Ruiz-Real et al., 2020). The current study examines the relationship between GDBE and tourists' ERB, utilizing the theoretical framework of the simulation-organism-response (S-O-R) theory. The S-O-R theory is based on the classic Stimulus-Response theory, which suggests that the response is linked to its stimuli (Russell & Mehrabian, 1974). According to Russell and Mehrabian (1974), an external stimulus in the environment influences the emotions and perceptions of an individual (organism), which finally results in a favorable or unfavorable response.

The S-O-R theory is widely used in social sciences and marketing research to explain an individual's positive or negative behaviour (Yadav et al., 2022). This study uses the same theoretical approach to explain tourists' ERB. Managers aim to create a positive perception of the destination through branding and marketing strategies, which act as stimuli (Kladou & Kehagias, 2014). The research considered PDA, GDQ, GDI, and GDL as stimuli (S). Furthermore, the mediating role of green destination trust (GDT) and the moderating role of destination green innovation (DGI) are included as organism (O). Finally, the study explains the tourists' ERB as a response (R). The relationships among the variables, which are categorized into stimulus, organism, and response, are described in the following sections.

1.2 Destination Green Brand Equity and S-O-R Theory

The concept of brand equity is well established in marketing literature and influences customers' perceptions, attitudes, and behaviors toward the brand (Nguyen et al., 2022). Brand equity creates a distinct brand image in customers' minds, making it quickly remembered and preferred during purchase (Ruiz-Real et al., 2020). Researchers indicated that brand equity is the sum of awareness, differentiation, and association, which are developed through promotion and customer engagement strategies. Different promotional and awareness strategies influence customer consumption patterns and strengthen brand equity. The concept of brand equity significantly influences the behavior of customers in various sectors, including health, education, sports, tourism, and real estate (Konecnik et al., 2014). While destination branding is a more recent development in tourism. Only a few researchers have explored the concept of brand equity in the tourism sector, including hotels, restaurants, museums, and nature-based destinations such as nature parks (Paul & Roy, 2023). Researchers are still studying the effectiveness of brand equity for sustainable destinations' environment (Nguyen et al., 2022).

GDBE refers to activities that aim to differentiate destinations from other similar destination brands (Ruiz-Real et al., 2020). Destination managers build GDBE by developing effective promotional and awareness strategies, delivering high-quality services, and fostering emotional connections through personalized interactions. These activities initiate and stimulate tourists' perceptions and consumption behavior. Applying S-O-R theory, strategies such as promotion, service quality, creating a destination image, trust, and tourists' engagement build GDBE and act as stimuli (S). According to Tran et al. (2021), GDBE effectively creates a distinctive destination image in tourists' minds. The findings of Das and Mukherjee (2016) revealed that GDBE influences the destination selection and visit intention of tourists. GDBE helps tourists to differentiate destinations based on their perceived image and knowledge. Empirical findings of Kim and Lee (2018) indicated that GDBE creates destination loyalty and leads to the acceptance behaviour of tourists. Yousaf and Amin (2017) have discussed the role of GDBE in destination selection and visit intentions. Their findings revealed that GDI influences tourists' pre-visit behaviour, such as destination selection and visit intention. Kim and Lee (2018) indicated that GDBE significantly strengthens a destination's competitiveness and positively influences tourists' behaviour.

Hyun and Kim (2015) proposed four dimensions of Destination Brand Equity (GDBE): destination awareness, quality, image, and loyalty. Previous research has only discussed one or two dimensions of GDBE separately, and few have explored the relationships among destination awareness, quality, image, and loyalty (Nguyen et al., 2022; Aziz & Niazi, 2025b). This study investigates how four dimensions of GDBE influence tourists' ERB. These four dimensions of GDBE can trigger the tourists' ERB and are hence considered as stimuli (S).

1.3 Destination Brand Equity and Tourists' ERB

Aaker (1992) suggested brand awareness as the ability of the consumer to identify, differentiate, and recall a specific brand within the category of similar brands during purchase. Marketing managers enhance brand awareness through brand elements such as character, symbols, colours, logos, and names (Junaedi & Harjanto, 2020). Similarly, GDA refers to tourists' ability to recall a destination with distinctive features (Aaker, 1996). GDA significantly influences customers' pre-visit behaviour and their intention to visit (Chon, 1992). According to Dedeoğlu et al. (2020), GDA influences tourists' destination selection process and visit intentions. Tourists seek pleasure and comfort during their trip, and GDA assists them in choosing the most suitable destination. Based on PDA, tourists differentiate destinations' features, services, and quality dimensions. GDA also shapes tourists' perceptions and expected behavior at the destination. Roy et al. (2018) found that destination awareness creates a sense of attachment to the destination and leads to positive behaviour at the destination (Vila et al., 2021). Discussing tourists' ERB, Vila et al. (2021) indicated that tourists show responsible behavior when they perceive destinations as environmentally responsible. Junaedi and Harjanto (2020) argue that promoting green initiatives in the destinations' awareness campaigns can influence the tourists' ERB. Hence, based on the above discussion, the importance of GDA in shaping tourists' ERB is hypothesized as follows:

H1: GDA has significant effect on tourists' ERB.

GDQ is an important dimension of GDBE and significantly impacts the brand's value. Both tangible and intangible aspects of a brand determine brand quality. Brand quality is subjectively assessed and depends on the customer's evaluation criteria (Tran et al., 2021). He et al. (2018) argued that the nature of brand quality is subjective; customers evaluate various brands and select the one that best aligns with their pre-set quality standards. Bigovic and Prašnikar (2015) suggested that GDQ influences the pre-visit behavior of tourists and helps them in destination selection. Empirical findings by Žabkar et al. (2010) revealed

that GDQ directly affects tourists' behaviour. Tran et al. (2021) analyzed the relationship between GDQ and tourists' post-visit behavior, indicating that GDQ enhances destinations' satisfaction and increases the likelihood of revisiting. Ranjbarian and Pool (2015) discussed the influence of GDQ on tourists' expectations and concluded that GDQ significantly creates attachment to the destination. Reitsamer and Brunner-Sperdin (2021) examined the relationship between GDQ and tourists' behavior, and their findings indicated that tourists behave responsibly at the destination when they experience high-quality services. Wang et al. (2018) discussed tourists' pro-environmental behavior and indicated that GDQ leads to satisfaction and encourages tourists' pro-environmental behavior. So the discussion leads to the following hypothesis:

H2: GDQ has significant effect on tourists' ERB.

Brand image refers to how customers perceive the unique characteristics that differentiate a brand (Thi et al., 2020). According to Afshardoost and Eshaghi (2020), creating a distinctive brand image enhances brand equity and helps in creating a competitive advantage over other brands (Taghipourian et al., 2019). Destinations seek unique images that showcase their physical characteristics, such as scenic beauty, natural resources, wildlife, and a peaceful environment (Ramkissoon et al., 2011). Park & Njite (2010) discussed GDI as an intangible trait of a destination that influences the personality and behaviour of tourists. Gorji et al. (2023) argued that a destination's image attracts tourists beyond its physical characteristics; for example, a peaceful and relaxing environment at the destination portrays a soulful image to the tourists. According to Taghipourian et al. (2019), tangible features of a destination, such as transportation, rest areas, accommodation, and food, are essential components for developing a strong image of the destination and affect tourists' perceptions and behaviour.

