

# Effects of Norms, Place Attachment, Environmental Concerns, and Altruism on Environment-friendly Tourism Behavior

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## ABSTRACT

This study investigates the impact of the subjective and personal norms, environmental concerns, and altruism perceptions of recreationists on environment-friendly behaviors and environmental tourism-behaviors. The population of the study consists of recreationists visiting the Ida Mountains in the western coast of Turkey. Visitors taking hiking trails as a recreational activity were included in the study and 221 complete responses were received. Partial Least Square Structural Equation Model (PLS-SEM) was applied to test research hypotheses. The findings show that (a) subjective norms, place attachment, environmental concern, and environmental altruism positively influence environment friendly behavior; (b) personal norms are non-significant antecedents of environment friendly behavior; and (c) environment friendly behavior is a significant antecedent of environmental tourism behavior. This shows that recreationists in Ida Mountains are more sensitive as they partake in tourism-related activities and pay attention to their attitudes and behaviors towards environmental problems when they interact with the environment. Revealing the effects of norms, place attachment, environmental concerns and altruism on environmentally friendly tourism behavior can support the development of sustainable tourism policies and programs. In this way, it can provide sustainability-related information to stakeholders in the tourism industry, policy makers and destination managers.

## KEYWORDS

Norms, Place Attachment, Environment-Friendly Behavior, Environmental Concerns, Environmental Altruism.

## ARTICLE HISTORY

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## 1. Introduction

Countries consume substantial natural resources to sustain their economies. From the extreme compulsive buying behaviors of some individuals (Wu, 2006; Chambers & Guo, 2009; Yüksel & Eroğlu, 2015), it can be inferred that resources are being excessively exploited. The waste resulting from it has started to pollute the environment. Various developments in the world from the 19th century to the present, combined with the desire for continuous economic growth of countries, have led to dramatic changes that have had substantial impact on the physical environment of many countries (Atay & Dilek, 2013). Industrialization and urbanization have resulted in the emergence of the metropolises, which has increased the speed of change in the physical environment. This has adversely affected organisms and ecologies (Vricella, 2017). Some individuals, however, have begun to question and revise their relationships with the natural environment after being exposed to environmental degradation (Rose, 2012). Many have felt the urge to revise their behaviors of protecting, preserving, and using the environment (Mansuroğlu, 2002).

Tourism destinations are a mix of products, services, and experiences, providing leisure opportunities to individuals (Buhalis, 2000). However, on many occasions individuals do not have the opportunity to take a long holiday away from home. For this reason, some travelers choose destinations that are close to their immediate locations while also preferring places where they can experience nature-based and natural resources. Outdoor recreational activities allow individuals to rest and relax physically and psychologically by letting them interact with nature. Forests, undeveloped natural sites, streams, parks, and naturally conserved places are examples of sites that attract recreationists (Bell et al., 2007; Arni & Kharil, 2013). Nature-based tourism is not only a leisure activity for tourists, but also a transforming activity that individuals adapt to find ways to achieve physical, mental and spiritual balance in nature (Pereira et al., 2020).

Destinations benefit from many natural features such as climate, flora, fauna, seas, beaches, fresh water resources, mountains and landscapes to attract visitors. However, these resources may be negatively affected as a result of touristic activities (Swarbrooke, 1995; Arica & Gök, 2019). Tourism with all its constituent elements can pollute nature as much as other sectors without careful management (Sunlu, 2003; Stefanica, 2017; Azarmi, 2019). Conserving nature and minimizing the effects of recreational activities on the environment is important to have sustainable tourism and to increase tourism-related revenues. Recreationists interacting with such natural resources can develop an awareness of environmental problems and react to these problems, and adopt a personal attitude to minimize their own effects on the environment (Kakoyannis & Stankey, 2002; Thapa & Graefe, 2003; Dolnicar et al., 2008; Tuntipisitkul, 2012; Lee & Han, 2015; McCullough et al., 2018). Therefore, it is of the utmost importance to describe the attitudes of individuals participating in tourism and recreational activities and their environmentalist behaviors in their everyday lives.

An understanding of nature-based recreationists' environmental concerns, attitudes toward mitigative efforts, and behavioral reactions will provide the tourism sector and public administrators with practicable data, so that they can create policies and plans concerning environmental challenges. Including increasing participants' awareness of environmental problems and how to contribute to the efforts to mitigate natural damages (McCullough et al., 2018). In addition, encouraging visitors to exhibit a common ecological behavior while attracting their attention to these issues may also lead to the purchase of environmentally friendly products more generally not just in tourism (Cornelissen et al., 2008).

Empirical studies on natural environments have shown that environmental concern (Bamberg, 2003), environmental awareness (Rodríguez-Oromendía et al., 2013; do Valle et al., 2015; Zhang et al., 2016), place attachment (Vaske & Kobrin, 2001; Brownlee et al., 2014; Brownlee et al., 2015), place satisfaction (Halpenny, 2005; Ramkissoon et al., 2013), and conservation commitment (Lee, 2011) positively influence visitors' protective behaviors. Various disciplines adopt different statements to refer to people's connections to the places that they interact with (Williams & Vaske, 2003). Sociology emphasizes how the symbolic meanings of settings influence the social context of human interactions (Blumer, 1969). Anthropology seeks to understand the cultural significance of places in day-to-day life (Aucoin, 2017) and human geography has explored the notion of "place attachment" developed in environmental psychology as the concept of "sense of place" (Altman & Low, 1992). Human geography's reference to this interaction

as “sense” indicates that a positive bond can be formed between a human and a place. It is important to determine the effects of the parameters affecting the traditional environment-friendly behaviors on individuals’ consumption behaviors in everyday life. In previous research, studies have typically been undertaken to investigate the influence of one particular factor on environmentally friendly behaviors; however it is thought that a number of these variables are interrelated, and it would be useful to use them together. For example, while the concept of subjective norm exhibits a behavior and expresses the social pressure felt (Ajzen, 1991), personal norm is defined as a kind of internal pressure that affects human behavior (Schwartz, 1977). In addition, it would be difficult to observe altruism for others from the individual who does not have any concern or anxiety about the developments affecting others (including the environment) in their environment. The fact that they are in such a relationship with each other in terms of meaning integrity and at the same time they have characteristics of variables that affect environmentally friendly behavior, enabled all four variables to be used together in this research.

The concepts briefly mentioned above are concepts that have been used for many years in examining the behavior of individuals towards the environment. In recent years, the concept of place attachment, which reveals the emotional bond between people and places, has been added to studies on the research of environmentally friendly behaviors. This concept was first introduced by Altman and Low in 1992, where the place can sometimes be a home, a neighborhood or a destination visited (Manzo & Perkins, 2006).

