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Article

The Impacts of Place Attachment on Environmentally Responsible Behavioral Intention and Satisfaction of Chinese Nature-Based Tourists

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Abstract: Increasing visits to protected areas in China have drawn public attention on the negative impacts on ecologically sensitive areas. Understanding potential determinants of the environmentally responsible behavioral intention of nature-based tourists has become a common focus in tourism studies. Scholars seek to explore potential determinants of visitors' behavior, and the findings can be referenced by the managers of protected areas to formulate visitor management strategies. On the basis of a sample of 402 questionnaires collected in protected areas in South China, namely, Nanling National Forest Park and Dinghu Mountain National Nature Reserve, we explore the association between visitors' place attachment and their satisfaction and environmentally responsible behavioral intention. The results show that place dependence and place identity are positively correlated with the satisfaction and environmentally responsible behavioral intention of visitors; thus, our results differ from those of previous studies on Western visitors. The lack of significant results regarding place social bonding revealed the shortcomings associated with visitor management in China's protected areas. Chinese culture has a great influence on various findings in this study. All of the findings provide significant insights for management and policy-making regarding protected areas worldwide to accommodate the rising number of nature-based visitors to China.

Keywords: place attachment; environmentally responsible behavioral intention; satisfaction; nature-based tourism; Chinese tourists; South China

1. Introduction

As a niche tourism market, nature-based tourism has been examined extensively in the literature of recent decades. Nature-based tourism occurs in natural settings, where tourists travel to enjoy natural environments and wildlife [1–3]. Protected areas are popular destinations for nature-based tourists [4]. While nature-based tourism has been regarded as a useful tool for pursuing sustainable development and has been recommended by the World Tourism Organization, conflicts between nature conservation and tourism development have drawn researchers' attention. The negative impacts generated by nature-based tourists, such as trampling, littering, and disturbance to wildlife, have been reported by a number of scholars [5–7]. In China, the negative impacts generated by nature-based tourism are becoming major concerns [8,9].

To protect its biodiversity, China has established more than 2000 natural reserves or national parks, among which 428 are national nature reserves, covering approximately 9.7% of the nation's area [10]. Because of the increased number of protected areas and the booming economy, the number of nature-based tourists in China has also rapidly increased. The rapid growth in the number of Chinese nature-based tourists has drawn the attention of both protected area managers and nature-based tourism operators. An increasing number of studies have focused on the roles of institutions and governance of nature-based destinations in China [11–14], the services provided by nature-based destinations [15], and the environmental and visitor management in protected areas [16]. However, limited number of studies have addressed environmental attitudes and behavior among Chinese nature-based tourists.

To reduce the negative impacts generated by nature-based tourism and to facilitate the contribution of tourism to the conservation of protected areas, understanding the environmentally responsible behavioral intention (ERBI) of nature-based tourists is essential [17]. A great number of studies have been devoted to understanding the environmental attitudes and behavior of nature-based tourists, but the majority of these studies were carried out in Western countries such as the United States of America [18], the United Kingdom [19], and Australia [20,21]. While some studies have shed light on the environmental attitudes of nature-based tourists in the greater China region, such as in Taiwan [22], Hong Kong [23–25], and mainland China [13,26–29], very few studies have focused on the ERBI among Chinese nature-based tourists [30,31].

Some scholars have pointed out that the notions and modes of consumption of pristine nature revealed in Western studies may not fit in other contexts [32,33]. The traditional culture of China may cause Chinese nature-based tourists to hold different notions and to exhibit behaviors that differ from those of their Western counterparts. Therefore, a more in-depth understanding of the demographic characteristics of Chinese nature-based tourists, particularly the factors that affect their ERBI, is essential for reducing tourists' negative environmental impacts and achieving the goal of sustainable development in China.