Ramkissoon et al. (2011) suggested that GDI can establish a strong bond between destinations and tourists, leading to revisit intention. Pham Khanh's (2021) findings suggest that GDI influences tourists' destination selection and creates destination attachment. Destinations create a strong image by providing high-quality services and meeting the expectations of tourists. Nawi et al. (2019) argued that a destination's participation in corporate social responsibility (CSR) activities enhances its credibility, trust, and image. Similarly, Thi-Khanh and Phong (2020) discussed that the green image of a destination positively influences tourists' pro-environmental behaviour. Jun (2016) indicated that environmentally conscious tourists prefer visiting destinations with a green or pro-environment image. Hence above arguments support the following hypothesis:

H3: GDI has significant effects on tourists' ERB.

Brand loyalty refers to the preference for one brand over another, despite the same price, quality, and features (Aaker, 1992). Meleddu et al. (2015) define *brand loyalty* as an emotional association between brand users and the brand. Chen and Gursoy (2001) discussed the concept of brand community, emphasizing that loyal customers respect each other due to their shared love of the brand. Azinuddin et al. (2023) found that brand-loyal customers are not price-sensitive and do not switch brands due to price increases, as they do not base their brand evaluations on monetary benefits. Lee et al. (2019) found that brand loyalty fosters strong emotional connections and has a significant impact on customer behavior, including repurchasing, word-of-mouth recommendations, and brand switching. Sasmita and Mohd (2015) discussed brand loyalty in tourism and claimed that GDL significantly influences the behaviour of tourists at the destination. Thi-Khanh and Phong (2020) investigated the eco-friendly behavior of tourists and found that loyal tourists tend to behave responsibly, exhibit greater concern for the destination's environment, and positively influence the behavior of others. Stylos and Bellou, (2019) discussed how loyal tourists express ownership and association with the destination, taking care of the environment during their visit. According to Jeong and Kim (2020), loyal tourists behave responsibly and take green initiatives, such as participating in green walks, collecting for charities, and running awareness campaigns at destinations. So, it can be stated as:

H4: GDL has significant effects on tourists' ERB.

1.4 Mediating Role of Green Destination Trust

Destination trust refers to tourists' assessment of the destination's honesty, ability to fulfil promises, reliability, and willingness to contribute to the community (Su et al., 2020). Mohammed (2016) describes destination trust as competency, kindness, and integrity. The concept of green trust was initially introduced in green marketing and consumption literature (Abubakar, 2019). Researchers have investigated the influence of green trust on consumers' socially responsible behaviour, purchase intentions, and attitudes toward green brands (Malik et al., 2022). Green trust refers to customers' expectations and belief that the brand is environmentally responsible and actively involved in energy-saving initiatives (Chua et al., 2020). The concept of green brand trust is synonymous with green destination trust, signifying a destination's capacity to create the perception of being an eco-friendly destination among tourists. Destinations earn green destination trust through pro-environmental activities such as natural resource conservation, carbon-free operations, and providing environmentally friendly services to tourists (Abubakar, 2019). Considering the S-O-R theory, GDT in the study is viewed as an organism that explains how perceptions and emotions are formed in response to stimuli. GDBE as stimuli creates a strong bond between destinations and tourists in terms of destination image and loyalty, leading to trust in the destination. According to Malik et al. (2023), GDT is an outcome of the destination's green initiatives and tourists' green engagement. In the model, GDT is presented as the outcome of destinations' green brand equity strategies.

According to Chen and Chang (2013), GDT enhances the reputation and perceived quality of the destination. Chua et al. (2020) have argued that GDT influences tourists' visit and revisit intentions. Environmentally conscious tourists are more inclined to visit green, trusted destinations and behave responsibly at these destinations (sung et al., 2021). Additionally, some researchers have discussed that GDT strengthens the relationship between tourists and destinations, resulting in favourable behaviour towards destinations (Chamoli et al., 2025). Findings by Malik et al. (2022) revealed that GDT amplifies the influence of destination marketing activities on tourists' intentions to visit a destination and their consumption behavior. Environmental-conscious tourists trust green destinations and visit these destinations to express their self-identity and association with nature.

The findings of Sung et al. (2021) have shown that tourists tend to act more responsibly at environmentally friendly and trusted destinations than at those not considered environmentally responsible. Tourists assess the performance of green, trusted destinations based on their efforts in environmental conservation (Chen, 2010). Additionally, tourists at green destinations have been found to influence the behaviours of their peers. Deng and Yang (2022) discussed the relationship between green trusted destinations and tourists' perceived risk, finding that trusted destinations significantly reduce tourists' perceived risk of destination selection. Furthermore, green trusted destinations are more widely discussed on social media and influence tourists' environmentally responsible behavior (Lee et al., 2011 Sung et al., 2021). Environmentally conscious tourists tend to trust green destinations and visit to support their environmental efforts. Therefore, green, trusted destinations can enhance the influence of environmentally responsible behaviour on tourists as a mediator. This discussion leads to the following hypothesis.

H5 (a): GDT has significant mediating effect between GDA and tourists' ERB
H5 (b): GDT has significant mediating effect between GDQ and tourists' ERB
H5 (c): GDT has significant mediating effect between GDI and tourists' ERB
H5 (c): GDT has significant mediating effect between GDL and tourists' ERB

1.5 Destination Green Innovation as Moderator

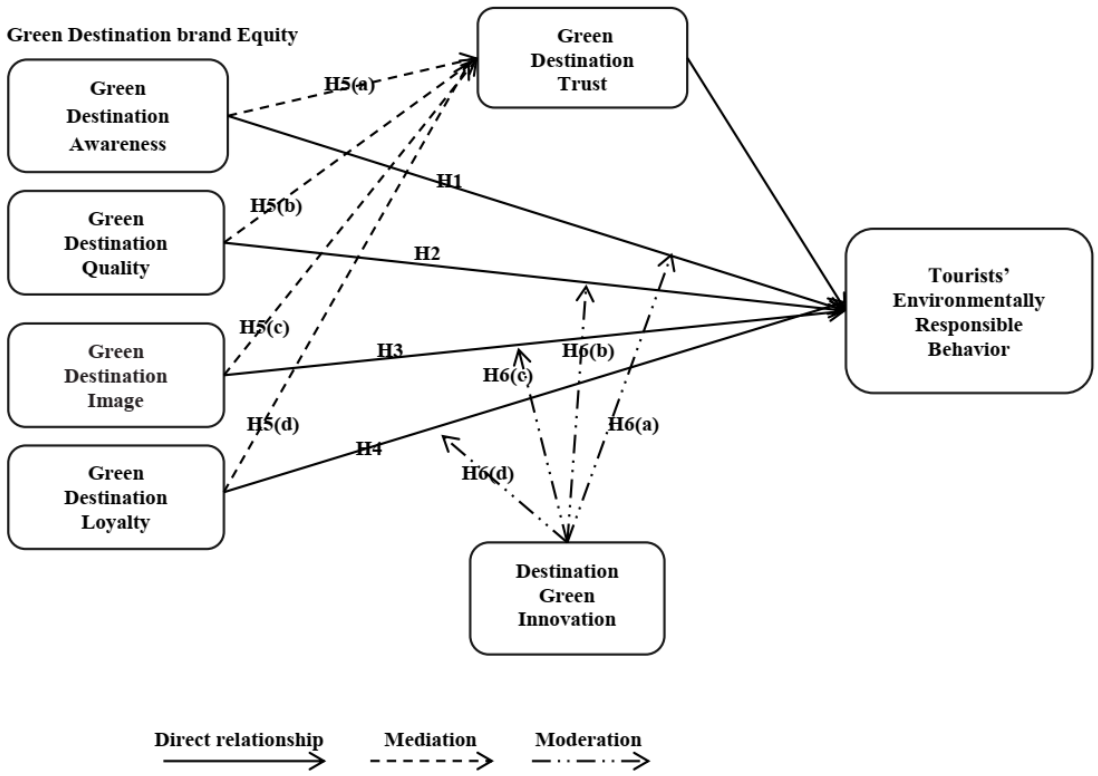
Green innovation refers to the adaptation of advanced technologies, methods, and processes to protect the natural environment and improve product performance (González & León, 2001). Due to resource scarcity, organizations are seeking new ways to safeguard the environment (Aboelmaged, 2019). Green innovation has been discussed under various names, including sustainability innovation, eco-innovation, and environmental innovation (Carrillo-Hermosilla et al., 2009). Given the adverse environmental impact of tourism, including deforestation, water pollution, and littering, the concepts of green destinations and green innovation have gained significance in the tourism industry (Razumova et al., 2016). Through GDI, destinations utilize advanced technological tools and applications to protect the natural environment while delivering competitive tourist services. The primary objective of GDI is to mitigate potential environmental risks at destinations and introduce new services, processes, management, and products to minimize pollution and environmental risks (García et al., 2018).

