

Title	The nexus between environmentally responsible behavior and destination attractiveness : The mediating role of place attachment
Author(s)	Abdulsalam, Marwa; Wirawan, Dony Dahana
Citation	大阪大学経済学. 2023, 73(1), p. 1-15
Version Type	VoR
URL	<a href="https://doi.org/10.18910/91713">https://doi.org/10.18910/91713</a>
rights	
Note	

*Osaka University Knowledge Archive : OUKA*

<https://ir.library.osaka-u.ac.jp/>

Osaka University

# The nexus between environmentally responsible behavior and destination attractiveness: The mediating role of place attachment

Marwa Abdulsalam<sup>†</sup> and Wirawan Dony Dahana<sup>‡</sup>

## Abstract

Tourists' environmentally responsible behavior (ERB) is a critical external factor that influences the attractiveness of tourism destinations. In this study, we propose that the relationship can be the other way around, where destination attractiveness encourages tourists to be involved in ERB. Specifically, we evaluated the causal relationships between destination attractiveness, place attachment, and ERB. Furthermore, we examined how tourists' age and gender moderate these relationships. Based on the extant literature, relationships between the variables were hypothesized and validated using survey data collected from individuals who traveled to Bali Island, Indonesia. These results suggest that destination attractiveness positively affects environmentally responsible behavior, both directly and through the mediation of place attachment. However, this effect differs among male and female tourists. The implications of this study for the development of sustainable tourism destinations are discussed.

JEL Classification: M31, M38

Keywords: tourism, destination attractiveness, place attachment, environmentally responsible behavior

## 1. Introduction

Although tourism is one of the most profitable businesses worldwide, its activities may affect the quality of a destination's environment. Tourists' decisions to visit a place depend on the benefits they receive from visiting it. The attractiveness of a destination is determined by various factors, including its history, culture, and nature (Kuo et al., 2021). Failing to preserve attractive cultural and natural elements can harm tourists' revisit intentions and behaviors. Therefore, it is critical for tourism industry managers to ensure that a site is attractive, rooted in deep historical and cultural artifacts, and environmentally friendly. Another critical factor influencing tourist behavior is place attachment

---

<sup>†</sup> Graduate Student, Graduate School of Economics, Osaka University

<sup>‡</sup> Professor, Graduate School of Economics, Osaka University

(Liu et al., 2021). Place attachment refers to the positive or negative connection between tourists and the places they visit (Lee, 2013). Tourists have a cognitive or emotional attachment to the place they visit, which determines how they behave during the visit. Highly attached tourists tend to develop positive attitudes and affection, portraying responsible behavior toward the destination (Lee, 2013). Consequently, they exhibit environmentally responsible behavior (ERB)—that is, actions directed toward conserving the environment.

Despite increasing interest in the tourism industry worldwide, there is a lack of research on the influence of place attachment and destination attractiveness on the extent to which tourists are willing to engage in environmentally sustainable behavior. Moreover, it is unclear how these relationships vary among tourists with different demographic characteristics.

This study aimed to narrow this gap in the literature. Specifically, we try to identify the relationship between tourists' intention to participate in ERB and destination attractiveness while considering place attachment as a mediating variable. We focused on the behavior of tourists traveling to Bali Island, Indonesia. The Island is one of the most beautiful tourist sites in Indonesia, with hospitality services, volcanic mountains, iconic beaches, golf courses, teeming wildlife, beach sports, and cultural artifacts. It provides critical entertainment and educational centers for tourists, attracting millions of visitors annually, making it an appropriate area for determining the relationship between tourists' ERB and destination attractiveness. The following research questions are addressed in this study:

1. How does the attractiveness of a destination promote ERB among tourists?
2. How is this relationship mediated by tourists' place attachment to destinations?
3. Do age and gender influence the links between destination attractiveness, place attachment, and ERB?

The primary contributions of this study are twofold: First, it deepens our understanding of how destination attractiveness and place attachment increase ERB. These findings are critical for tourist site management teams to boost tourists' intentions to engage in ERB (Kivunja, 2018). Second, it delineates the role of demographic factors (i.e., age and gender) in these relationships. Our findings will be useful for developing an effective segmentation scheme and targeting policy for destination marketing as well as sustainable tourism development.

## **2. Theoretical background and hypotheses**

### *2.1. Environmentally responsible behavior*

ERB is defined as tourist behavior that promotes the substantiality of the environment of a tourist destination. In the tourism industry, there is increasing awareness of ERB owing to global climate change, pollution, and environmental degradation caused by irresponsible human behaviors that harm nature (Kuo et al., 2021). ERB involves activities that can reduce the negative impacts of traveling on the environment and improve visitors' perceptions of being responsible for actions that benefit the environment. Most tourist attractions allow tourists to interact with nature directly; hence, they can be encouraged to engage in ERB during such interactions (Kuo et al., 2021). Encouraging ERB helps tourist sites maintain a better environment that attracts more tourists over the long term.