2. Literature Background

Empirical studies of nature-based tourism have shown that pro-environmental behavior among tourists is influenced by several factors, including their environmental attitudes [34,35], place attachment [36], conservation commitment [37], nature-based experiences [38], environmental education [39], and social capital [40]. While the role of place attachment in nature-based settings has caught researchers' attention, research on this role is insufficient because the findings on the relationships between place attachment and pro-environmental behavior are inconclusive and sometimes contradictory [41–45]. As a multidimensional concept, place attachment is composed of place dependence, place identity, place affect, and place social bonding [36,46–48]. While each dimension has different influences on environmental behavior [41,49,50], most previous studies have focused on only two or three dimensions, mainly place dependence, place identity, and place affect, to investigate their relationships with pro-environmental behavior. As an important component of human-place interaction, place social bonding needs to be further researched in nature-based settings [51,52]. Only recently have researchers begun to integrate the above four sub-dimensions of place attachment into a single framework to analyze their relationships and impacts on pro-environmental behavior [49,53,54].

In previous research, place attachment has also been found to be positively linked to tourists' satisfaction with a place. The study of Yuksel et al. [55] showed that place identity and place affect directly and significantly influence tourists' satisfaction with a place. In the research of Hwang et al. [56] on Taiwanese national parks, tourists' place dependence and place identity, as sub-constructs of place attachment, were positively and indirectly related to interpretation satisfaction. Prayag and Ryan [57] also found a positive relationship between place attachment (with place dependence and place identity as sub-dimensions) and tourists' overall satisfaction in their study of Mauritius. However, as an important sub-dimension of place attachment, place social bonding and its influences on place satisfaction have seldom been investigated in the literature [49].

Some empirical studies have also shed light on the link between place attachment and tourists' pro-environmental intentions and behavior. The results show that place attachment is important in explaining pro-environmental intentions and behavior in different contexts and settings. For example, the study of Vaske and Kobrin [46] indicated that place attachment was an antecedent to general pro-environmental behavior. As early place theorists suggested, the experience of a place leads to attachment, which may further lead to place-specific stewardship behavior [58,59]. More researchers have focused on place-specific pro-environmental intention and behavior. In community studies, researchers have observed that residents' pro-environmental behavioral intentions and their place-protective behavior were significantly affected by place attachment [50,60]. Some studies have been conducted in nature-based settings. Studies of tourists in Canadian national parks have indicated that place attachment helped predict place-related pro-environmental behavior [36,61]. Lee's study [62] of the wetlands in Taiwan showed that the likelihood of environmentally responsible behavior among tourists increased as the level of place attachment raised. The studies of Ramkissoon et al. [53,54] on national parks in Australia suggested that the four constructs of place attachment were significantly associated with place satisfaction.

While tourist satisfaction has long been an important and popular research topic among scholars, only recently have scholars begun to focus on the relationship between satisfaction and behavioral intentions. Some researchers have explored the link between tourists' satisfaction and destination loyalty [55,63], and others have investigated the relationship between satisfaction and behavioral intentions among heritage tourists [64] or rural tourists [65,66]. Previous studies have suggested that residents' place satisfaction is an important determinant of their pro-environmental behavior or behavioral intentions [50,67]. However, only a small number of studies have been conducted in nature-based settings to examine the influences of tourists' satisfaction on their pro-environmental behavior or behavioral intentions [30,34]. The studies of Halpenny [68] and Ramkissoon et al. [53,54] appear to be the only works that investigate the relationship between tourists' place satisfaction and their pro-environmental behavioral intentions.

Based on the literature reviewed above, we would like to explore the determinants of tourists' ERBI, particularly the ways in which place attachment plays a role in predicting the ERBI of Chinese nature-based tourists.

To answer our research questions, questionnaire surveys were administered in two national forest nature reserves in South China, namely, Dinghu Mountain National Nature Reserve and Nanling National Forest Park. The findings of our study may shed light on the current literature on nature-based tourism, enhancing our theoretical understanding of the behavioral intention of nature-based visitors who, if behaving inappropriately, may be a major source of negative impact on the invaluable natural environment. The empirical results of our study may also serve as an essential reference for protected area managers to understand the behavior of Chinese visitors. This information can be useful to formulate appropriate visitor management strategies to safeguard the natural environment.