Zhang et al. (2020) discussed the concept of GDI in three dimensions: organizational innovation, process innovation, and services innovation. They explained that process innovations, such as paper-free transactions, can positively impact tourist behaviour. Destinations protect natural resources with innovative ideas, such as utilizing alternative energy sources (solar energy), electric transportation for tourists, and water treatment, which can significantly influence tourist behavior (Horng et al., 2017). GDI can help destinations to differentiate themselves from competitors and establish a unique image in customers' minds. Aboelmaged (2019) discussed that tourists with pro-environment behaviour prefer to visit green destinations. Green tourist programs at destinations, such as plantations, cleaning drives, incentives and rewards for responsible behavior, and awareness seminars, can influence tourists' environmental responsibility behavior (Jaaron & Backhouse, 2019). The above discussion concludes the following hypotheses:

H6 (a): GDA leads to high level of tourist' ERB when DGI moderates at high level
H6 (b): GDQ leads to high level of tourist' ERB when DGI moderates at high level
H6 (c): GDI leads to high level of tourist' ERB when DGI moderates at high level
H6 (d): GDL leads to high level of tourist' ERB when DGI moderates at high level

The study provides clear and comprehensive explanations of how GDBE shapes tourists' ERB at tourist destinations. It also enhances the understanding of tourists' ERB using the S-O-R theory. Furthermore, it explains the relationships between the mediating role of GDT and the moderating role of Destination Green Image DGE. Based on the theoretical explanation, the relationships among the variables are illustrated in Figure 1.

Figure 1: **Proposed Theoretical Framework**



Source: Developed for this Research

2 RESEARCH METHODOLOGY

2.1 Research Design

The study utilized a quantitative research approach employing a survey method to investigate the relationship between GDBE and tourists' ERB. Furthermore, a self-administered survey technique was used to gather data through structured questionnaires (Sierles, 2003).

2.2 Selection of Destination

To analyze the role of destination brand equity, two criteria were defined for selecting destinations: first, the selected destinations must contribute to building green destination brand equity by enhancing green awareness, green image, green quality, and green loyalty; second, the destination must implement sustainable environmental strategies. To analyze the role of perceived destination awareness, image, quality, and loyalty as stimuli (S), it was ensured that the selected nature parks were involved in green branding strategies. The selected destinations were actively involved in creating green awareness and building a green image through social media promotions, including Facebook, YouTube, Instagram, and other social blogging platforms. To enhance tourists' perception of quality and loyalty, selected destinations engage with tourists personally through social community platforms, offering personalized experiences and incentives, such as complimentary food or services. Furthermore, the influence of green trust and green innovation on tourists' ERB can only be assessed in destinations dedicated to sustainable practices. Consequently, the selected destinations have taken significant steps to engage in green activities, such as generating green energy and implementing comprehensive waste management systems, ensuring a lasting positive impact on both the environment and the visitor experience. The selected destinations were part of the UNDP's "Eco-Tourism & Camping Villages Project" in Pakistan, which aimed to raise awareness of environmentally friendly travel options in the country. These destinations adhered to the guidelines set by the Sustainable Development Goals (SDGs) to provide eco-friendly experiences for tourists. The list of nature parks was obtained from the National Tourism Department of Pakistan (NTDP). Of the 26 nature parks providing tourism services under NTDP, 13 actively follow SDGs and are active on social media and online platforms. These 13 nature parks utilize online and social media platforms to enhance GDBE by sharing images, videos, tourist reviews, vlogs, and event information. The destinations were categorized into four clusters, and one destination was randomly chosen from each category.

2.3 Population and Sampling

The study's population included all tourists visiting the selected destinations during the data collection period. The determination of population numbers was based on daily records of tourist entries at these nature parks. The Raosoft Inc® online sample size calculator was used to determine the sample size, which suggested a total of 692 participants. However, to address potential non-responsiveness and ensure a better representation of the population, the study opted for a sample size of 1,000. A multi-stage sampling technique was employed to select the respondents. In the first stage, the 13 destinations were grouped into four clusters based on their geographic locations, and one destination was randomly selected from each cluster. In the second stage, proportional sampling was used, assigning 250 respondents to each cluster. Systematic sampling was then applied to select respondents from each destination. Out of the 1,000 distributed questionnaires, 821 were considered valid for analysis, while 179 were excluded due to missing data to prevent statistical bias (Ross & Reeve, 2003). The study achieved a response rate of 82.1%, and the 821 valid responses were utilized for hypothesis testing. Table 1 presents socio-demographic data, indicating that respondents from all four national nature parks shared similar characteristics.

Table 1: **Socio-Demographics of Tourists**

Demographics	Categories	Respondent values in %
Gender	Male	62.1
	Female	37.9
Nature park		19.1
Hundrap-Shandur National Park		19.4
Nanga Parbat National Park		20.5
Musk Deer National Park,		21.0
Qazi Nag National park		
Age	18 – 28	27.3
	29 - 39	29.4
	40 - 50	38.6
	51- 61	02.6
	Greater than 61	02.1
Level of Education	Primary School	13.2
	High school	09.4
	Collage	24.1
	university	27.9
	Religious or Technical	25.4
Per month Income in Pkr	35000 or less	08.2
	35001-550000	17.3
	55001-75000	27.9
	75001-95000	40.1
	95001 or greater	6.5
Occupation	Self employed	09.7
	Managerial level job	23.1
	Non-managerial level job	31.4
	Technical skill job	18.2
	unskilled worker	03.1
	dependent	14.5

Source: Created by author for this research

2.4 Data Collection

Data was collected using a self-administered survey method. Thirty-one research assistants assisted in gathering the data. Prior to the data collection, training sessions were held to explain the research objectives and the structure of the questionnaire. Tourists' responses were collected immediately after their visit to the Nature Park through structured questionnaires. The data was gathered using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), and graphical tools were employed to identify and remove any outliers. Permission was obtained from the park's officials for the collection of data. Data was collected at the exit points of the nature parks. After completing the questionnaires, respondents received valuable cultural souvenirs,

such as keychains, pots, stones, and wooden crafts. To protect the privacy of respondents, pictures, videos, or audio recordings were not taken. The data was carefully checked for repetitions, duplications, and typographical errors to ensure its accuracy.