Responsible behaviors are actualized when an individual is aware of environmentally hazardous materials, factors that lead to environmental degradation, and know-how to minimize environmental degradation and conserve nature (Jahanshahi et al., 2020). People can be environmentally responsible at any level of their engagement with nature (Lee, 2013). The extent to which people engage in ERB depends on their educational level and the information they obtain from the Internet and mainstream media. ERB is a voluntary behavior in which an individual knows the value of the environment and takes responsibility for its maintenance. At the community level, people should ensure that they have good recycling programs, water resource conservation, carbon emissions reduction, green construction, and better disposal of garbage (Lee, 2013). Community members should also adopt tree plantation, water conservation, renewable energy, and environmentally friendly means of transport such as bicycles instead of vehicles that increase carbon emissions (Jahanshahi et al., 2020). At the business level, recycling and reuse should be encouraged. Such activities are critical to conserving the environment to which individuals must be committed.

In the context of tourism, tourists must be motivated toward better environmental behaviors when traveling to a destination. According to the value-attitude-behavior theory, the value of a subject influences attitude, which leads to behaviors (Ajzen, 2012). Therefore, for tourists to conduct ERB, they must first understand the value of a conducive environment and develop a positive attitude toward nature (Fenitra et al., 2022). Therefore, it is critical for marketers to ensure that a site has value for tourists and meets their expectations. When tourists receive value from a tourist site, a positive attitude toward the area develops, eventually giving rise to the intention to take responsibility for conserving the area.

According to the theory of reasoned action, a person behaves in a particular manner because they intend to act that way (Rossmann, 2020). This theory was used to predict the relationship between attitudes and behavioral intentions. This implies that tourist site managers should ensure their tourists have favorable attitudes so that they are motivated to conserve the environment. When satisfied, tourists tend to engage in activities that conserve the environment. Previous studies have suggested that satisfaction promotes tourists' sensitivity toward the environment, which helps shape their ERB (Liu et al., 2021). Satisfaction has also been shown to induce tourists' emotional attachment and positive attitudes toward a tourist site. As responsible tourism benefits the environment through conservation and protection (Liu et al., 2021), marketers should know how to encourage tourists to engage in sustainable activities.

## *2.2. Destination attractiveness*

Destination attractiveness can be regarded as the feelings, beliefs, and opinions of a person toward a destination's perceived ability to offer satisfactory services for their vacation needs. Tourist destinations can provide visitors with different levels of satisfaction. According to Raimkulov et al. (2021), an attraction's primary role is to gain tourist attention so that they can consume more products or services during their visit. Meanwhile, tourism firms try to attract tourists to their locations to explore various attractions and artifacts. The attractiveness of a destination depends on how it can

fulfill the needs of the tourist, offer value to their vacation, and meet their expectations (Raimkulov et al., 2021). In this regard, a destination must have quality infrastructure rich cultural and natural attractiveness, be environmentally friendly, have quality artifacts, and be price-friendly. Tourist satisfaction refers to the psychological state or emotional impact associated with a tourist attraction destination (Raimkulov et al., 2021). However, it is also known that different tourists have different behaviors and levels of satisfaction. Thus, tourist destination managers should ensure that they understand the dynamics of all tourists and build sites with the capability to attract and satisfy all types of tourists. The attractiveness of a destination positively affects tourist satisfaction and increases their loyalty to the site (Reitsamer et al., 2016). They revisit and prioritize the site because of its attractiveness compared to other tourist sites.

As previously discussed, satisfied tourists are likely to exhibit positive behaviors to keep the site attractive because they tend to visit the same place in the future (Raimkulov et al., 2021). Furthermore, they are likely to influence other people to visit the site and show them how to conserve the environment (Reitsamer et al., 2016). Therefore, the attractiveness of a tourist destination is critical to ensure that more tourists revisit the site, enhance their satisfaction, and promote their loyalty, which will ultimately lead to ERB.

**Hypothesis 1.** Destination attractiveness positively influences tourists' ERB.

### *2.3. Place attachment*

Place attachment can be regarded as an emotional affiliation between a place and person. Typically, experience is the main attribute of increased emotional attachment to a place (Kuo et al., 2021). If a person had an incredible experience, they would portray a positive attitude toward that place. However, place attachment is a multidimensional construct that can be based on cause-effect relationships. The first dimension is the person to whom attachment occurs, either individually or at the social group level (Inalhan et al., 2021). As people may have different experiences with the place they visit, the attachment level varies among individuals. The second dimension is the mixture of psychological processes portrayed at the place of a visit, such as behavioral and cognitive aspects (Cross, 2015). When people are in a place to which they have an attachment, they tend to be keener about their behaviors, mainly showing good-quality behaviors. The third dimension entails an object in the place of the attachment that has been created. In this dimension, the visited area has specific characteristics, such as the place's culture or nature, which make it a unique attachment object (Manzo & Devine-Wright, 2018). The historical or environmental nature of a place is a crucial aspect that makes it unique for visitors to form an attachment.