3. Methodology

3.1. Research Instrument

Two national nature reserves in Guangdong Province, Dinghu Mountain National Nature Reserve and Nanling National Forest Park, were selected as research sites for the questionnaire survey (Figure 1). Dinghu Mountain National Nature Reserve was the first natural reserve in China and is a UNESCO International Man and Biosphere Reserve [69]. Nanling National Forest Park was established to preserve the largest old-growth forest of Guangdong, China [70]. The two protected areas may well-represent the protected areas in China due to their historical and ecological importance.

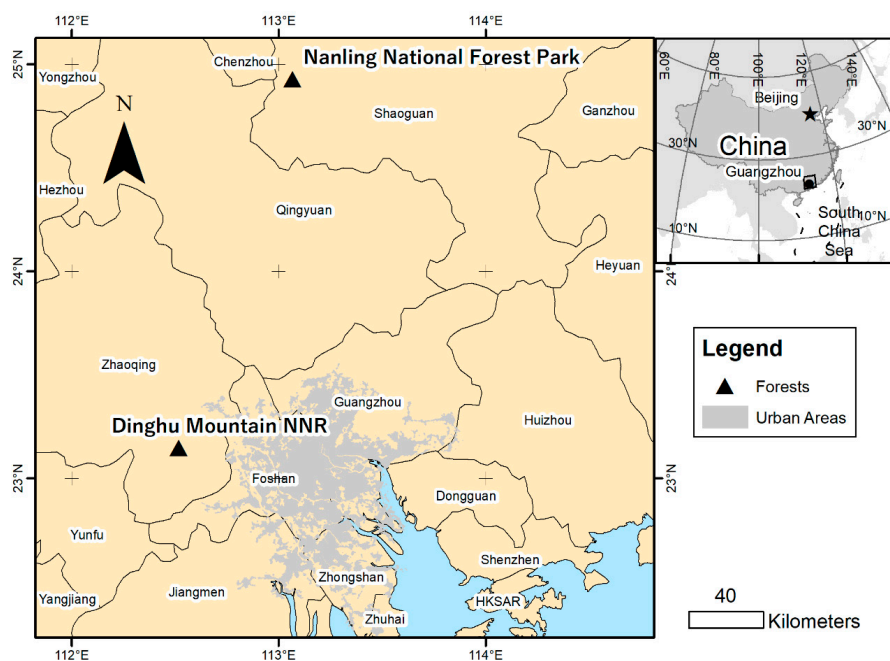


Figure 1. Locations of Nanling National Forest Park and Dinghu Mountain National Nature Reserve.

A four-part questionnaire was designed to investigate the place attachment of nature-based tourists, their satisfaction with the destinations, their ERBI in the destinations, and their socio-demographic status. The first part of the questionnaire addressed four aspects of place attachment, namely, place dependence, place identity, place affect, and place social bonding. All question items were designed based on the substantial literature review [46,49,53,54,56,71] and were slightly modified to make them suitable for the local context. The second part included eight questions concerning tourists' level of satisfaction with their trips in the forest protected areas with regard to different aspects, including biodiversity richness, scenery, facilities, and educational information. The questions in the third part were designed based on the framework proposed by the Department for the Environment, Food and Rural Affairs (DEFRA) of the United Kingdom and the Guidelines for Tourism in Parks and Protected Areas of East Asia (Eagles, Bowman, and Tao, 2001) to investigate the ERBI of nature-based tourists. A five-point Likert scale ranging from "strongly agree" (score = 5) to "strongly disagree" (score = 1), which is commonly used in tourism studies [71,72], was adopted in the first three parts of the questionnaire. The last part of the questionnaire was designed to collect socio-demographic information from the respondents.