Environmentally friendly behaviors of individuals in their daily lives are important. However, when the same people visit a destination, their behavior in that area is also important for the environment. Therefore, it is also necessary to understand how individuals exhibit environmentally friendly behaviors in the tourism activities. In this context, this study was conducted to contribute to the understanding of environmentally friendly behaviors of individuals participating in tourism activities at natural destinations, with the Ida Mountains in the western coast of Turkey being used as the context for this study. A contribution to the literature is expected through the identification of factors affecting the environment-friendly tourism behaviors of recreationists in this mountain range. This study will contribute to practice also because the findings will help organizers of nature based recreational activities and administrators of recreational sites to improve environment friendly tourism services and to minimize the damage to nature.

## 2. Literature Review and Hypothesis Development

Environmentally friendly tourism behaviors are considered important to examine visitors’ behaviors at nature-based destinations. In addition, environmental tourism behaviors are shown to influence the purchasing of environmentally friendly tourism products and services (Song et al., 2012). Tourists who interact with nature-based destinations generally want to protect natural resources and make greater efforts to reduce the damage to these destinations (Crouch et al., 2005; Dolnicar, 2006; Lee et al., 2013). As a result, environmentally responsible behaviors of tourists help limit or avoid damage to the ecological environment (Chiu et al., 2014). People’s interaction with the natural environment will cause them to directly face the challenges associated with the natural environment and pursue strategies accordingly. Therefore, environmentally friendly behaviors serve as important clues to environmental tourism behaviors which will be investigated through the study of Ida Mountains’ visitors.

### 2.1 Subjective and Personal Norms

Behaviors of visitors while planning and visiting a tourism location can be affected by personal factors and their immediate environments (family, friends, colleague and such). Therefore, these aspects should be considered while investigating the behaviors of the visiting recreationists in relation to the environment. These concepts known as subjective and personal norms affect individuals’ decision making during their interactions with the environment. Subjective norms are perceived social pressures that cause behaviors to be performed or not performed (Ajzen, 1991). In other words, it denotes the effects of people that an individual lives with (family, relatives, close friends, colleagues, etc.) on their decision-making (Park, 2000). An individual decides to or not to perform a behavior in consideration of whether these people whose views are highly esteemed by them, do or do not approve of their behavior (Conner & Armitage, 1998; Park, 2000).

Sometimes an individual may even decide to act in a way that would not be noticed (Yuzhanin & Fisher, 2016). The subjective norm is one of the two dimensions in the theory of reasoned action, developed by Fisbein and Ajzen in 1967. According to this theory, the subjective norm constitutes the social dimension of behavioral intent which determines actual behavior (Martin et al., 2011). A great many studies report that individuals' attitudes toward subjective norms influence their behaviors and are among the determinants of behavioral intention (Kim & Han, 2010; Song et al., 2012; Askadilla & Krisjanti, 2017; Yadav & Pathak, 2017; Jain et al., 2020; Kumar & Pandey, 2023). Chan and Lau (2002); Research on hotel customers by Kim and Han (2010) reveals that the subjective norms of visitors can influence the likelihood of exhibiting environmentally friendly behaviors. Based on the responses of 620 participants, Yadav and Pathak (2017) showed that subjective norms are effective in purchasing an environmentally friendly product. These studies suggest that there is a relationship between subjective norms and individuals' behaviors. Accordingly, we propose the following hypotheses:

**H1.** Subjective norms of recreationists have a positive influence on environment-friendly behavior.

Another concept to be used for the purpose of the study is personal norms. According to Schwartz (1977), personal norms are an individual's self-expectations relying on internalized values (Zhang et al., 2014). Individuals having internalized these values remain committed to their values and these emotions allow them to assume various responsibilities while performing a behavior. Personal norms are effective in the performance of environmental activities and are activated by the belief that environmental conditions are threatened by individuals and individuals are mobilized to eliminate this threat (Stern, 2000). As stated above, firstly personal norms should be activated to affect individuals' behaviors. Activation occurs when (a) someone is aware of the consequences of one's behavior for the welfare of others, and (b) one ascribes at least some responsibility for these consequences to oneself. Only when these conditions are met can their environment-related behaviors be affected through personal norms (Harland et al., 1999). It is known that personal norms positively affect individuals' environmentalist attitudes and behaviors, not only in their everyday living areas but also during their holidays (Mehmetoğlu, 2010). Moreover, personal norms also influence individuals' choice of environmentally sensitive tourism activity over other travel options (Doran & Larsen, 2016). Briefly, personal norms are strong predictors of environment-friendly behaviors, yet first they must be activated.

**H2.** The personal norms of recreationists have a positive influence on environment-friendly behavior.

## 2.2 Place Attachment

The notion of place attachment was introduced by Altman and Low in 1992, in which place attachment is presented as an emotional tie between spaces and people (Manzo & Perkins, 2006). Devine-Wright and Howes (2010, p. 271) note that this bond can be formed between "individuals and/or groups and familiar locations they inhabit or visit i.e., home and neighborhood". Place attachment arises when settings are imbued with meanings that create and enhance one's emotional tie to a natural resource (Vaske & Kobrin, 2001). Place attachment is one of the key factors in the sustainability of ecotourism, including natural tourist attraction that visits to outdoor recreation areas help build emotional and cognitive bonds between individuals and the destination (Kim et al., 2023).

Place attachment to natural destinations significantly affects the pre-protective behaviors and attitudes of individuals referred to as "recreationists" (individuals participating in recreational activities) (Kyle et al., 2003; Budruk et al., 2009; Halpenny, 2010; Brownlee et al., 2014; Brownlee et al., 2015). Bricker and Kerstetter (2000) list South Fork of the American River as a popular whitewater recreation river in the US and state that its visitors are very sensitive to potential threats to the resource conditions in the area. In the study on visitors to the Point Pelee National Park in Canada, Halpenny (2010) explored the ability of place attachment to predict place-specific and general pro-environment behavioral intentions. Kyle et al. (2003) showed in their study on the MBSA situated in the Inyo National Forest, California that increased "place identity" as a component of place attachment positively effect of the spending attitudes of recreationists visiting these destinations. Lastly, Brownlee et al. (2014) found a relationship between the place

attachments of the lake by recreationists visiting Lake Hartwell - USA and climate change, drought concerns, and their attitudes toward water conservation.

Theoretical and experimental research studies have shown that place attachment is typically discussed in two aspects: "place dependence" and "place identity" (Williams et al., 1992; Williams & Vaske, 2003; Kyle et al., 2004; Kil et al., 2021). In their research on individuals' stability of favorite place selections and evaluations of place attachment over a ten-month period, Korpela et al. (2009) concluded that people mostly look for potentially "favorable" places and "place attachment" and "place identity" are important in doing so and forming an emotional bond with the place.