Place attachment creates social bonding and a sense of affection for a place owing to its environmental, social, and physical characteristics. The unique memories provided by the attributes of a place create a sense of identification with the area (Inalhan et al., 2021). Usually, when tourists or individuals affiliate themselves with a specific environment and develop a sense of belonging, it is easier for them to identify with the place and develop an attachment to that environment. Place identity is an affective attachment that provides a sense of belonging to a site because of the emotional

or symbolic importance of the interaction between the individual and the place (Manzo & Devine-Wright, 2018). Place identity refers to the beliefs, emotions, ideas, and attitudes an individual assigns to a place. Another dimension is place dependence, defined as the perceived affiliation power between an individual and a unique place associated with certain qualities compared with other places. According to Alrobaee and Al-Kinani (2019), place dependence is associated with attachment to a site due to the values critical to fulfilling the needs of individuals visiting the site. In summary, place dependence is determined by place quality and its ability to offer a solution or to meet the objective of the tourist (Alrobaee & Al-Kinani, 2019). Another similar concept is place expectation, which is the perceived ability of a place to meet tourists' expectations based on past experiences. A place must offer solutions consistently, be accessible, and allow networking to make it dependable (Alrobaee & Al-Kinani, 2019).

Place attachment helps people to affiliate with a place and creates a positive emotional connection. It has three components: affective, cognitive, and behavioral aspects (Kuo et al., 2021). Affective bonds are emotional connections associated with a place such as love or happiness. Cognition is associated with knowledge, memories, and senses of experience with a place, which are critical in forming people-place bonds (Cross, 2015). Behavior is the manifestation of the above aspects that are induced by the place-people bond. In tourism and leisure, place attachment is useful in explaining tourist behavior during their visits to different places (Kuo et al., 2021). Tourists interact with different artifacts, historical sites, cultures, and environments that provide unique experiences. They exhibit different behaviors depending on the unique memories gathered at the tourist site. Typically, an attractive place induces strong attachment, giving tourists more responsibility to protect the area and conserve its uniqueness. According to Kuo et al. (2021), the degree of emotion toward an area also influences tourists' intentions to preserve the site. For example, tourists may carefully return artifacts or collect and throw garbage in garbage bins. More importantly, place attachment may result in social bonds between visitors and residents in the area. This is because if local people have a good character, tourists who develop a sense of attachment to the place are inclined to form social bonds with those people (Inalhan et al., 2021). Therefore, place attachment leads to interactions that create bonds between people and the place, which makes individuals develop a sense of emotional feelings toward the place; thereby committing to conservatory obligations.

**Hypothesis 2.** Destination attractiveness positively influences tourists' sense of place attachment

**Hypothesis 3.** Place attachment positively influences ERB

#### *2.4. Age and environmentally responsible behaviors*

Age is a factor that affects a person's behavior toward the environment. People of different ages have different attitudes and portray varying degrees of environmental responsibility (Han et al., 2009). Personality traits manifest differently in different age groups. Certain personality traits related to sociability and openness evolve over time, which may affect a person's behavior. For example, young people hold stronger values for adaptability to different social groups, whereas older people are less inclined to adapt to changes in technology or those that pressure their social behavior (Wiernik et al.,

2016). Furthermore, elderly people are not likely to engage in ERB as it often entails the use of new technology and innovations or changes in their social behaviors (Wiernik et al., 2013).

Studies have also suggested that older people have strong values and ethics, leading to environmental conservation behaviors such as proper waste disposal, waste avoidance, and recycling. However, they are unwilling to adopt new environment-conserving inventions and practices because of their increasingly conservative personalities. Contrastingly, the younger population is more receptive to changes and technological innovations that continue to dominate the world (Wiernik et al., 2016). Thus, they are willing to accept the environmental behaviors associated with recent innovations that conserve the environment. Young people hold a stronger attitude toward environmental change when they become aware of the benefits of environmental conservation or the dangers of the contrary. They are highly involved because they want to live in a clean environment and are responsible for conserving it.