3.2. Data Collection and Analysis

The questionnaire survey was conducted between September 2015 and February 2016 by the authors and five undergraduate students who were trained and supervised, as autumn and winter are the most favorable seasons for nature-based activities in southern China. The surveys were conducted during the daytime on both weekdays and weekends during the survey period. Visitors in the two aforementioned forest protected areas were randomly selected to participate in the survey on a voluntary basis. Convenient sampling was adopted. Surveyors invited respondents at resting sites within the parks, such as pavilions and shelters. The survey was conducted face to face, and all respondents were over the age of 18 and were local Chinese visitors. Explanations were provided to the respondents upon request. In general, it took 10 to 15 minutes for the respondents to complete the questionnaire. After completion, a gift was given to the respondents as a token of appreciation. A total of 500 questionnaires were distributed to tourists in the Nanling National Forest Park and Dinghu Mountain National Nature Reserve (250 questionnaires for each site), and a total of 402 questionnaires were collected. The response rate was 80.4%.

All questionnaire survey data were analyzed using SPSS 22.0 to calculate Cronbach's alpha and generate descriptive statistics. A regression test was used to explore the associations between different composite variables and to validate the set hypotheses.

4. Results

4.1. Socio-Demographic Characteristics of the Respondents

The socio-economic characteristics are summarized in Table 1. Of the 402 respondents who completed the survey, 182 were male (45.3%), and 220 were female (54.7%). The majority of respondents were under the age of 35 (30.3% were between 18 and 24, and 27.6% were between 25 and 34), showing that nature-based tourism is popular among younger generations in China. Only 16 respondents (3.9%) were aged 55 or older. The profile of the respondents suggests that nature-based tourists in China are relatively younger, which is consistent with other studies in the greater China region, such as the research of Tao et al. [22] in Taiwan and Cheung and Fok [23] in Hong Kong. Additionally, this profile contrasts with Western studies revealing that nature-based tourists were generally older [73]. Regarding the educational level of the respondents, the majority of them (61.9%) had obtained a post-secondary or undergraduate education, and 3.7% of the respondents had an educational level of post-graduate or above. In terms of work status, 71.9% of the respondents were employed, only 4.2% were unemployed, and 4.2% were retired. A total of 27.8% of the respondents had a monthly salary of RMB 5501 or above, followed by 23.1% who had a monthly salary of RMB 1000 or below. This finding is consistent with the respondents' work status, as 23.9% were students or unemployed.

Table 1. Demographic characteristics of respondents.

	N	%		N	%
Gender			Monthly salary (RMB)		
Male	182	45.3	1000 or below	93	23.1
Female	220	54.7	1001–2500	52	12.9
			2501–4000	84	20.9
Age groups			4001–5500	61	15.2
18–24	122	30.3	5501 or above	112	27.8
25–34	111	27.6			
35–44	95	23.6	Education level		
45–54	58	14.4	Primary school or below	5	1.2
55–64	15	3.7	Junior high school	41	10.2
65 or above	1	0.2	Senior high school	92	22.9
			Post-secondary education	249	61.9
Work Status			Post-graduate or above	15	3.7
Students	79	19.7			
Unemployed	17	4.2			
Employed	289	71.9			
Retired	17	4.2			
Total respondents				402	100.0

4.2. Descriptive Statistics

The descriptive results of the constructs and variables are presented in Table 2. Cronbach's alphas for place dependence, place social bonding, place affect, and place identity were 0.738, 0.576, 0.701, and 0.720, respectively. The alpha values for place satisfaction and ERBI were 0.710 and 0.790, respectively, indicating good internal consistency and suitability for all the constructs in further statistical analysis.

Table 2. Place attachment (PA) of the local residents.