The concept of place identity has also appeared in environmental psychology research and constituted one of the dimensions of environment-focused studies. The concept was first introduced by Proshansky (1978) and "consists of those dimensions of the self that develop in relation to the physical environment by means of a pattern of beliefs, preferences, feelings, values, and goals" (Manzo & Perkins, 2006). Place identity is used to refer to the deep bond between a place and an individual's personal identity. Place identity is "a subculture of the self-identity of the person", which allows individuals to express and verify their own identities (Proshansky et al., 1983). Hence, in relation to visiting a specific place, individuals can become more compelled to protect, conserve, and improve the environmental protection associated with a place.

Few studies have observed a relationship between place identity and an environmentalist attitude and protective and conservative behaviors. Place identity of the residents near Cleveland Park in Ohio, USA, has been noted to have affected the intention to volunteer in the park (Moore & Scott, 2003). Bricker and Kerstetter (2000) report that recreationists with a higher level of place identity are more willing to protect the social setting and natural resources of the areas they visit.

The other component of place attachment is "place dependence". Place dependence refers to visitors' functional attachment to a specific area (physical characteristics of the resource) and their awareness of the setting that supports their visit-focused goals (Williams & Vaske, 2003; Ramkissoon et al., 2012). It is important that the area offers the opportunities required for their desired activities. These is, for instance, an accessible area for rock climbing, hiking trails, and/or a river with currents fast enough for rafting. For Vaske and Kobrin (2001), local natural destinations (e.g., community open spaces) are ideal for establishing this functional attachment. The same study remarks that the resource does not have to be the best, but even its closeness to an individual's home may lead to place dependence. In addition to these two traditional dimensions, "belongingness" too is considered to provide a more in-depth explanation than the functional aspect of place dependence and characteristic components of place identity (Hammitt et al., 2006). Place belongingness is an individual's attachment to an environment as if a "member". According to Brownlee et al. (2014), place belongingness refers to "being at home" and "belonging to something". They suggest that visitors not only appreciate the natural recreational site but also can feel that the place belongs to their personal and physical environments (Hammitt et al., 2006). Accordingly, we propose the following hypotheses:

**H3.** The place attachment of recreationists has a positive influence on environment-friendly behavior.

## 2.3 Environmental Concerns and Altruism

People who exhibit environmentally responsible behavior while performing outdoor activities tend to demonstrate environmentally friendly behaviors in their daily lives. Just as people can demonstrate their daily environmentally friendly behaviors in their holiday experiences, they can also reflect their environmental behaviors during their travels into their experiences at home (Bilynets & Cvelbar, 2022). Environmental concern refers to individuals' strong and positive attitudes toward environmental protection and it positively affects the individual's decisions regarding environmentally friendly consumption (Minton & Rose, 1997; Chen et al., 2022). Mostafa (2009) suggested that environmental concern may have a significant effect on individuals' motivation to try to alleviate the problem and to change behavioral practices. Moreover, because environmental concern reflects an individual's motivational and cognitive status, researching attitudes toward environmental protection enables us to understand environmental concern (Mostafa & Al-Hamdi, 2016). As a concept that shows environmental awareness, altruism is the act of

helping others selflessly (Kumar & Pandey, 2023). Environmental altruism is responsible environmental behavior that an individual exhibits to change the harmful consequences of another individual or environmental act by recognizing them (Schwartz, 1977). Altruism is also a tool to support the purchase of green products to support ecological sustainability (Guiao & Lacap, 2022). Sacrifice is conceptualized as the willingness of a person to sacrifice something to protect and maintain environmental, historical, and cultural resources or recreational opportunities (Knetsch & Var, 1976). In this process, individuals begin to think not only of their own interests, but also of the welfare of different stakeholders. This shows that individuals begin to have a kind of cognitive change (Davis et al., 2011). Self-sacrifice and willingness to act are extremely important to ensure permanent relationships in motivational transformation. Because such stakeholders and partners will share the future of the interdependence process as well as the past (Van Lange et al., 1997). The general idea here is to protect these resources for current and future generations.

It is likely that individuals participating in nature-based recreational activities take up these activities individually or in very small groups and these participants allocate more funds for such activities. Moreover, it is important that visitors performing such activities are willing to repeat and enjoy their visits and internalize the resources peculiar to that area (Ballantyne et al., 2008). Repetitive visits of nature-focused recreationists to a single area highlight that participants form an emotional and cognitive bond with that place (Hammit et al., 2009). Recreationists interacting with natural resources can develop an awareness of environmental problems and react to these problems and adopt a personal attitude to minimize their own impact on the environment.

Brownlee (2012) has noted that one's own interaction with unique environments often influences individual and collective perceptions about the world and oneself. Implying that individuals participating in a recreational activity may undergo a change of attitude toward environmental problems encountered in everyday life. Accordingly, we add the following hypotheses:

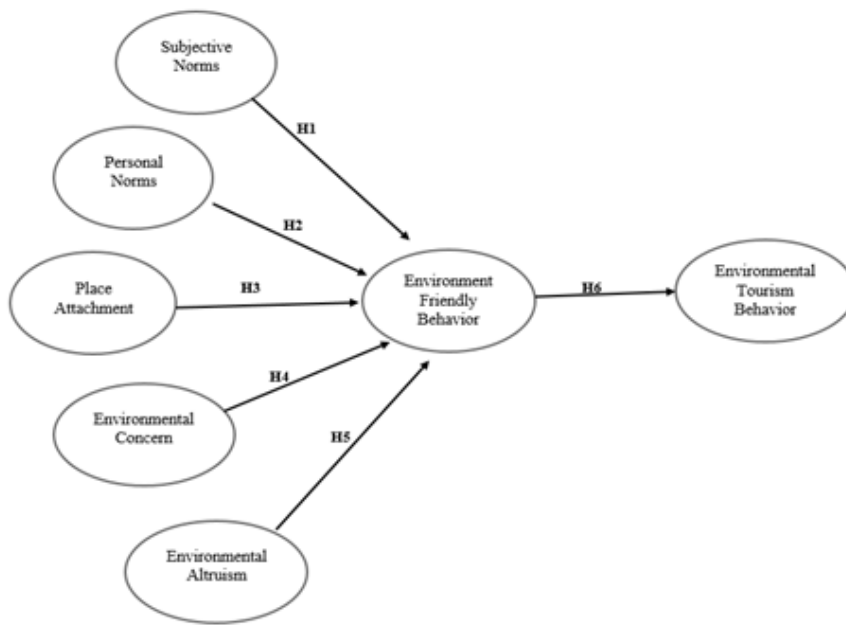
**H4.** Environmental concerns of recreationists have a positive influence on environment-friendly behavior.