2.5 Questionnaire Development

To measure GDA, the study adopted the six-item scale used by Dedeoğlu et al. (2020). Four-item scale is used to measure GDI suggested by Ramkissoon et al. (2011), while GDQ is measured through a five-item scale used by Žabkar et al. (2010). For GDL, the five-item scale proposed by Chen & Gursoy (2001) was used. The scale for measuring GDT was adapted from the study of Abubakar (2019). DGI was measured using an eight-item scale adapted from Carrillo-Hermosilla et al. (2009). Moreover, tourists' ERB is measured using a seven-item scale developed by Chiu et al. (2014). A five-point Likert scale (1 = negative, 5 = positive) was used to measure responses to all variables. Table 2 lists the items used to measure the variables.

2.6 Common Method Bias

The study has focused on addressing common method bias (CMB) to prevent biased results and enhance the accuracy and consistency of the measurement scale. CMB occurs when data is collected from the same participant for independent and dependent variables during a single time instant (Podsakoff et al., 2012). Researchers have suggested various statistical methods to mitigate or eliminate CMB. The first method, proposed by Podsakoff et al. (2012), involves increasing respondent engagement during the survey. A cover sheet was included to explain the significance of sustainable environmental practices at tourist destinations. To enhance involvement and participation, each respondent was given a travel souvenir as a token of appreciation.

An unambiguous and easy-to-understand questionnaire can help reduce the issue of Common Method Bias (CMB). To avoid linguistic issues, English language experts were employed to translate the questionnaires. Additionally, the questionnaires were translated into the local language (Urdu). MacKenzie and Podsakoff (2012) have argued that using the same scale for measuring both dependent and independent variables can create common scale properties issues. This study employed separate labeled scales for independent and dependent variables, ranging from 1 (Strongly dissatisfied) to 5 (Strongly satisfied). To further minimize CMB, the scale items were reverse-coded to enhance respondents' cognitive involvement. Reverse-coded questions are indicated with the symbol ® in Table 2. Finally, Harman's one-factor test was employed using the factor loading method with the assistance of Exploratory Factor Analysis (EFA). Table 2 presents the results of factor loading.

2.7 Statistical Tools

Amos and IBM SPSS software were used to analyses data and test hypotheses.

3 RESULTS AND ANALYSIS

3.1 Measurement Model

First, the measurement model is analyzed using the structural equation model (SEM). The significance of the measurement model is analyzed through fit indices, and the results in Table 2 indicate that all values of indices are in a satisfactory range. (χ**2=** .204, CMIN/DF=4.10, SRMR=0.62, RMSEA=.061, CFI =.95) (Shi & Maydeu-Olivares, 2020). Results for cross-loadings indicated that six items, including GDA-4, GDQ-2, DG1-3, DG1-5, DG1-6, ERB-2, and ERB-5, were dropped due to issues of multiple loadings (Hair et al., 2014;; Chin, 1998). All remaining items were loaded on the relevant constructs. Further, the results confirm that the model is a good fit and can be used for hypothesis testing.

Table 2: **Measurement Analysis**

Measurement Model					Harman's single-Factor Test			
$\chi 2$ (p)	RMSEA	CFI	CMIN/DF	SRMR				
.204	.061	.95	4.10	.062	Total	% of Variance		Cumulative %
≥.05	≤.08	≥.90	≥3	≤.08	4.52	26.19		26.19
Construct	**Items**				**Factor Loading**	**CR**	**AVE**	**Cronbach's α**
GDA-1	I imagine the environment friendly features of the destination in my mind.				.82	.804	.781	.73
GDA-2	I know about this place as a green tourist destination.				.79			
GDA-3	I can easily differentiate this destination as an environmental friendly from other similar tourist destinations.				.75			
GDA-5	I quickly recall the environmental friendly features of this destination.				.78			
GDA-6	Whenever I think about traveling and relaxation, the name of this destination comes to my mind.				.77			
GDI-1	I have personality congruence with this destination.				.81	.799	.693	.76
GDI-2	My social circle appreciate me on my visit to this destination.				.76			
GDI-3	I relate my self-image with the image of this destination.				.79			
GDI-4	This destination makes me feel my self-identity.				81			
GDQ-1	Services of this destination are reliable.				.76	.781	.739	.72
GDQ-3	Services of this destination are valuable.				.82			
GDQ-4	I believe that offering of this are not of good quality. ®				.76			
GDQ-5	This destination offers competitively better services.				.84			
GDL-1	I will always choose this destination when I plan vacations.				.80	.816	.711	.77
GDL-2	I would not prefer this destination over others similar to this place. ®				.73			
GDL-3	Among all tourist destinations, I will always consider this destination as my first.				.81			
GDL-4	Among all tourist destinations similar to this, I would prefer to visit this destination.				.72			
GDL-5	I would recommend this destination to others				.75			
DGI-1	I feel good to know that destinations prefer to save energy.				.83	.792	.702	.81
DGI-2	I feel good that the destination saves and reuses water.				.71			
DGI-4	It's good that the destination uses some natural energy sources like solar energy.				.79			
DGI-7	The Destination has a proper system to collect and recycle metals, plastic, and paper.				.82			
DGI-8	I feel good to know that destinations prefer to save energy.				.77			
ERB-1	I follow the environmental protection guidelines provided by the management of nature park.				.74	.806	.736	.79
ERB-3	I noticed and reported the irresponsible environmental behavior of other tourists.				.83			
ERB-4	I showed irresponsible behavior at nature park and not participated in cleaning activities. ®				.76			
ERB-6	I tried to influence the environmental responsible behavior of other tourists.				.81			
ERB-7	I took care of nature parks' fauna and flora.				.75			
GDT-1	Destinations involve in green activities are not reliable. ®				.79	.831	.718	.83
GDT-2	Destinations involve in green activities are dependable.				.81			
GDT-3	Destinations involve in green activities are trustworthy.				.76			
GDT-4	Destinations involve in green activities meets my expectations.				.79			
GDT-5	Destinations involve in green activities keeps promises and commitments for environmental protection.				.71			

PDA=Perceived Destination Awareness, PDQ=Perceived Destination Quality, PDI= Perceived Destination Image, PDL=Perceived Destination Loyalty, GDT=Green Destination Trust, DGI=Destination Green Innovation, ERB=Environment Responsible Behavior

Source: Created by author for this research

Consistency in the measurement items is analyzed through Critical Ration (CR), and the CR values in Table 2 are above the recommended range of 0.70. Hence, the results confirm that each item measures the relevant variable (Hair et al., 2019). Convergent validity of the scale is analysed through average variance extracted (AVE), and all AVE values presented in Table 2 are above the threshold range of .05, providing a strong confirmation of the convergent validity of the measurement scale (Anderson & Gerbing, 1988). Furthermore, the results for Harman's single factor were further analyzed to test for common method bias (CMB), and Table 2 showed that the total variance extracted by the first factor is 26.19%. Hence, the value is less than the 50% range, and there is no issue of CMB in the data (Podsakoff et al., 2012).