Statements	%					Mean	Standard Deviation	Cronbach's Alpha
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree			
<i>Place dependence</i>						4.09		0.74
PA1. This forest park is important for me to escape from the daily life routine.	29.2	41.0	10.7	15.9	2.7	3.79	1.114	
PA9. This forest park is important for me to release the pressure from my work or daily life through visiting forest park.	52.2	37.8	5.5	3.0	1.5	4.36	0.837	
PA11. This forest park is important for me to refresh my physical state.	37.8	35.8	13.7	10.4	2.2	3.97	1.066	
PA13. This forest park is important for me to get close to nature.	62.7	32.1	3.2	0.2	1.7	4.54	0.734	
PA14. This forest park is important for me to refresh my mental state.	56.0	34.8	5.2	2.2	1.7	4.41	0.832	
PA15. This forest park is important for me to participate in recreational activities.	42.5	34.6	14.2	6.7	2.0	4.09	1.005	
PA16. This forest park is important for me to provide tourism facilities for my visit.	22.1	32.8	17.9	21.9	5.2	3.45	1.202	
<i>Place social bonding</i>						3.79		0.58
PA6. This forest park is important for me to meet people with similar interests and hobbies.	36.1	30.6	19.9	11.4	2.0	3.87	1.088	
PA10. My friends and family tell me to visit this park.	28.6	31.1	13.4	21.1	5.7	3.56	1.26	
PA12. I would like to talk about my trip after I return home.	32.3	41.8	15.4	10.4	3.2	3.93	1.027	
<i>Place affect</i>						4.05		0.70
PA4. I can be free to act the way I feel in this forest park.	44.3	38.6	8.7	7.2	1.2	4.17	0.950	
PA5. I can find thrills and excitement in this forest park.	22.1	33.8	25.1	16.4	2.5	3.57	1.081	
PA7. I can have fun in this forest park.	50.2	38.8	7.5	2.5	1.0	4.35	0.804	
PA19. This forest park means a lot to me.	22.6	43.0	23.6	9.0	1.7	3.76	0.96	

Table 2. Cont.

Statements	%					Mean	Standard Deviation	Cronbach's Alpha
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree			
PA22. I love the natural scenery of this forest park.	44.3	46.8	6.5	2.2	2.0	4.33	0.717	
PA24. I have a pleasant experience in this forest park.	36.6	46.6	12.4	3.2	1.2	4.14	0.85	
<i>Place identity</i>						3.81		0.72
PA20. I feel that I have a strong connection with this region through visiting the forest park.	24.6	43.8	22.4	6.0	3.2	3.81	0.98	
PA21. Visiting this forest park makes me feel proud of the valuable resources that our country possessed.	37.8	42.8	12.7	4.2	2.5	4.09	0.94	
PA23. Visiting this forest park allows me to learn more about myself.	22.1	39.1	30.6	6.0	2.2	3.73	0.947	
PA25. Visiting this forest park reminds me where I come from.	28.6	31.8	16.7	16.4	6.5	3.60	1.24	

Note: 1 represent strongly disagree to 5 strongly agree.

4.2.1. Place Attachment

The mean scores for the variables concerning place dependence (PA1, PA9, PA11, PA13 to PA16), place social bonding (PA6, PA10 & PA12), place affect (PA4, PA5, PA7, PA19, PA22 & PA24), and place identity (PA20, PA21, PA23 & PA25) were 4.09, 3.79, 4.05, and 3.81, respectively. These results indicate that the respondents in both destinations perceived a high level of place attachment, particularly place dependence and place affect, showing that they valued the protected areas mostly for the specific purposes they served and that they had affection for the places.

4.2.2. Place Satisfaction

Regarding place satisfaction, the respondents in both protected areas were satisfied with the destinations. The variables concerning place satisfaction (S1 to S8) ranged from 3.44 to 4.35 out of 5, and the overall mean was 3.81 (Table 3). The results suggested that the respondents were most satisfied with the beautiful scenery and landscape of the destinations, followed by the diverse species of flora and fauna.