**H5.** Environmental altruism of recreationists has a positive influence on environment-friendly behavior.

The analysis of the related literature showed that the available studies mostly researched the effects of the parameters affecting environment-friendly behaviors on tourists' behaviors (Bamberg, 2003; Brownlee, 2015; Arisal & Atilar, 2016). In fact, in some studies, individuals' environmental behavior has been examined not only by their own perceptions but also by the perceptions of other individuals within the scope of social desirability (Geiger, 2022). However, the examination of the expressions in the environmentally friendly behavior scale revealed that these expressions focus only on the daily behavior of individuals (Paco & Raposo, 2009; Kim & Han, 2010). It has been observed that the same parameters (daily behavior) are not frequently used in the studies on individual behaviors within the direct tourism activity. However, individuals have been reported to begin demonstrating environment-friendly behaviors in such practices as eating, traveling, and leisure-time and cultural activities (Song et al., 2012). It is thought that studies should be conducted accordingly. Environmentally friendly tourism behaviors are important to examine visitors' behaviors at nature-based destinations. In other words, the characteristics of environmentally friendly behaviors that offer important clues to understand consumers' marketing behavior can explain the environmentally friendly tourism behaviors of recreationists visiting natural destinations. In a study on the participants of a festival at a natural site, individuals were found to be more likely to exhibit environmentally friendly tourism behavior (Song et al., 2012). Therefore, this hypothesis of the study was developed to determine whether environmentally friendly behavior has an impact on environmental tourism behavior.

**H6.** Environment-friendly behavior of recreationists has a positive influence on environmental tourism behavior.



**Figure 1.** Theoretical Model and Hypotheses

Source: Own Elaboration

### 3. Methods

This study was conducted in the Ida Mountains regarded as a tourism attraction due to its abundance of natural resources. It was carried out to investigate whether the environmental concerns, environmental altruism, norms, and place attachment perceptions of recreationists visiting the site affect their perceptions and concerns in regard to environmental problems and their attitudes, behaviors, and tendencies concerning environmental tourism-related behaviors.

#### 3.1 Study Area and Research Instrument

The research site is the Ida Mountains in the province of Çanakkale, Turkey. The Ida Mountains, the highest elevation (1.774 meter) on the Biga Peninsula, is a preferred ecotourism site known for its highly diverse biological properties. The Ida Mountains produce the highest level of oxygen (22%) after the Alps (Uğuz, 2012). The oldest written source on the Ida Mountains and its environs is the one-thousand-spring Ida in Homer's *The Iliad*, incorporating numerous creeks and some 30 streams (Eceoğlu, 2011). Scientists have identified around 800 species of 101 families in the Ida Mountains. Seventy seven of these species are indigenous to Turkey and 29 are local species of the Ida Mountains National Park (Çanakkale Belediyesi, 2017). The Ida region has been populated by various civilizations for about five thousand years (Ari & Soykan, 2006). Among these are Trojans, Achaeans, Antandrosians, Romans, Greeks, and Ottomans. The Ida Mountains are also known as mythological and legendary mountains: Greek legend in the *Iliad*, and two Turkish legends, *Sarıkoz* and *The Love Story of Hasan and Emine*. In addition, it is the site of the very first beauty contest, where Paris awarded the Golden Apple to Aphrodite (Öztura, 2010). Due to these characteristics, it was decided to carry out this study on recreationists visiting various destinations in The Ida Mountains.

The study is designed to measure the effects of place attachment, subjective norms, personal norms, environmental concerns, and environmental altruism on environment-friendly behaviors and environmental tourism behaviors. For this purpose, a quantitative method was adopted. A questionnaire was administered as the data collection tool. The questionnaire consisted of two sections. In the first part, participants were asked about their country of permanent residence, gender, age, marital status, income,

and education level. The second part incorporated the dimensions of place attachment, i.e., place identity, place dependence, and place belongingness. In the development of these scales, validity and reliability tests were used.

The scales utilized in this study were adapted from various studies including the personal norms scale from Zhang et al. (2014), the subjective norms scale from Kim and Han (2010), the environmental concerns and enthusiasm scale from Dunlap et al. (2000) and Davis et al. (2011), the environment-friendly behaviors scale from Miller et al. (2015), the environmental tourism behaviors scale from Song et al. (2012), and the place attachment scale was adapted from Brownlee et al. (2015). Thirty-three questions in all were asked. The researchers measured personal norms with four items, subjective norms with three items, place attachment with nine items, environmental concern with five items and environmental altruism with five items. The researchers also assessed environment-friendly behavior with eleven items and environmental tourism behavior with four items. The statements in the scales were reviewed by academics specialized in the field. Based on their views, the researchers improved the structure of the questionnaire by means of reselection of words, corrections, and clarity of items. A five-point Likert scale, with levels (1) I strongly disagree, (2) I disagree, (3) I neither agree nor disagree, (4) I agree, and (5) I strongly agree, was used to collect data.

### 3.2 Data Collection

The population of the study consists of recreationists visiting the Ida Mountains in the provincial borders of Çanakkale, Turkey, visitors using the hiking trails as a recreational activity were included in the sample. According to the obtained data from the authorities, approximately 300 thousand tourists visited the Ida Mountains (Ayazma, Yalama, and Kışladağ entrance gates) in 2016. A convenience sampling method was preferred as the sampling method given the nature of the study (Baker et al., 2013). Between August 2017 and October 2017, 380 questionnaires were given to visitors to the Ida Mountains and 221 questionnaires were returned and included in the data analysis, providing an acceptable response rate of 58% (Krejcie & Morgan, 1970; Crompton & Tian-Cole, 1999).

### 3.3 Analytical Methods

For this study, the hypotheses were tested with Structural Equation Modelling (SEM) using Partial Least Squares (PLS) analysis. SmartPLS (V.3.2.6) software was employed to build models and assess their validity (Ringle et al., 2015). PLS is a well-established technique for estimating path coefficients in structural models. Moreover, PLS has become increasingly popular in marketing research over the last decade due to its potential to model latent constructs under conditions of non-normality with small-to-medium sample sizes (Rezaei & Ghodsi, 2014). A structural equation model with latent constructs comprises two components. The first component is the structural model and it is called inner model in the context of PLS-SEM (Hair et al., 2011). The inner model allows us to understand the relationships (paths) between unobserved or latent constructs (Henseler et al., 2009). The second component of the structural equation model is the outer models in the PLS-SEM context that also comprises the measurement models (Hair et al., 2014), the outer models are used to evaluate the relationships between the indicator variables and their corresponding construct.