However, despite the increased awareness of environmental conservation, some people still do not change their destructive behaviors. This is greatly affected by their attitudes toward the environment and the level of place attachment. At a younger age, people may have a strong attitude toward a place or tourist destination. Thus, they are willing to conserve the place and revisit it in the future. Younger people feel that they play a role in protecting the place they are attached to and maintaining a conducive environment so that they can enjoy the place for a longer period (Sun et al., 2020). For these people, place attachment is high, sparking positive attitudes toward preserving the place because of its value. However, as people age, place attachment may decrease and they may behave less responsibly (Sun et al., 2020). This may be because older people feel that they may not live long, thereby reducing their likelihood of engaging in ERB.

### *2.5. Gender and environmentally responsible behavior*

Gender is a critical determinant of pro-environmental behavior. Both men and women have different attitudes toward environmental issues and different degrees of place attachment. Ecofeminism argues that women are more active than men in protecting the environment. Furthermore, women are more social, caring, cooperative, and helpful than men (Sakellari & Skanavis, 2013). Thus, women are more inclined and enthusiastic about social bonds with nature, portraying a higher level of ERB than men. Moreover, women are more sensitive to the environment than males because of their psychological characteristics. Specifically, they engage more in green travel and water conservation and reduce waste production through proper disposal.

Additionally, women have a higher place attachment than men, making them more environmentally responsible than men (Kaya, 2015). Furthermore, the emotions and feelings associated with various recreational sites make women conserve their environment, making them friendlier, and maintaining a good image (Kaya, 2015). In contrast, men do not typically have strong bonds to places, develop less emotional attachment, and exhibit fewer ERB tendencies.

**Hypothesis 4.** Age and gender moderate the relationship between destination attractiveness, place attachment, and ERB.

Figure 1 illustrates the conceptual model of the empirical relationships examined in this study. In the following section, we describe the data and methods used to validate the hypothesized relationships.

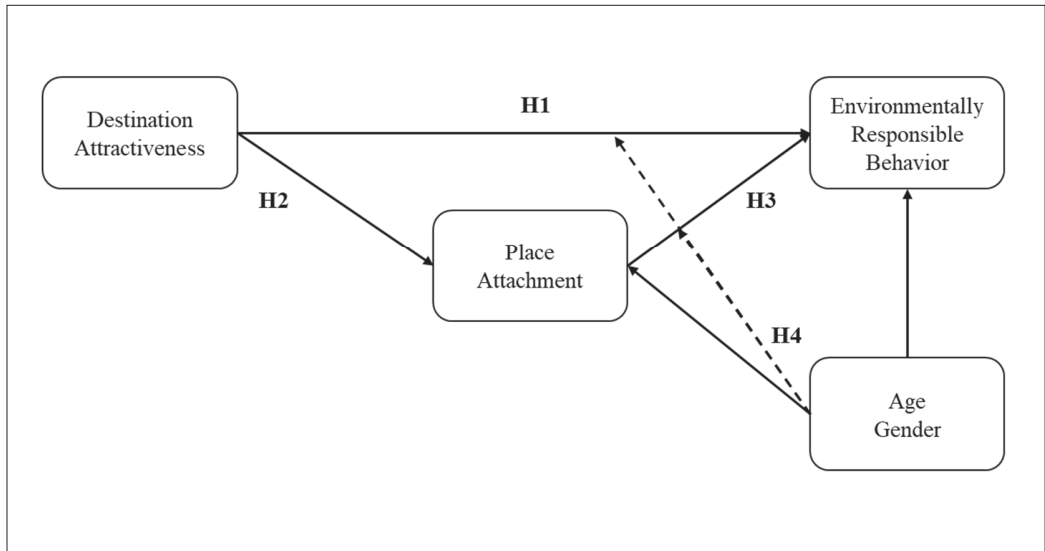


Figure 1. Conceptual model of this study

### 3. Method

#### 3.1 Data description

To empirically validate the relationship among destination attractiveness, place attachment, and ERB, we collected data through an online survey. An online survey company recruited respondents with travel experiences to Bali Island, Indonesia. During the survey, we asked respondents to provide information regarding their gender, age, monthly household income, and visiting frequency. They were also asked to answer questions regarding their reasons for visiting the island, their level of place attachment, and the ERB they undertook while visiting the island. A total of 800 questionnaires were distributed to the respondents, 750 of which were valid for analysis. The final sample consisted of 450 women (60%) and 300 men (40%). Approximately 70 percent of the respondents took three or more trips. Additionally, most respondents earn more than \$ 2000 monthly.

Figure 2 shows the distribution of the respondents' ages for men and women. As can be seen from the figure, respondents in the age group of 40–49 years were 42 and 43 for the female and male groups, respectively. These numbers are the highest scores among all other age groups in the sample of the same gender.