4.2.3. Environmentally Responsible Behavioral Intention

In terms of ERBI, high levels of ERBI and willingness to protect the environment were observed among the respondents, with a mean score of 4.20 out of 5. The scores for ERBI1 to ERBI13 ranged from 3.72 to 4.63 (Table 4). Respondents were most willing to obey laws and regulations, not to dig up and collect rocks or parts of trees, and pack out their own garbage.

4.3. Associations between Place Attachment and Satisfaction and Environmentally Responsible Behavior Intention

Multiple regression tests were carried out to investigate the place attachment–place satisfaction and place attachment–ERBI associations. Regarding the correlation between the four constructs of place attachment and satisfaction, place dependence ($p < 0.005$) and place identity ($p < 0.005$) were found to be significantly correlated with place satisfaction, as shown in Table 5.

The results from the same table showed that place dependence, place affect, and place identity were positively correlated with ERBI at the 0.05 significance level.

A linear regression test was performed to demonstrate the relationship of place satisfaction and ERBI. A strongly significant ($p < 0.001$) positive relationship was found, showing that more satisfied respondents possess a relatively greater level of ERBI (Table 6). This result is consistent with a number of previous studies [31,34,53,54,68] on the satisfaction–ERBI relationship.

Table 3. Visitors' overall satisfaction on national forest parks.

Statements	%					Mean	Standard Deviation	Cronbach's Alpha
	Strongly Satisfied	Satisfied	Neutral	Unsatisfied	Strongly Unsatisfied			
S1. Diverse species of flora and fauna	36.8	48.0	9.0	5.0	1.2	4.14	0.866	0.71
S2. Beautiful scenery and landscape	47.8	44.8	3.7	1.7	2.0	4.35	0.804	
S3. Convenience of public transport	21.4	42.3	17.4	15.4	3.5	3.63	1.087	
S4. Tourism management of the forest park	21.4	40.5	21.4	13.4	3.2	3.63	1.061	
S5. Sufficient security facilities (e.g., parapet, warning signs)	25.4	44.5	15.2	11.4	3.2	3.90	2.717	
S6. Sufficient tourism facilities (e.g., tables and benches, car park, toilets, signposts)	21.2	47.5	13.9	14.7	2.7	3.70	1.046	
S7. Sufficient educational information about biological species	16.7	37.6	22.6	19.7	3.5	3.44	1.089	
S8. Integrated conservation strategy	22.6	41.5	20.1	13.7	2.0	3.69	1.030	
Overall						3.81		

Note: 1 represent strongly unsatisfied to 5 strongly satisfied.

Table 4. Environmentally responsible behavioral intention (ERBI) of the forest park visitors.

Statements	%					Mean	Standard Deviation	Cronbach's Alpha
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree			
Environmentally responsible behavioral intention								
ERBI1. I pick up plants or fruit in the forest park ^R .	5.3	13.0	16.8	34.5	30.5	3.72	1.179	
ERBI2. I try to keep a certain distance with animals and their habitats, and avoid disturbing their lives.	44.9	41.6	7.5	3.5	2.5	4.23	0.92	
ERBI3. I do not take away and rock, fossil or mineral.	48.8	32.8	11.2	4.7	2.5	4.21	0.99	
ERBI4. During the visit, I have obeyed all related laws and regulations.	70.4	25.6	2.2	0.0	1.7	4.63	0.70	
ERBI5. I will interfere if I observe some bad or unethical behavior which could harm the environment.	31.3	30.8	33.3	1.7	2.7	3.86	0.97	0.79
ERBI6. I will not dig up, collect rocks and part of the trees at this park.	69.4	25.6	2.0	0.5	2.5	4.59	0.78	
ERBI7. I stay on marked paths designated by the park and do not enter restricted areas.	63.6	27.2	4.2	1.5	3.5	4.46	0.92	
ERBI8. My travelling companions or myself smokes in the park ^R .	8.7	12.4	12.2	18.9	47.8	3.85	1.36	
ERBI9. I learn how to behave properly in protected areas from travelling companions or from the park guideline.	45.8	38.3	11.2	3.0	1.7	4.23	0.89	

Table 4. Cont.