The Heterotrait-Monotrait ratio of correlations (HTMT) is employed to analyze discriminant validity. All diagonal correlation values in Table 3 are below 0.90, confirming the discriminant validity of the scale (Hair et al., 2017).

Table 3: **HTMT for Discriminant Validity**

Constructs	PDA	GDQ	GDI	GDL	DGI	ERB	GDT
PDA	1						
GDQ	.15	1					
GDI	.18	.30	1				
GDL	.26	.26	.22	1			
DGI	.31	.19	.26	.37	1		
ERB	.29	.17	.14	.18	.12	1	
GDT	.18	.22	.19	.33	.27	.13	1

Source: Created by author for this research

Multicollinearity among the variables can lead to misleading results, and the study employed the Variance Inflation Factor (VIF) to address this issue. The results for VIF in Table 4 are below the suggested range of 10, indicating no issue of Multicollinearity (Neuman, 2003). The further issue of Heteroscedasticity is analyzed through White's Test, and the significance value is greater than the suggested range of 0.05 ($\chi2 = 10.22$, P = 1.08).

Table 4: **VIF and White's Test**

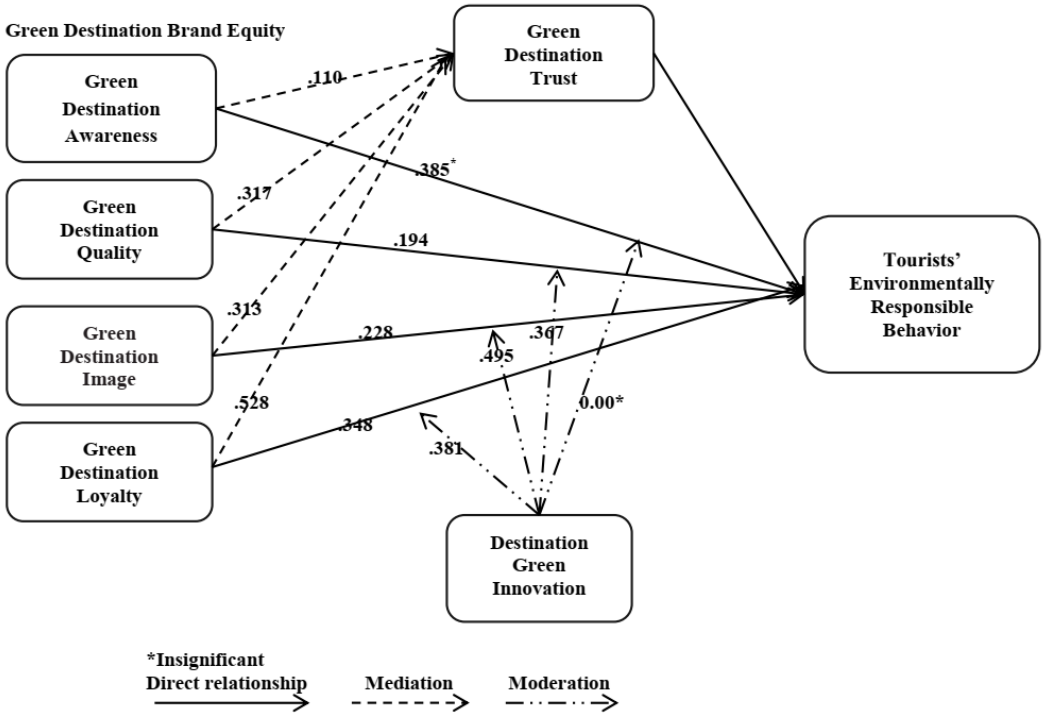
Constructs	VIF	White's Test	
		Chi square $\chi2$	P-Value
DA	2.37		
GDQ	3.11		
DI	2.17		
DL	1.52	10.22	.108
GDT	2.05		
DGE	3.18		

Source: Created by author for this research

3.2 Hypothesis Testing

The model significance is analyzed through fit indices. Results in Table 5 indicate that all indices are within the suggested range ($\chi2 =$ .183, RMSEA = 0.074, IFI = 0.93, CFI =0.93, NFI= 0.95, AGFI = 0.92, GFI = 0.91, NNFI= 0.96, SRMR = .062, CMIN/df =2.06) (Byrne,1994). Hence, the model is fit and can be used for hypothesis testing (Hair et al., 2019).

Figure 2: **Path Analysis**



Source: Developed for this Research

Results for PDA, GDQ, GDI, and GDL are presented in Table 5. Results indicated that the effect of GDA on tourists' ERB is insignificant (p = .074) and does not support Hypothesis H1. Further results in Table 5 indicated that the effects of GDQ (p=000, β=.194), GDI (p=.000, β=.228), and GDL (p=.000, β=.348) on tourists' ERB are significant and support hypotheses H2, H3, and H4. Hence, hypothesis H1 is not accepted, while hypotheses H2, H3, and H4 are accepted.

Table 5: **The result of Path Analysis**

Model indices	**CMIN/df**	**χ2**	**SRMR**	**CFI**	**AGFI**	**IFI**	**GFI**	**NFI**	**RMSEA**
Results	2.06	.183	0.062	0.93	0.92	0.93	0.91	0.96	0.074
Hypotheses			Path Relationship				Coefficient		P-value
H1			GDA → ERB				.385		.074
H2			GDQ → ERB				.194		.000
H3			GDI → ERB				.228		.000
H4			GDL → ERB				.348		.000
H5(a)			DDA → GDT → ERB				.110		.000
H5(b)			GDQ → GDT → ERB				.317		.003
H5(c)			GDI → GDT → ERB				.313		.001
H5(d)			GDL → GDT → ERB				.528		.000

Source: Created by author for this research

3.3 Mediating Analysis

Table 5 showed that GDT has significantly mediated the relationships between GDA (p=.000, β=.110), GDQ (p=.003, β=.317), GDI (p=.000, β=.313), GDL(p=.000, β=.528), and tourists' ERB. Hence, based on the significant mediating results, H5(a), H5(b), H5(c), and H5(d) of the study are accepted. Further comparison of the effect size between direct and mediating relations in Table 6 indicated that the mediation of GDT has strengthened the relationship between PDA, GDQ, GDI, GDL, and tourists' ERB. Further, the direct effect of GDA on tourists' ERB was insignificant, while GDT significantly mediated their relationship. Hence, results have shown the strong mediating role of GDT between GDBE and tourists' ERB.

Table 6: **Comparison in Direct and Mediation Effect Size**

Relationship	Direct Effect	Mediation Effect of GDT	Change in Effect Size Due to Mediation
GDA and tourists' ERB	Insignificant	Medium	Increased
GDQ and tourists' ERB	Small	High	Increased
GDI and tourists' ERB	small	Medium	Increased
GDL and tourists' ERB	Medium	High	Increased

Source: Created by author for this research

3.4 Moderating Analysis

Richardson et al. (2015) proposed moderation analysis using stepwise hierarchical regression model. This model analyzes moderation with the help of a three-step model. The direct effects of dependent and independent variables are analyzed in the first model. Effect of independent and moderator is analyzed in second model. The second model considers the effect of independent and moderating variables on the dependent variable. Finally, the interaction of the moderator and independent variable is analyzed in the third step (Richardson et al., 2015). The moderation is considered significant if all relationships are significant. Results in Table 5 showed that the direct effect of GDA on tourists' ERB is insignificant and, therefore, does not fulfil the condition of stepwise hierarchical regression. So, based on the insignificant direct effect of GDA on tourists, ERB H6(a) is not accepted.