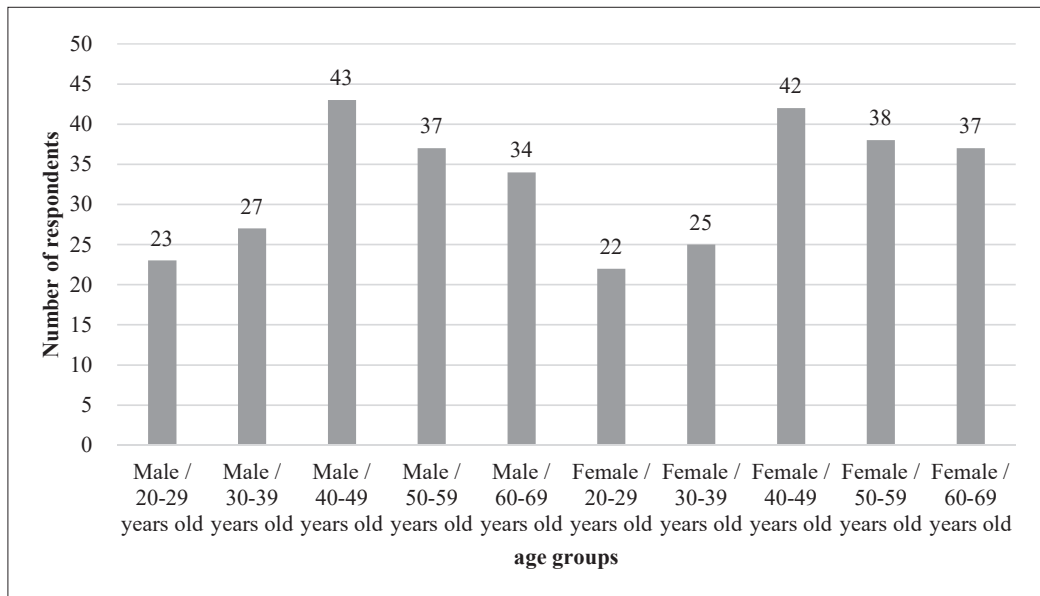


Figure 2. Distribution of respondents' ages by gender

3.2 Variable measurement

This study aimed to measure and understand the nature of emotional feelings between tourists (especially returning tourists) and the Bali island. Over one million tourists visit the island annually, with most returning tourists having high place attachment. As previously mentioned, 70 percent of the respondents traveled back three times. We anticipate that these tourists would have more concern for the island because of its attractiveness, develop a greater emotional connection, and be willing to protect it by demonstrating ERB. The primary construct measured was the number of return visits to the island owing to the emotional connection that fulfilled their expectations and the extent of responsible environmental behavior. Using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), we asked respondents to state their level of place attachment, the perceived attractiveness of the place, and their willingness to engage in ERB while on site.

3.3 Model estimation

As depicted in the conceptual model, the dependent variables were destination attractiveness and place attachment, and the independent variable was ERB. We used partial least squares path modeling (PLS-PM), a method that allows the estimation of complex cause-effect relationships with an underlying variable on a path model (Sarstedt et al., 2017). The model is predictive, explanatory, and critical for providing consistent estimations of the hypotheses. We used the SmartPLS version 4.0.8.4 in the STATA software to advance the study because of its reliability and validity. Table 1 presents the basic statistics of the standardized variables.

**Table 1. Basic statistics of the standardized variables**

	Mean	Median	min	max	SD
<b>Age</b>	0.000	-0.173	-1.685	1.339	1.000
<b>Destination Attractiveness</b>	0.000	0.081	-3.660	2.285	1.000
<b>ERB</b>	0.000	-0.073	-2.857	2.350	1.000
<b>Gender (Male)</b>	0.500	1.000	0.000	1.000	0.500
<b>Place Attachment</b>	0.000	-0.089	-2.580	2.403	1.000

## 4. Results

### 4.1. Measurement model

First, we used confirmatory factor analysis to check the reliability and validity of the constructs (i.e., destination attractiveness, place attachment, and ERB) in the measurement model. We evaluated the reliability of separate items, internal consistency among items, and the model's convergent and discriminant validity. The table below shows Cronbach's alphas, composite reliabilities, and average variance extracted for the three variables. The Cronbach's alphas are greater than .70, implying good internal consistency (Kline, 2000). Moreover, the composite reliabilities of the constructs range from 0.84 to 0.92, passing the recommended minimum value of 0.7 (Hair et al., 2016; Nunnally & Bernstein, 1994). In addition, the average variance extracted for all measures was greater than the threshold of 0.50 (Fornell & Larcker, 1981), indicating satisfactory reliability.