Statements	%					Mean	Standard Deviation	Cronbach's Alpha
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree			
ERBI10. I try to use public transport whenever possible.	36.6	31.8	17.4	8.5	5.7	3.85	1.17	
ERBI11. I bring all garbage with myself from the park.	64.7	28.1	5.0	0.7	1.5	4.54	0.76	
ERBI12. I try to lower my voice during the trip.	52.2	36.3	9.2	1.0	1.2	4.37	0.79	
ERBI13. I intend to revisit this forest park again.	40.3	30.8	23.6	2.2	3.0	4.03	1.00	
Overall						4.20		

Note: 1 represent strongly disagree to 5 strongly agree.

Table 5. Multiple regression analysis of place attachment, satisfaction, and environmentally responsible behavioral intention.

	Environmentally Responsible Behavioral Intention			Satisfaction		
	Standardized Coefficient	Standard Error	Significance	Standardized Coefficient	Standard Error	Significance
(Constant)		0.172	0.000		0.275	0.000
Place dependence	0.194	0.05	0.001 ***	0.212	0.081	0.001 ***
Place social bonding	0.000	0.034	0.999	−0.006	0.540	0.912
Place affect	0.202	0.058	0.002 **	0.129	0.094	0.051
Place identity	0.199	0.040	0.001 ***	0.210	0.064	0.001 ***
R ²	0.261			0.219		
Adj. R ²	0.253			0.211		
F statistic	34.99			27.88		
Standard error	0.448			0.717657		

*** Significance at 0.001 level, ** Significance at 0.01 level.

Table 6. Linear regression analysis of satisfaction and environmentally responsible behavioral intention.

	Standardized Coefficient	Standard Error	Significance
(Constant)		0.116	0.000
Satisfaction	0.372	0.03	0.000 ***
R2	0.139		
Adj. R2	0.137		
F statistic	64.427		
Standard error	0.48188		

Dependent variable: Environmentally responsible behavioral intention. *** Significance at 0.001 level.

5. Discussion

Among the four constructs of place attachment, place dependence, and place identity were positively correlated with place satisfaction. This relationship between place dependence and satisfaction has been documented in various studies [53,55–57]. Additionally, it has been suggested that Chinese tourists embrace a unique culture of placing heavy emphasis on the function and utility of travel destinations [74]. Therefore, this result is not surprising, as this construct concerns the physical and recreational elements of place attachment, which precisely complemented the Chinese visitors' expectations and wishes. Place dependence scored the highest (4.09) among the four sub-constructs, showing that it was greatly valued. Place dependence denotes the uniqueness of a place [75] and the quality of a place relative to other alternative destinations [36,76]. The above evidence may imply that compared to the urban environments, which are severely degraded and polluted, forest parks and reserves are among the few remaining pristine environments and are crucial for fulfilling the desire of people to come into contact with nature, leading to a satisfying experience.

Place dependence has been argued to be conative in nature, and refers to the extrinsic function of a place to satisfy the desire of a person, thus forming a functional attachment [77]. The study of Qu, Xu and Lyu [77] on the environmental behavior of mass tourists showed that people with vested extrinsic benefits and functions are unwilling to change. This unwillingness motivates them to preserve the environment to avoid alterations on what they are used to. A few other studies have pointed out that place dependence could trigger protective behavior of people to prevent the deterioration of a place to guarantee future enjoyment [36,50,60]. The positive correlation between place dependence and ERBI would therefore be consistent with the suggestion of protective behavior by the above studies. However, the results of a few Western studies [47,53,78] indicated that place dependence was not a significant predictor of ERBI.