Bootstrapping was applied to determine the significance levels of the loadings, weights, and path coefficients. The researchers performed the PLS algorithm procedures to determine the significance levels of the loadings, weights, and path coefficients, followed by a bootstrapping technique to determine the significance levels of the proposed hypothesis. As suggested by Anderson and Gerbing (1988), the validity and goodness-of-fit of the measurement models were estimated before testing the structural relationships outlined in the structural model. Because PLS does not generally produce conformity indices,  $R^2$  is the primary way to evaluate the explanatory power of the model (Ali et al., 2016). Tenenhaus et al. (2005) used  $R^2$  values and AVE values in the GoF (Goodness-of-Fit). In the analysis, the GoF value is calculated by taking the square root of the average of the AVE values of all the structures and the  $R^2$  means.



## 4. Results

The demographic statistics of the recreationists in this study are provided in Table 1. Accordingly, 60.3% of the recreational visitors to the Ida Mountains were male, while females represented 39.7% of the sample. The modal age range of the visitors was 26-35 years, accounting for 42.5% of the visitors. The majority of recreationists had an associate or a bachelor's degree as their highest level of education.

**Table 1.** Demographic Statistics of the Recreationists

Age	N	%
17-25	49	22.48
26-35	94	43.12
36-45	53	24.31
46 and over	22	10.09
<b>Gender</b>	<b>N</b>	<b>%</b>
Female	87	39.73
Male	132	60.27
<b>Marital Status</b>	<b>N</b>	<b>%</b>
Married	108	49.54
Single	110	50.46
<b>Education</b>	<b>N</b>	<b>%</b>
High School Education	20	9.05
Associate degree	45	20.36
Bachelor's Degree	138	62.44
Post-graduate	18	8.14
<b>Income</b>	<b>N</b>	<b>%</b>
Low	23	10.55
Middle	127	58.26
High	52	23.85
Very High	16	7.34

Source: Own Elaboration

### 4.1 Assessment of the Measurement Model

In this study, the researchers followed the guidelines of Jarvis, MacKenzie and Podsakoff (2003), suggesting the choice of reflective constructs. The PLS-SEM evaluation consisted of a two-step procedure: the measurement model assessment followed by the structural model assessment. Table 2 shows the indicators' outer loadings for the reflective constructs.

**Table 2.** Evaluation of Items, Constructs, and Measurement Model

Constructs/Indicators	Mean value	S. D.	Loading
<b>Personal Norms:</b> $\alpha$ : 0.770; <b>CR</b> : 0.848; <b>AVE</b> : 0.582			
I have the obligation to dissuade anyone from damaging the local environment.	4.62	0.53	0.750
I have the obligation to comply with local environmental regulations and laws.	4.64	0.61	0.745
I have the obligation to protect the local environment.	4.69	0.51	0.726
I have the obligation to alleviate local environmental problems caused by my daily life.	4.54	0.58	0.826
<b>Place Attachment:</b> $\alpha$ : 0.936; <b>CR</b> : 0.946; <b>AVE</b> : 0.664			
I identify strongly with Ida Mountains.	4.19	0.81	0.720
Ida Mountains means a great deal to me.	4.45	0.73	0.695
I feel highly attached to Ida Mountains.	4.00	0.90	0.892
I think Ida Mountains is better than other regions for walking.	4.04	0.82	0.720
I think Ida Mountains is indispensable for me as a walking route.	3.97	0.90	0.857
I think the walking route in the Ida Mountains is one of the most satisfying places.	3.95	0.94	0.825
I feel connected to Ida Mountains.	3.97	0.88	0.905
When I am at Ida Mountains, I feel part of it.	4.11	0.86	0.835
I feel like I belong at Ida Mountains.	4.07	0.95	0.853
<b>Environnemental Concern:</b> $\alpha$ : 0.633; <b>CR</b> : 0.800; <b>AVE</b> : 0.730			
I think, the balance of nature is delicate and easily upset.	4.54	0.75	0.659
I think, if things continue their present course, we will soon experience ecological catastrophe.	4.49	0.62	0.781
I think, the earth resources are limited.	4.53	0.66	0.822
<b>Subjective Norms:</b> $\alpha$ : 0.724; <b>CR</b> : 0.842; <b>AVE</b> : 0.642			
People who are important to me think I should behave environmentally friendly during recreational activity.	4.43	0.76	0.720
People who are important to me would want to be environmentally friendly during recreational activity.	4.35	0.77	0.807
People whose opinions I value prefer me to be environmentally friendly during recreational activities.	4.47	0.66	0.869
<b>Environmental Altruism:</b> $\alpha$ : 0.728; <b>CR</b> : 0.830; <b>AVE</b> : 0.549			
I am willing to take on responsibilities that will help conserve the natural environment.	4.51	0.60	0.718
I am willing to do things for the environment, even if I'm not thanked for my efforts.	4.62	0.56	0.744
Even when it is inconvenient to me, I am willing to do what I think is good for the environment.	4.34	0.67	0.709
I am willing to go out of my way to do what is good for the environment.	4.21	0.78	0.792
<b>Environment-Friendly Behavior:</b> $\alpha$ : 0.718; <b>CR</b> : 0.822; <b>AVE</b> : 0.536			
I buy less food to reduce waste.	3.76	0.76	0.806
I walk where possible.	4.14	0.92	0.712
I buy organic food products.	4.06	0.85	0.695
I use public transport where possible.	3.88	0.93	0.710
<b>Environmental Tourism Behavior:</b> $\alpha$ : 0.808; <b>CR</b> : 0.873; <b>AVE</b> : 0.632			
I try to purchase environmentally friendly tourism products in walking activity in Ida Mountains.	4.31	0.85	0.800
I have information about how my behavior affects the natural environment in Ida Mountains.	4.47	0.70	0.805
I try to minimize my tourism behaviors to influence natural environments in my walking activity.	4.50	0.70	0.722
I take care to participate in recreational activities in natural destinations.	4.45	0.74	0.802

Source: Own Elaboration

Except for the Cronbach Alpha value of the latent variable of environmental concern, internal consistency and reliability for all constructs was satisfactory, above the suggested threshold of 0.7 for both Composite Reliability (CR) and Cronbach's Alpha. For personal norms, place attachment, subjective norms, and environmental tourism behavior, the Average Variance Extracted (AVE) exceeds the threshold value of 0.5, suggesting adequate convergent validity. Relatedly, Bagozzi and Yi (1988) report that the AVE value should be 0.5 or higher for each latent variable. All the constructs included in this study exceeded the recommended level except for ten items, which were therefore excluded from the analysis.