**Table 2. Measurement reliability and validity indicators**

	Cronbach's alpha	Composite reliability	Composite reliability	Average variance extracted (AVE)
Destination attractiveness	0.841	0.849	0.882	0.559
ERB	0.936	0.937	0.948	0.723
Place attachment	0.901	0.921	0.926	0.679

We report the factor loadings of all the measurement items in Table 3. Except for items q3\_5 and q1\_6, we confirmed that the standardized factor loadings of all items were greater than the recommended 0.60 level and are statistically significant, suggesting that each item converged to the intended construct (Bagozzi & Yi, 1988).

**Table 3. Factor loadings of the measurement items**

Items	Factor loadings
q1_1 <- Destination_Attractiveness	0.808
q1_2 <- Destination_Attractiveness	0.818
q1_3 <- Destination_Attractiveness	0.693
q1_4 <- Destination_Attractiveness	0.754
q1_5 <- Destination_Attractiveness	0.810
q1_6 <- Destination_Attractiveness	0.571
q2_1 <- Environmentally_Responsible Behaviour	0.799
q2_2 <- Environmentally_Responsible Behaviour	0.832
q2_3 <- Environmentally_Responsible Behaviour	0.849
q2_4 <- Environmentally_Responsible Behaviour	0.879
q2_5 <- Environmentally_Responsible Behaviour	0.876
q2_6 <- Environmentally_Responsible Behaviour	0.873
q2_7 <- Environmentally_Responsible Behaviour	0.840
q3_1 <- Place Attachment	0.872
q3_2 <- Place Attachment	0.884
q3_3 <- Place Attachment	0.904
q3_4 <- Place Attachment	0.911
q3_5 <- Place Attachment	0.597
q3_6 <- Place Attachment	0.728

*4.2. Correlations*

Table 4 lists the correlation coefficients between variables. The correlation between age and destination attractiveness is 0.017, indicating a weak positive association between the two variables. In contrast, age was negatively correlated with ERB, gender (Male), and place attachment. Furthermore, destination attractiveness had a positive correlation with all four variables, and its correlations with ERB and place attachment were 0.517 and 0.461, respectively.

As expected, ERB was positively correlated with destination attractiveness and place attachment. Moderate and strong correlations were observed between these variables ( 0.517 and 0.687, respectively). As for gender, the variable is positively correlated with the three constructs. Finally, the correlations between place attachment and destination attractiveness and between place attachment and ERB were 0.461 and 0.687, respectively, indicating a positive association between the variables.

**Table 4. Correlation coefficients**

	(1)	(2)	(3)	(4)	(5)
(1) Age	1.000	0.017	-0.121	-0.025	-0.091
(2) Destination attractiveness	0.017	1.000	0.517	0.083	0.461
(3) ERB	-0.121	0.517	1.000	0.069	0.687
(4) Gender (Male)	-0.025	0.083	0.069	1.000	0.148
(5) Place attachment	-0.091	0.461	0.687	0.148	1.000

#### 4.3. Evaluation of the structural model

We evaluated the accuracy of our model using (adjusted) R-square. The Adjusted R-squared value represents the number of independent variables employed to predict the target variable. This method allows researchers to determine whether data variability can be explained using the model. The criteria for evaluation of a model based on the  $R^2$  values are suggested by Henseler et al. (2009) and Hair et al. (2012). In particular, the  $R^2$  value of 0.75 is regarded as substantial, 0.50 is conceived as moderate, 0.26 is seen as weak, and less than 0.25 is considered very weak. Additionally, Falk and Miller (1992) recommended that  $R^2$  values must be equal to or greater than 0.10 for the variance explained by a specific endogenous construct to be viewed as adequate. The adjusted R-squares of our model are shown in Table 5, indicating a moderate goodness of fit.

**Table 5. Goodness of fit**

Dependent variable	R-square	R-square adjusted
ERB	0.533	0.524
Place Attachment	0.246	0.235

#### 4.4. Path coefficients and hypotheses testing

Table 6 presents the estimation results of the model coefficients. The effect of destination attractiveness on ERB is positive and significant ( $\gamma = 0.268, p < 0.01$ ). Thus, we confirmed that the extent to which a destination is perceived as attractive motivates tourists to engage in ERB, supporting Hypothesis 1. Similarly, destination attractiveness positively affects place attachment ( $\gamma = 0.354, p < 0.01$ ), indicating that the attractiveness of a destination induces an emotional bond between tourists and the place. This result supports Hypothesis 2. Furthermore, we found that place attachment significantly positively affected ERB, as expected. Thus, an emotional bond with a place can motivate tourists to participate in preserving the value of the place, thus supporting Hypothesis 3.