Table 7: **Moderation Analysis**

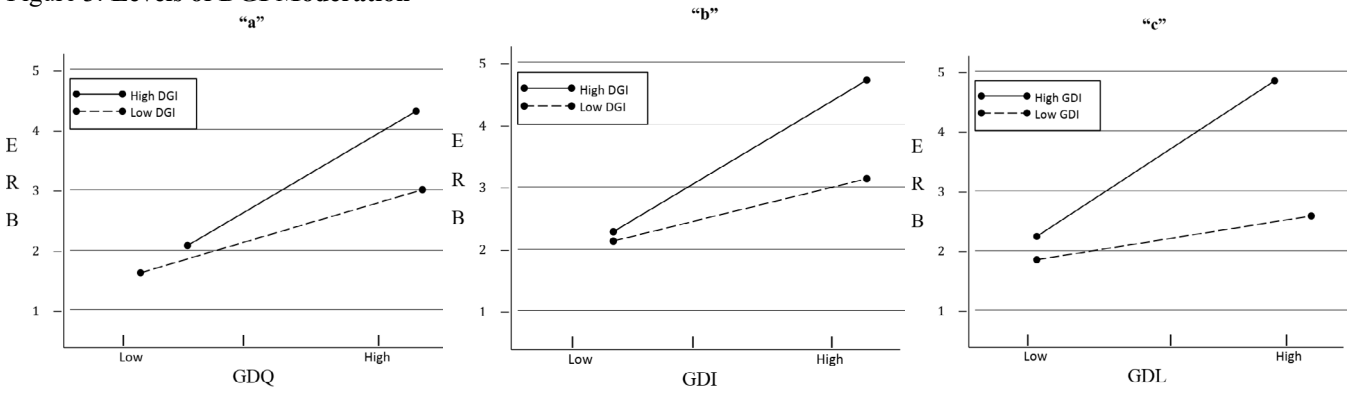
Independent variable	Hypotheses	Relationship	Standardized coefficient	R^2	Change in R^2	P-Value
Green Destination Quality	H6(b)	Model 1		.216		.000
		GDQ	.324			
		Model 2		.403	.187	.002
		GDQ	.283			
		DGI	.151			
		Model 3		.558	.155	.000
		GDQ	.275			
		DGI	.138			
		GDQ × DGI	.367			
Green Destination quality	H6(c)	Model 4		.204		.001
		GDI	.621			
		Model 5		.425	.221	.000
		GDI	.274			
		DGI	.331			
		Model 6		.608	.183	.002
		GDI	.104			
		DGI	.193			
		GDI × DGI	.495			
Green Destination loyalty	H6(d)	Model 7		.250		.000
		GDL	.310			
		Model 8		.317	.067	.001
		GDL	.251			
		DGI	.105			
		Model 9		.558	.241	.000
		GDL	.146			
		DGI	.101			
		GDL× DGI	.381			

Dependent variable = Tourists' ERB

Source: Created by author for this research

The moderation results in Table 7 showed that GDI has significantly moderated the effect of GDQ (p=.003, β=.367), GDI(p=.002, β=.495), and GDL(p=.000, β=.381) on tourists' ERB. Further positive changes in ΔR^2 for interaction models 3 (15.5%), 6 (15.5%), and 9 (15.5%) indicated that the interaction models had increased the explained variation in tourists' ERB. Finally, Figures 1(a), (b), and (c) indicate that the moderation of GDI with a higher level results in a greater effect on tourists' ERB. Hence, based on the above results, hypotheses H6(b), H6(c), and H6(d) are accepted.

Figure 3: **Levels of DGI Moderation**



Source: Developed for This Research

Further comparison of the effect size between direct and moderating relations in Table 8 indicated that DGI moderation has positively increased the strength of the relationship between GDQ, GDI, GDL, and tourists' ERB. Hence, results have shown the strong moderating role of DGI between GDBE and tourists' ERB.

Table 8: **Comparison of Direct and Moderation Effect Size**

Relationship	Direct Effect	Moderation Effect of DGI	Change in Effect Size due to Moderation
GDA and tourists' ERB	Insignificant	Insignificant	Insignificant
GDQ and tourists' ERB	Small	High	Increased
GDI and tourists' ERB	small	Medium	Increased
GDL and tourists' ERB	Medium	Medium	No Change

Source: Created by author for this research

4 DISCUSSION AND IMPLICATIONS

4.1 Discussion

Although GDBE has been discussed in the tourism literature, there has been little effort to analyze its role in consumption patterns, such as tourists' visits and revisit intentions. Further, most research has explored the inter-relationship among different dimensions of GDBE. Few studies have discussed GDBE's role in shaping tourists' behaviour to achieve a sustainable destination environment. GDT as moderator and DGI as mediator have significantly enhanced the understanding of the relationship between GDBE and tourists' ERB. The study has implied the S-O-R theory to analyze the effect of GDBE on tourists' ERB. The study's findings suggest that GDBE, as a stimulus (S), shapes GDT and DGI (O) and leads to tourists' ERB as a response (R), thereby influencing sustainable tourism behaviour.

Although GDBE has been discussed in the tourism literature, there has been little effort to analyze its role in consumption patterns, such as tourists' visits and revisit intentions. Further, most research has explored the inter-relationship among different dimensions of GDBE. Few studies have discussed GDBE's role in shaping tourists' behaviour to achieve a sustainable destination environment. GDT as moderator and DGI as mediator have significantly enhanced the understanding of the relationship between GDBE and tourists' ERB. The study has implied the S-O-R theory to analyze the effect of GDBE on tourists' ERB. The study's findings suggest that GDBE, as a stimulus (S), shapes GDT and DGI (O) and leads to tourists' ERB as a response (R), thereby influencing sustainable tourism behaviour.

The study proposes three objectives, and the hypotheses are also grouped into three categories: direct, mediation, and moderation. Table 9 presents a summary of the hypotheses. The first objective is to analyze the direct effect of PDA, GDQ, GDI, and GDL on tourists' ERB. Results are insignificant for GDA and tourists' ERB (H1). The literature presents mixed findings on PDA's effect on tourists' ERB, with some studies contradicting this finding (Dedeoğlu et al., 2020; Junaedi & Harjanto, 2020; Vila et al., 2021), while others are in support of insignificant results (Milman& Pizam, 1995; Saleem et al., 2021). For instance, Cruz-Milán (2023) mentioned that brand awareness is the first component of brand equity and influences customers' perception of brand quality and brand image.

However, it may not directly influence customers' behaviour, such as tourists' ERB. Junaedi & Harjanto (2020) discussed how brand image can influence customers' pre-purchase attitudes, such as purchase intention, attitude towards the brand, and brand image. In contrast, post-consumption behaviour is shaped based on customers' experience with the brand. DBA shapes tourists' pre-visit expectations, while post-consumption behaviour develops based on the rational evaluation of tourists' expectations and current experiences at the destination. The current study has gathered post-visit responses from tourists, while DBA influences the pre-visit expectations of tourists. So, results can be different if pre-visit responses from tourists are gathered.