The next step was to assess the discriminant validity, which refers to the extent to which the measures are not a reflection of some other variables. "Discriminant Validity" is another validity method indicated by low correlations between the measure of interest and the measures of other constructs (Ali et al., 2016). Therefore, the discriminant validity was tested in the study. Fornell and Larcker (1981) suggest that the square root of AVE in each latent variable can be used to establish discriminant validity if this value is higher than other correlation values among the latent variables. Discriminant validity is given when the diagonal elements (square root AVE) are greater than the off-diagonal elements in the corresponding rows and columns (Ali et al., 2015). Table 3 shows that the square root of each AVE (shown on the diagonal) is greater than the related inter-construct correlations in the construct correlation matrix, indicating an adequate discriminant validity for all the reflective constructs. As a conclusion, all the measures exhibit satisfactory reliability and validity.

**Table 3.** Fornell-Larcker Discriminant Validity Criteria

Constructs	EC	ETB	PN	PA	EFB	EA	SN
Environmental Concern	0.757						
Environmental Tourism Behavior	0.286	0.795					
Personal Norms	0.321	0.281	0.763				
Place Attachment	0.180	0.493	0.249	0.815			
Environment – Friendly Behavior	0.272	0.607	0.322	0.486	0.732		
Environmental Altruism	0.232	0.552	0.459	0.495	0.527	0.741	
Subjective Norms	0.177	0.473	0.270	0.399	0.375	0.398	0.801

Source: Own Elaboration

In addition, Table 4 presents the heterotrait - monotrait ratio of correlations (Henseler et al., 2015; Henseler et al., 2016), as a better means to assess the discriminant validity. Discriminant validity was tested using this method, and results are shown in Table 5. If the HTMT value is greater than the HTMT value of 0.90, this is a sign of a problem with the discriminant validity. As shown in Table 4, all the values passed the HTMT.90, indicating acceptable levels of discriminant validity.

**Table 4.** HTMT Discriminant Validity Criteria

Constructs	EC	ETB	PN	PA	EFB	EA
Environmental Concern						
Environmental Tourism Behavior	0.393					
Personal Norms	0.439	0.330				
Place Attachment	0.250	0.553	0.281			
Environment – Friendly Behavior	0.370	0.739	0.390	0.565		
Environmental Altruism	0.337	0.695	0.624	0.583	0.699	
Subjective Norms	0.238	0.601	0.339	0.488	0.346	0.520

Source: Own Elaboration

## 4.2 Assessment of the Structural Model

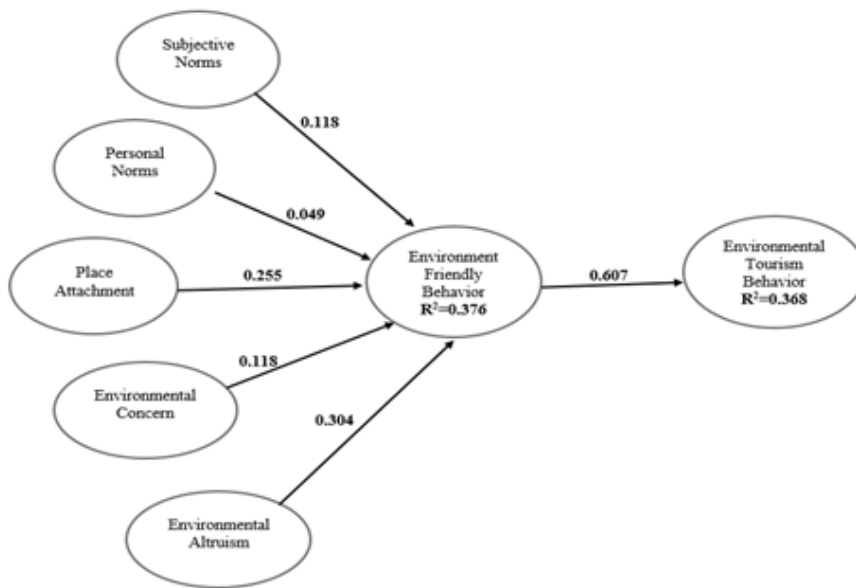
SmartPLS version 3.2.6 was used to test the structural model and the hypotheses. A bootstrapping procedure with 1000 iterations was performed to examine the statistical significance of the weights of the sub-constructs and the path coefficients (Chin et al., 2008). The SEM-PLS approach using SmartPLS software does not provide a traditional assessment of overall model fit as in CB-SEM (Ali et al., 2015). As PLS does not generate overall goodness-of-fit indices,  $R^2$  is the primary process to evaluate the explanatory power of the model (Ali et al., 2016). Therefore, the corrected R-squared of all the constructs were calculated to employ a diagnostic tool to assess the model fit, known as the goodness-of-fit (GoF) index, presented by Tenenhaus et al. (2005). The GoF measure uses the geometric mean of the average communality and the average R-squared (for endogenous constructs). Hoffmann and Brinbrich (2012) report the following cut-off values for assessing the results of the GoF analysis: GoF small = 0.1; GoF medium = 0.25; GoF large = 0.36. For the model used in this study, a GoF value of 0.470 was calculated, indicating a good model fit. However, it is noteworthy that GoF cannot be used as a statistical tool for model validation. Rather, it is a diagnostic tool to indicate how well the collected data fits the proposed model (Henseler & Sarstedt, 2013).

Following the measurement model and goodness of fit (GoF), the hypothesized relationships in the structural model were tested. The results of the hypotheses testing are presented in Fig. 2. The values in the figure show the standardized coefficients and their respective t-values. The corrected  $R^2$  values in Fig. 2 refer to the explanatory power of the predictor variable(s) on the respective construct. Personal norms, place attachment, environmental concern, subjective norms, and environmental altruism explain 37.6% of environment-friendly behavior. Moreover, environment-friendly behavior predicts 36.8% of environmental tourism behavior. Regarding the model validity, Chin et al. (2008) classify the endogenous latent variables as substantial, moderate, or weak, based on the  $R^2$  values of 0.67, 0.33, or 0.19, respectively. Accordingly, environment-friendly behavior ( $R^2=0.376$ ) and environmental tourism behavior ( $R^2=0.368$ ) can be described as moderate.