Next, we examined the moderating effects of age and gender. The effect of destination attractiveness on place attachment does not appear to be influenced by the age of tourists ( $\gamma = -0.078, p = 0.426$ ). In contrast, the same effect appears to vary between men and women, where the magnitude of the coefficient is larger for the former than the latter ( $\gamma = 0.157, p < 0.01$ ). This result is different from our expectations. Furthermore, the effect of place attachment on ERB does not seem to be influenced by age as the coefficient is not significant ( $\gamma = 0.043, p = 0.581$ ). The moderating effect of gender on this relationship is also not significant ( $\gamma = -0.053, p = 0.329$ ). Thus, among the moderating effects examined, only gender had a significant effect on the relationship between destination attractiveness and ERB, providing partial support for Hypothesis 4.

Lastly, for the effect of control variables, we observed that age does not seem to affect place attachment ( $\gamma = -0.089, p = 0.298$ ) and ERB ( $\gamma = -0.076, p = 0.404$ ), suggesting that either place attachment or ERB is not directly affected by a tourist's age. Similarly, tourists' engagement in ERB is not affected by their gender ( $\gamma = -0.074, p = 0.305$ ). However, we found that gender directly affects place attachment ( $\gamma = 0.206, p < 0.01$ ), suggesting that men are more likely than women to develop

place attachment, which is inconsistent with previous studies.

**Table 6. Estimates of path coefficients**

	Path coefficients	<i>p</i> -value
Destination_Attractiveness -> ERB	0.268	0.000
Destination_Attractiveness -> Place Attachment	0.354	0.000
Place Attachment -> ERB	0.600	0.000
Age x Destination_Attractiveness -> Place Attachment	-0.078	0.426
Age x Place Attachment -> ERB	0.043	0.581
Gender (Male) x Destination_Attractiveness -> Place Attachment	0.157	0.000
Gender (Male) x Place Attachment -> ERB	-0.053	0.329
Age -> ERB	-0.076	0.404
Age -> Place Attachment	-0.089	0.298
Gender (Male) -> ERB	-0.074	0.305
Gender (Male) -> Place Attachment	0.206	0.000

### 5. Discussion and implications

Local governments and tourism firms endeavor to improve the attractiveness of tourist sites to attract people to visit them. An increase in the number of tourists visiting a site is expected to boost the revenue of tourism firms and contribute to the economic development of the local area. Although these consequences have been pointed out in previous studies, the relationship between destination attractiveness and tourists’ ERB remains unknown. In this regard, this study provides the novel finding that the attractiveness of a tourist site can motivate visitors to participate in keeping the place attractive. This means that an attempt to increase the attractiveness of a destination will not only result in economic benefits but also sustainable development of the tourist site. The latter consequence has a long-term impact on the preservation of a destination, strengthening tourists’ loyalty toward the destination.

It is also important to note that place attachment plays a mediating role in the nexus between destination attractiveness and ERB. This implies that destination attractiveness affects ERB directly and indirectly. Our findings suggest that the indirect effect occurs because destination attractiveness gives rise to emotional bonds between tourists and the destination, eventually leading to increased intention to engage in ERB. These results provide a better understanding of the mechanism by which destination attractiveness induces ERB engagement.

The results regarding the effects of demographic variables are intriguing because we anticipated that people’s intentions to engage in ERB would vary depending on age and gender. However, the results reveal that neither variable influences the extent to which tourists are willing to participate in preserving their destination. We argue that this finding may be limited to our data; therefore, external validation using data from different tourist sites is required. Although the direct effects of age and gender were not significant, we found that the effect of destination attractiveness on ERB depended on gender, where men were more inclined to engage in ERB than women when perceiving a destination

as attractive. Although the result is somewhat counterintuitive, it suggests that local governments or tourism firms should consider this heterogeneity when developing approaches to encourage tourists to engage in ERB.

## 6. Limitations and future research direction

Although this study contributes to the existing literature, it has several limitations. First, we only used data collected from people who visited Bali Island. Therefore, further examination using data from different tourist sites is required to validate the robustness of these findings. Second, although we considered demographic variables as moderators, the results were only partially supported. We argue that it is also important to examine the role of psychographic variables, such as a sense of belonging and self-actualization, in governing the relationships examined in this study. Third, and more importantly, our study does not include decision variables such as government policies and marketing activities. Undoubtedly, it is critical to understand how tourist behavior is influenced by such policies and activities, and how tourist responses interact with destination attractiveness and place attachment. Future research can address this issue by combining survey data with actual data on marketing activities and government policies.