Roy et al. (2018) found that destination managers primarily focus on attracting visitors and persuading them to choose the destination for travel. However, they often overlook the environmental behaviour of tourists in their promotional campaigns. Therefore, the impact of a destination's promotional efforts on tourists' ERB during their visit is likely to be limited. Matiza and Slabbert (2024) noted that only destinations with green certification tailor their awareness campaigns to attract environmentally conscious tourists, while others mainly aim to attract large numbers of tourists. It is important to recognize that unethical promotion practices, particularly in developing countries, can negatively influence tourists' perceptions and behaviour. Destinations in these countries have been found to engage in unethical promotion practices, such as exaggerating facts and providing false information, which can undermine authenticity and trust. It is important to note that results may differ for more reputable destinations or in the context of developed countries.

Table 9: **Hypotheses Summary**

Hypotheses	Effect	Conclusion
H1	GDA → ERB	Not Accepted
H2	GDQ → ERB	Accepted
H3	GDI → ERB	Accepted
H4	GDL → ERB	Accepted
H5(a)	GDA → GDT → ERB	Accepted
H5(b)	GDQ → GDT → ERB	Accepted
H5(c)	GDI → GDT → ERB	Accepted
H5(d)	GDL → GDT → ERB	Accepted
H5(a)	GDA ×DGI → ERB	Not Accepted
H5(b)	GDQ ×DGI → ERB	Accepted
H5(c)	GDI ×DGI → ERB	Accepted
H5(d)	GDL ×DGI → ERB	Accepted

Source: Created by author for this research

The study's findings revealed that the GDQ has a significant impact on tourists' ERB (H2). Results of the study confirm the findings of previous studies (Tran et al., 2021; Ranjbarian & Pool, 2015; Reitsamer & Brunner-Sperdin, 2017; Bigovic & Prašnikar, 2015). Quality is crucial in shaping consumer behaviour and significantly affects their consumption patterns. Tourists' GDQ quality enhances trust and connection with the place, influencing their environmentally responsible behaviour. Tran et al. (2021) suggested that high-quality services at destinations satisfy tourists and impact their ERB. For example, Manuel Antonio National Park in Costa Rica is recognized for its commitment to providing eco-friendly services. The park utilizes natural energy sources, including bio-energy and solar energy, to generate its electricity. By offering green services, destinations like Manuel Antonio National Park assure tourists that they are engaging in environmentally friendly activities.

Additionally, the study also found a significant effect of Perceived Destination Image (GDI) on tourists' ERB (H3), which is consistent with the findings of previous studies by Taghipourian et al. (2019), Thi et al. (2020), and Afshardoost and Eshaghi (2020). The destination's image enhances tourists' belief in the place, positively influencing their pre-visit attitude and behaviour at the destination. A destination's environmentally friendly image can significantly impact tourists' ERB. Costa Rica has made significant efforts to promote green tourism, establishing a strong eco-friendly image for its tourist destinations. Search engines like Google rank Costa Rica as one of the top eco-friendly destinations. Tourist spots in Costa Rica, such as Monteverde Cloud Forest and Tortuguero National Park, evaluate the effectiveness of their branding strategies based on their brand image. By implementing eco-friendly strategies, these destinations have successfully created a green image and influenced tourists' ERB.

Furthermore, the study indicated a positive effect of GDL on tourists' ERB (H4), aligning with the findings of previous studies by Meleddu et al. (2015), Stylos & Bellou, (2019), Azinuddin et al. (2023), and Jeong and Kim (2020 . Loyal tourists exhibit a higher intention to revisit and develop a strong attachment to the destination, and also influence the behavior of other tourists. To earn green brand loyalty, Hawaii has introduced a green loyalty program called "Malama Hawaii," which encourages eco-friendly tourists to participate in coastal clean-up activities. In return, participants receive free meals and discounted hotel coupons. This initiative has positively influenced tourists' ERB at Hawaii's coastal destinations. Strong branding strategies play a significant role in shaping tourists' ERB. For instance, Vail, a popular tourist destination in Colorado, USA, is renowned for its eco-friendly image and environmentally friendly services. Vail has been a certified green destination since 2018 and has developed a strong GDBE. The destination has successfully promoted its eco-friendly identity and positioned itself as a green tourist destination.

Vail has achieved certification for its sustainable practices and offers quality-oriented services. Various online green tourism platforms, such as greendestination.org, have acknowledged Vail's efforts, declaring it a leading green destination due to its strong DGBE. These strategies not only enhance the destination's image but also foster tourist loyalty, making Vail an ideal choice for eco-friendly tourists.

The study's second objective is to analyze the effect of GDBE on tourists' ERB with the mediating role of GDT. According to the S-O-R model, stimulus generates perceptions and feelings regarding the stimuli. The study showed significant mediation of GDT between PDA, GDQ, GDI, GDL, and tourists' ERB. Results supported all mediation hypotheses (H5a,b, c, and d) and support the results of previous studies (Su et al., 2020; Abubakar, 2019; Chuah et al., 2020; Malik et al., 2022). Trust plays a vital role in shaping tourists' behaviour. GDT strengthens the destination-tourist relationship and positively influences tourists' behaviour. Tourists show a positive attitude toward green, trusted destinations and behave responsibly.

Further, GDT has strengthened the relationship between destination brand equity and tourists' ERB. The effect of GDA on tourists' ERB was insignificant, while the mediating results of the study indicated a significant effect of GDA on tourists' ERB. It shows that tourists recall pre-visit information about the trusted green destination and shape their behaviour according to the acquired information. When consumers trust a destination, they believe the information they have acquired regarding the quality of services is reliable, and they are more likely to visit the destination (Deng & Yang, 2022). GDT influences the behaviour of environmentally conscious tourists at the destination. GDT helps destinations build a strong perceived image and quality (Chuah et al., 2020). GDT enhances the environmental awareness of tourist, and they understand their impact on the destination environment. Moreover, tourists consciously behave responsibly at the destination when the destination is perceived as environmentally responsible (sung et al., 2021; Chamoli et al., 2025). Many destinations earn the trust of tourists by obtaining green certifications from reputable organizations, including Earth Check, ISO 14001, Green Globe, Travelife, and the Global Sustainable Tourism Council (GSTC). Schouwen-Duiveland in the Netherlands has been a GSTC-certified destination since 2018 and has greatly influenced tourist behaviour by adhering to the GSTC (Version 2) guidelines.

The study's third and final objective is to explain tourists' ERB, with a focus on the moderating effect of DGI. The study's results revealed a significant moderating effect of DGI on tourists' GDQ, GDI, and GDL. The findings supported hypotheses H6(b), H6(c), and H6(d) and were consistent with previous studies (Aboelmaged, 2018; Carrillo-Hermosilla et al., 2009; Razumova et al., 2016; Zhang et al., 2020). However, moderation was not analyzed for GDA due to the lack of a significant direct effect between GDA and tourists' ERB. The results indicated that a high level of DGI leads to a higher level of tourists' ERB, underscoring the role of green initiatives such as water management, recycling, and waste management at the destination in positively influencing tourists' ERB.