The results of the structural model and hypotheses testing are presented in Table 5. The bootstrapping procedure indicates that four of the five path coefficients are significant with a confidence interval of 95%. Hypothesis 1 proposed that subjective norms were positively associated with environment-friendly behavior. Therefore, subjective norms had a positive and significant influence on environment-friendly behavior ( $\beta_{SN \rightarrow EFB} = 0.118, p < 0.05$ ). Thus, Hypothesis 1 was supported. For Hypothesis 2, the relationships between personal norms and environment-friendly behavior were not significant ( $\beta_{PN \rightarrow EFB} = 0.049, p > 0.05$ ). Thus, Hypothesis 2 was not supported. Hypothesis 3 proposed that place attachment influenced environment-friendly behavior, thus Hypothesis 3 was supported ( $\beta_{PA \rightarrow EFB} = 0.255, p < 0.01$ ). Hypotheses 4 and 5 proposed that environmental concerns and environmental altruism were positively associated with environment-friendly behavior. The findings indicated that both predictors exerted a positive and significant impact on environment-friendly behavior ( $\beta_{EC \rightarrow EFB} = 0.118, p < 0.05$ ;  $\beta_{EA \rightarrow EFB} = 0.304, p < 0.01$ ). Thus, Hypotheses 4 and 5 were supported. Finally, environment-friendly behavior had a positive and the most significant impact on environmental tourism behavior ( $\beta_{EFB \rightarrow ETB} = 0.607, p < 0.01$ ).

## 5. Conclusion

The study proposed a PLS-SEM model to explore the impact of recreationists' environment friendly behaviors and environmental tourism behavior in the Ida Mountains, a nature-based destination. Based on previous research, the paper tested the relations between personal and subjective norms, environmental concern, place attachment, environmental altruism, environment friendly behavior, and environmental tourism behavior. The results provide both theoretical and practical implications for understanding the determinants of visitor's environment-friendly behavior in everyday life and environmental tourism behavior during tourism activities at nature-based destinations.

**Figure 2.** Model with  $\beta$  for Path Coefficients and  $R^2$  for the Exogenous Constructs

Source: Own Elaboration

Five out of six hypotheses were supported in this study. One of the supported hypotheses is that subjective norms have a significant effect on individuals' environment-friendly behaviors in their everyday lives. It is of utmost importance to note that individuals are influenced by their families and their relatives and act accordingly to solve environmental problems. The findings herein are substantiated by the findings of previous studies having investigated a similar subject (Chan & Lau, 2002; Kim & Han, 2010; Song et al., 2012; Yadav & Pathak, 2017). The study conducted with hotel customers by Kim and Han (2010) has revealed that the levels of visitors' subjective norms could affect their likelihood to exhibit environment-friendly behaviors. Subjective norms were effective in individuals' purchase of an environment-friendly product (Yadav & Pathak, 2017). It is known that the intention of tourists to stay in a hotel with green practices and regulations at the stage of travel planning is influenced by subjective norms (Ting et al., 2019). The studies evidence that there is a relationship between subjective norms and individuals' behaviors. Personal norms can be strong predictors of environment-friendly behaviors but were not observed in this study. Personal norms guide individuals' moral responsibilities through internal values to change such perceptions of ours as good/bad and right/wrong (Schwartz, 1977). Besides, personal norms are influential not only in individuals' everyday behaviors but also in the behaviors they exhibit for the benefit of environment during their tourism-related activities (Mehmetoğlu, 2010). Personal norms affect individuals' behavioral intentions and are effective in determining environmentally friendly travel options (Doran & Larsen, 2016).

In contrast to previous studies (Chen & Chai, 2010; Mehmetoğlu, 2010), this study found that personal norms had no significant effects on environment-friendly behaviors. It can be understood from the responses of the recreationalists that the mean of the expressions was 4.54 or higher. These results showed that individuals take on responsibilities such as warning someone who is damaging the environment (= 4.62), compliance with the law (= 4.64). Moreover, it was revealed that recreationists were willing to protect and preserve the environment (= 4.69) and avoid behaviors damaging the environment in their everyday lives (= 4.54). But the proposed hypothesis was rejected. As indicated in the literature, personal norm attitudes should affect the environmentalist behaviors of individuals. Yet for such a perception to develop, people should come to understand that they threaten the environment (Stern, 2000). Therefore, the rejection of the hypothesis shows that the respondents do not feel the threat. Walking trails in the area are well-known and are constantly visited sites. This seems to have helped keep the sites clean and undamaged. Recreationists' attempts to use different trails and to see different landscapes may lead them to witness environmental pollution. However, it can be asserted that recreationists could not detect the threat and develop a response to it because they did not try different trails.

Place attachment is one of the independent variables most influential in visitors' environment-friendly behaviors. The results of the analyses indicated that place attachment affected environment-friendly behaviors (Hypothesis 3). The results are consistent with the findings of previous studies (Kyle et al., 2003; Budruk et al., 2009; Halpenny, 2010; Brownlee et al., 2014). In the study of visitors to the Point Pelee National Park in Canada, Halpenny (2010) has investigated the ability of place attachment to predict place-specific and general pro-environment behavioral intentions. People with the feeling of attachment originating from the interaction between individuals and spaces are more likely to develop more profound sensitivity toward the environment and tend to exhibit environment-friendly behaviors more frequently. In a study conducted at the Nanling National Forest Park and Dinghu Mountain National Nature Reserve in China, it is reported that place attachment indirectly affects the environmentally responsible behavior intention (Chow et al., 2019). It has been emphasized that different mediating factors such as conservation commitment (Lee et al., 2011), location identity (Vaske & Kobrin, 2001), or satisfaction (Tsai, 2015) should be explained in order to account for the effects on this behavior. Individuals establishing deeper connections with spaces assume some responsibilities pertaining to their environment-related everyday actions in order to prevent the destruction of these sites.

**Table 5.** Model Hypotheses Statistics (Bootstrapping) and Endogenous Constructs Assessment

<b>Path Coefficients and Bootstrapping</b>				
<b>Hypothesis</b>	<b>Original Sample</b>	<b>T Statistics</b>	<b>P-Values</b>	<b>Decision</b>
H1 Subjective Norms → Environment Friendly Behavior	0.118	1.857	0.032	Supported
H2 Personal Norms → Environment Friendly Behavior	0.049	0.692	0.245	Not Supported
H3 Place Attachment → Environment Friendly Behavior	0.225	3.495	0.000	Supported
H4 Environmental Concern → Environment Friendly Behavior	0.118	1.813	0.031	Supported
H5 Environmental Altruism → Environment Friendly Behavior	0.304	3.554	0.000	Supported
H6 Environment Friendly Behavior → Environmental Tourism Behavior	0.607	16.294	0.000	Supported
<b>Endogenous Constructs Assessment</b>			<b>R<sup>2</sup></b>	<b>Adjusted R<sup>2</sup></b>
Environment Friendly Behavior			0.376	0.362
Environmental Tourism Behavior			0.368	0.365

Source: Own Elaboration

The fourth hypothesis that visitor's environmental concern influences environmentally friendly behavior was supported. Even if the environmental concerns of the visitors to the Ida Mountains solely had no substantial effect, it was observed among the variables affecting environment-friendly behaviors. Regardless of the visitors' sources of information on environmental problems, their concerns about environmental damages were found to positively and significantly affect behaviors intended to prevent these problems. This finding is consistent with the findings of other studies on environmental concern regarding this construct as related to environment-friendly behavior (Bamberg, 2003; Mostafa, 2007; Mostafa, 2009; Lee et al., 2014; Dagher et al., 2015). In the study by Lee et al. (2014), environmental concerns are reported to have significant and positive effects on "good" citizenship and green purchase behaviors. Similarly, Dagher et al. (2015) have detected a significant relationship between environmental concern and environmentally friendly behavior.