## References

- Afshar Jahanshahi, A., Maghsoudi, T., & Shafiqhi, N. (2020). Employees' environmentally responsible behavior: the critical role of environmental justice perception. *Sustainability: Science, Practice and Policy*, 17(1), 1-14.
- Ajzen, I. (2012). Values, Attitudes, and Behavior. *Methods, Theories, and Empirical Applications in the Social Sciences*, 33-38.
- Alrobaee, T. R., & Al-Kinani, A. S. (2019). Place dependence is the physical environment's role function in the place attachment. *IOP Conference Series: Materials Science and Engineering*, 698, 033014.
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74-94.
- Cross, J. E. (2015). Processes of Place Attachment: An Interactional Framework. *Symbolic Interaction*, 38(4), 493-520.
- Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling*. University of Akron Press.
- Fornell, C., & Larcker, D.F., (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50
- Fenitra, R. M., Premananto, G. C., Sedera, R. M. H., Abbas, A., & Laila, N. (2022). Environmentally responsible behavior and Knowledge-Belief-Norm in the tourism context: The moderating role of types of destinations. *International Journal of Geoheritage and Parks*, 10(2), 273-288
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Thousand Oaks: Sage.
- Hair, J. F., Sarstedt, M., Pieper, T. M., & Ringle, C. M. (2012). The use of partial least squares

- structural equation modeling in strategic management research: a review of past practices and recommendations for future applications. *Long Range Planning*, 45(5-6), 320-340.
- Han, H., Hsu, L.-T. (Jane), & Lee, J.-S. (2009). Empirical investigation of the roles of attitudes toward green behaviors, overall image, gender, and age in hotel customers' eco-friendly decision-making process. *International Journal of Hospitality Management*, 28(4), 519-528.
- Henseler, J., Ringle, C.M., & Sinkovics, R. R. (2009). The Use of Partial Least Squares Path Modeling in International Marketing. *Advances in International Marketing*, 20, 277-319.
- Inalhan, G., Yang, E., & Weber, C. (2021). Place attachment theory. *A Handbook of Theories on Designing Alignment between People and the Office Environment*.
- Kaya, S. (2015). Relationship between place attachment and event satisfaction: a study on university students. *Journal of Sport and Social Sciences*, 2(2).
- Kivunja, C. (2018). Distinguishing between Theory, Theoretical Framework, and Conceptual Framework: A Systematic Review of Lessons from the Field. *International Journal of Higher Education*, 7(6), 44-53.
- Kline, P. (2000). *The handbook of psychological testing*. 2nd ed. London: Routledge.
- Kuo, H.-M., Su, J.-Y., Wang, C.-H., Kiatsakared, P., & Chen, K.-Y. (2021). Place Attachment and Environmentally Responsible Behavior: The Mediating Role of Destination Psychological Ownership. *Sustainability*, 13(12), 6809.
- Lee, T. H. (2013). Environmentally Responsible Behavior of Nature-Based Tourists: Related Concepts, Measurement, and Research. *Journal of Tourism & Hospitality*, 02(02).
- Liu, Y., Qu, Z., Meng, Z., & Kou, Y. (2021). Environmentally responsible behavior of residents in tourist destinations: the mediating role of psychological ownership. *Journal of Sustainable Tourism*, 1-17. <https://doi.org/10.1080/09669582.2021.1891238>
- Manzo, L. C., & Devine-Wright, P. (2018). Place Attachment. *Environmental Psychology*, 135-143.
- Nunnally, B., and Bernstein, I. R. (1994). *Psychometric theory*. Oxford university: Oxford, UK.
- Raimkulov, M., Juraturgunov, H., & Ahn, Y. (2021). Destination Attractiveness and Memorable Travel Experiences in Silk Road Tourism in Uzbekistan. *Sustainability*, 13(4), 2252.
- Reitsamer, B. F., Brunner-Sperdin, A., & Stokburger-Sauer, N. E. (2016). Destination attractiveness and destination attachment: The mediating role of tourists' attitude. *Tourism Management Perspectives*, 19, 93-101.
- Rossmann, C. (2020). Theories of Reasoned Action and Planned Behavior. *The International Encyclopedia of Media Psychology*, 1-14.
- Sakellari, M., & Skanavis, C. (2013). Environmental Behavior and Gender: An Emerging Area of Concern for Environmental Education Research. *Applied Environmental Education & Communication*, 12(2), 77-87.
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2017). Partial Least Squares Structural Equation Modeling. *Handbook of Market Research*, 1-40.
- Sun, Y., Fang, Y., Yung, E. H. K., Chao, T.-Y. S., & Chan, E. H. W. (2020). Investigating the links between environment and older people's place attachment in densely populated urban areas.

*Landscape and Urban Planning*, 203, 103897.

Wiernik, B. M., Dilchert, S., & Ones, D. S. (2016). Age and Employee Green Behaviors: A Meta-Analysis. *Frontiers in Psychology*, 7:194.

Wiernik, B., S. Ones, D., & Dilchert, S. (2013). Age and environmental sustainability: a meta-analysis. *Journal of Managerial Psychology*, 28(7/8), 826-856.