Additionally, green activities at the destination enhance tourists' perceptions of GDQ, GDI, and GDL, as well as their environmental consciousness. According to Jaaron and Backhouse (2019), destinations' green initiatives and innovative practices influence the behavior of tourists at the destinations. Wagrain-Kleinarl, a sustainable tourist destination in Austria, has adopted innovative green strategies, including eco-friendly mobility options, e-bike tours, green trails, organic food choices, and educational programs. These initiatives have positively influenced tourists' environmental behaviour.

4.2 Theoretical Implications

Branding concepts are widely accepted in the tourism literature, and destination managers are also practising branding strategies to create a distinctive and competitive image of destinations (Konecnik, 2002). The study has extended the implications of brand equity for achieving a sustainable destination environment. Based on the S-O-R theory, the study has significantly discussed GDBE as a stimulus to explain the response (S) in terms of tourists' ERB. Previously, the S-O-R model was used to explain tourists' behaviour, such as destination attachment, destination visit intention, and tourist satisfaction (Kim et al., 2020; Jiang & Phoong, 2024). While few have discussed GDBE in relation to the theoretical aspect of the S-O-R model to explain tourists' ERB (Yadav et al., 2022). Current research has discussed four components of GDBE, including destination, as stimuli (S) that influence the tourists' ERB. The results of the study have revealed the significant role of GDBE as a stimulus influencing tourists' ERB.

While understanding the role of GDBE, previous studies have analyzed the chain effect of GDBE's dimensions, such as PDA's effect on GDQ leading to GDI and GDL (Dedeoğlu et al., 2020; Roy et al., 2018). The study considered all four dimensions of GDBE that influence tourists' ERB. The study has highlighted the significance of each GDBE's dimension in shaping tourists' ERB. The model of the study is vital in explaining tourists' green behaviour, pro-environmental behaviour, or socially responsible behaviour.

Previously, researchers analyzed the influence of GDBE on the pre-visit behaviour of tourists, including their attitude towards the destination, visit intention, and destination selection process (Roy et al., 2018; Aziz & Niazi, 2024). Current research has examined the post-visit behaviour of tourists, highlighting the role of GDBE as a stimulus to provoke tourists' ERB. Previously, researchers have analyzed the influence of GDBE on consumption-related tourist behaviours such as destination satisfaction, revisit intentions, and destination attachment (Aziz & Niazi 2025a; Roy et al., 2018). However, current research suggests that GDBE is also effective in explaining social behaviours such as tourists' pro-environment behaviour, socially responsible behaviour, and environmentally conscious actions.

According to the S-O-R model, the organism (O) mediates the relationship between stimuli and response, so the study considered GDT as a mediator to explain the relationship between GDBE and tourists' ERB. Literature provides a strong link between green brand trust and consumer behaviour, but its role in shaping tourists' ERB is explored in this study. GDT is likely to influence environmentally conscious tourist behaviour. Further researchers can use GDT to analyze the destination selection behaviour of tourists. GDT with GDBE can also effectively analyze the environment-related behaviour of tourists at green destinations.

The study considered DGI to be a moderator in shaping tourists' ERB. DGI is a less-discussed concept in the tourism literature and influences tourists' behaviour. DGI has significantly moderated the effect of GDBE on tourists' ERB. The study has uniquely integrated the DGI concept as an organism (O) in the S-O-R theory and explained tourists' ERB. Results revealed that DGI can enhance the role of DBI in shaping tourists' ERB. DGI can influence tourists' attitudes toward a destination, visit intentions, and revisit intentions.

4.3 Managerial Implications

Research emphasises the significance of tourist behaviour in protecting the natural environment of destinations. The study's results encourage destination managers to protect the destination environment by using the tourists' ERB. First, the study's findings revealed that the effect of GDA on tourists' ERB was insignificant. This is because the awareness campaigns of selected destinations primarily focus on destination selection and tourists' intentions to visit the destination. Selected destinations never engage in environmental awareness campaigns, and they fail to influence tourists' ERB in their promotion and awareness strategies. Tourists may not behave responsibly at the destination when managers ignore environmental-related content in their awareness campaigns. Therefore, destination promotion campaigns aim to attract tourists to visit or revisit, and do not influence their ERB. Destination marketers must highlight the impact of tourists' behaviour on the destination environment in their promotion. GDQ enhances the overall satisfaction among tourists and is likely to influence their ERB at the destination. Providing quality green services at the destination, such as food, transportation, and accommodations, influences tourists' behaviour. To enhance tourists' perception of destination quality and develop their ERB, destination managers must improve and maintain high standards of service at destinations. Destination managers should focus on the quality of the destination's green infrastructure.

Destination managers create a distinctive image in the minds of tourists to influence destination selection and visit intentions. Promotion campaigns on various online platforms, including websites and social media sites, can help build an image of the destination. Reviews of tourists on social media can also shape the destination's image. Destination managers should utilise online social media platforms, such as Instagram, Twitter, X, tourism blogs, and Facebook, to share their visitors' experiences at the destination. Further, destination managers can build a green destination image to influence tourists' ERB. Eco-friendly practices such as eco-friendly transportation at the destination, eco-friendly sources of energy and waste management systems can influence the tourists' ERB.

GDL plays a crucial role in shaping the tourists' ERB. The research findings confirmed that tourists who are deeply committed to a destination are more likely to behave responsibly at the destination. The destination managers can enhance brand loyalty by offering incentives such as souvenirs, visit coupons, and complimentary food to environmentally responsible tourists. Destination managers can further enhance the GDL by providing tourists with positive and memorable experiences during their stay. Creating a sense of community and connection with the local culture can foster loyalty and encourage repeat visits. Finally, considering tourists' Feedback and addressing their issues at the destination can help build trust and enhance loyalty.

The study has significant implications for GDT. Trust in a destination is crucial in the tourism industry and can significantly influence tourists' decisions. Tourists with pro-environment behaviour prefer environmentally responsible green destinations for their visit. Therefore, managers should consistently engage in pro-environment activities to demonstrate their commitment to environmentally sustainable destinations. Obtaining green destination certification and accreditation from the Global Sustainable Tourism Council (GSTC) can enhance tourists' trust in a destination. Destination managers should also conduct regular, rigorous green audits by external agencies and make the audit reports publicly available. These audits, a testament to the destination's commitment to sustainability, can positively influence the visit intentions of environment-conscious tourists.

Developing new innovative ideas to protect the natural environment can provide a sustainable competitive advantage. Destination managers are responsible for developing innovative methods to protect natural resources, such as capturing rainwater and generating energy from biomass gasification. They should also consider generating electricity from solar or wind sources. Additionally, they should promote the use of biodegradable materials for packaging and serving food items, and provide electric vehicles for transportation.

4.4 Limitations and Future Research

While research has expanded the existing knowledge of destination branding and tourists' ERB, there are still areas that can be further improved. Future studies can compare tourists' ERB at green-certified and non-certified destinations using an asymmetric test. Further study can enhance the generalizability of the model by considering national and international tourists for data collection. The model of the study has comprehensively explained Tourists' ERB, using other constructs such as destination attachment, association, reputation, and social responsibility as moderators and mediators to further enhance the understanding

of the concept. The study is based on the S-O-R theory; future research can employ social-cultural and personality theories to understand the role of GDBE in influencing tourists' pro-environmental behaviour. Further study can select green-certified destinations for data collection.

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