The fifth hypothesis that visitor's environmental altruism influences environment friendly behavior was supported. Environmental altruism was found to make the greatest contribution to environmentally friendly behavior. Accordingly, it is important that visitors participating in this activity have values concerning and attitudes toward environmental destruction. The results are consistent with the findings of previous studies (Stern, 2000; Larocche et al., 2001; Groot & Steg, 2009). Groot and Steg (2009) emphasize that altruistic considerations and behaviors constitute the basis of environmentally friendly behaviors.



Environment-friendly behavior can explain 36.8% ( $R^2=0.368$ ) of the changes in environmental tourism behaviors. People's perceptions of environment in their everyday lives, awareness of the practices detrimental to the environment, and concerns about it can be observed in their lifestyles and purchasing behaviors (Rodríguez-Oromendía et al., 2013; do Valle et al., 2015). Their everyday behaviors concerning environmental problems suggest that they are likely to exhibit these attitudes and behaviors during their tourism activities for several reasons and prefer environmentally friendly tourism products and practices. The results of Willuweit's (2009) study have revealed that visitors develop eco-friendly behaviors especially after they go to nature-based destinations with ecological resources. This can also be observed at the time of the visit or trip. The authors therefore emphasize that such interactions should increase the frequency of environmental behaviors and prevent damage to the environment. Thus, Hypothesis 6 was supported.

Environment and environmental resources are extremely important for the tourism sector and need to be a priority for state- and privately-run businesses. Individuals are also required to fulfill their responsibilities to eliminate these problems. This issue can only be solved by exhibiting a collective attitude and acting accordingly. If we can encourage people to visit such nature-based destinations in their travel plans and participate in activities at the destinations, they will have the opportunity to experience what is happening in the world they live in. This may increase visitors' sensitivity to the environmental issues. If visitors witness the existing problems, they may adopt an attitude to these problems and act to prevent them. The present study aimed to shed some light on the effects of environmental concerns, subjective norms, personal norms, environmental altruism, and place attachment visitors exhibit during their visits to natural destinations on their environment-friendly behaviors in their everyday lives.

One of the conclusions of the study is that personal norms do not affect environmentally friendly behavior. This result may be due to the fact that recreationists did not experience the trails without a controlled setting. In order to turn the personal norm attitudes into behaviors, individuals must face the threat. The fact that the destinations and the walking trails in this study are always used by the visitors to the site suggests that the environmental damage in these areas can be hidden. Researchers are recommended to consider this fact in their research. They can reveal more evident findings by conducting studies in untouched natural areas that have not undergone a controlled environmental set up. Studies investigating environment-friendly behaviors mainly feature expressions based on the behaviors of individuals in everyday life. But statements about environmentally friendly behaviors of individuals in direct tourism activity were included in view of environmental tourism behavior (Song et al., 2012). The results in this study showed that environmentally friendly behavior accounts for 36% of the variance in environmental tourism behaviors. This result is especially important to examine the environmentally friendly behavior of tourists visiting nature-based destinations.

Padel and Foster (2005) indicated that consumers' environmental concern and knowledge have a positive effect on their consumer behavior. The novel coronavirus pandemic, for example, has made people more sensitive to environmentally responsible behaviors and consumption, which will heighten their support for sustainable development. Results of this study assist in the understanding and identification of the environmental concerns during tourists' visits to natural destinations on their environment-friendly behaviors. This study is a step in the direction of learning more about recreationists who are interested in environmental sustainability. Therefore, findings could be considered as a basis for researchers to gain a greater understanding of reasons for people that emphasized environment friendly behavior and sustainability.

Such research studies can assist tourism managers with producing environment-friendly activities like including tourists in recycling waste applications or improving organic farming lands where tourists participate in farming process and consume products. Also, they may improve nature based sport recreational activity. Tourism managers' adopting sensitive attitudes allows them to make their businesses more environment friendly and more competitive. Researchers are recommended to use expressions concerning environmental tourism behavior and expand the scope of their research into different areas, such as food, travel, vacation, accommodation, and transportation. Understanding the environment-friendly behavior of tourists during their visits to nature-based destinations will assist in the conservation of natural resources. Tourists' taking responsibility to reduce consumption and break consumption habits can mitigate negative environmental impacts. Thus, the attractiveness of nature-based destinations may increase.

Environmental pollution, degradation of ecology, destruction of nature and resource scarcity have become important global problems. Therefore, it is important to increase consumers' environmental concerns. Therefore, developing environmental protection slogans, sharing videos, and publishing environmental protection laws may contribute to increasing consumers' environmental concerns. Topics opened on social media and internet environment to support nature conservation draw attention to protect the environment. Sharing positive experiences and nature-friendly practices in nature-based destinations by recreationists through social media and the internet can also support more people to connect with nature.

The effects of norms, place attachment, environmental concerns and altruism on environmentally friendly tourism behavior and the results obtained about the psychological, social and environmental factors underlying tourists' behavior can contribute theoretically to research in the field of environmental psychology and sustainability in tourism. It can help improve existing theories of human behavior in the context of sustainable tourism or enable the development of new theories.

Findings from this research, understanding how norms influence tourists' behavior, can inform destination management strategies aimed at promoting environmentally friendly practices. Similarly, recognition of the importance of place attachment can guide efforts to strengthen tourists' emotional ties to destinations and encourage a sense of responsibility for environmental protection. Effective communication campaigns or policies can be designed to encourage sustainable tourism behaviors among visitors. It can provide actionable information to stakeholders in the tourism industry, policy makers and destination managers to promote sustainable practices and reduce negative environmental impacts.

The study has some limitations, including the sample size and the selection of the Ida Mountains as the research area. Broadening the scope of the study to cover different sites would improve the generalizability of the findings. Testing the framework in different types of nature-based environments, such as forest areas, natural conservation areas, wildlife areas, lake visits, or bird watching tours could also improve the generalizability of the methodology and results. Moreover, the inclusion of other parameters (environment-related knowledge, environmental awareness, environmentalist consumer, etc.) could broaden the impact of future studies as well as increasing the sample size.

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