The differences between Chinese and Western tourists may also be observed in the construct of place identity. Through interactions with nature, people may develop a sense of belonging and connectedness to nature and establish an environmental identity [79]. This environmental identity should theoretically be universal to both the Chinese and Westerners. The environment, as interpreted by the Chinese, refers not only the nature but a place with great cultural relevance and significance [80]. The cultural meaning or implications of places are usually originated from different works of classical literature, historical stories, figures, or traditions related to the place. For instance, Nanling National Forest Park has been the background of and been praised in various poems, including a couple written by the well-known Chairman Mao [81]. These cultural meanings often remind people of their Chinese identity, as they indicate a common history and ancestry. Patriotic education on nationalism has been carried out over decades by the government of the People's Republic of China to strengthen the sense of identity of people as Chinese [82]. The cultural relevance of the environment could thus enhance the national identity of people. Compared to the mean scores (3.22–3.70) of place identity for their Western counterparts [54,83,84], a higher mean score for Chinese visitors (3.81) was observed. This result may further confirm that the Chinese tourists' strong cultural and political relevance of the environment

have enhanced the environmental identity of Chinese tourists. While phenomenon was not observed in Western tourists which marked the difference between the two groups of tourists.

Place identity has been investigated and shown to form a positive attitude that can lead to increasing concern and motivate behavior [36]. Furthermore, Devine-Wright [85] indicated that alterations in the attached-place may induce an “identity threat” phenomenon, where negative changes on a place that serve as identity threats (e.g., pollution) would motivate people to take actions to prevent changes, which eventually helps to defend their identity. These motivations would explain the result of a positive correlation between place identity and ERBI in this study.

Place attachment and ERBI have been repeatedly suggested to be indirectly related, with different factors mediating the relationship, such as conservation commitment [62], place identity [46,84], or satisfaction [86]. Ramkissoon, Weiler and Smith [49] suggested in their model that satisfaction is the moderator between attachment and environmentally responsible behavior. In contrast, the present study discovered a direct correlation between place dependence, affect and identity, and ERBI. This result is particularly apparent in the correlation of place affect with satisfaction and ERBI, as place affect was positively correlated only with ERBI but not with satisfaction. The influence of the identity and functionality aspects of Chinese cultures on place identity and dependence may induce a strong motivation for and direct impacts on ERBI. Additional to the environmental, cultural and historical values, forest park as a place, may be a representation of a home and an important part of China to the Chinese. The concept of the integrity of “nation, home and family” is one of the most important central values in Chinese culture [87]. The place attachment of visitors could extend beyond the attachment to the park itself, to attachment to the country and the visitors’ home, which explains the strong tendency to protect the place, leading to the direct correlation between place attachment and ERBI.

This study attempted to apply the framework of Ramkissoon, Weiler and Smith [49], [53,54] and structured place attachment as four constructs to include the rarely mentioned construct of place social bonding. In contrast to the result of Ramkissoon, Smith and Weiler [53], [54], no significant result regarding place social bonding was obtained in any of the regression tests. As place social bonding captures one’s social bonds with others who are also associated with the place [88], this finding may imply that protected areas in China do not facilitate social interactions and bond formation. Some prior studies may provide clues regarding this finding. Kyle, Graefe, Manning and Bacon [88] studied hikers in the USA and discovered that activity involvement could positively determine the place social bonding of visitors; Kyle, Mowen and Tarrant [47] suggested that the visitors of an urban park could be motivated to develop social bonds through engagement in leisure-related activities; and Raymond, Brown and Weber [51] reported that being in a smaller and closer community could better facilitate social bonding among people. The protected areas in China have been criticized for being overly touristic and for emphasizing solely on tourism infrastructure and attraction development [89]. This implies that visitors lack the opportunities to engage in leisure activities and interact with each other in the protected areas in China.

The findings of the current study have presented the unique characteristics of Chinese tourists as reflected by their place attachment to protected areas. However, such characteristics of Chinese tourists may indicate that the Western approach of accommodating tourists in protected areas may not be totally applicable for protected areas in China. The cultural relevance of the nature as perceived by Chinese may imply a need to place more attention on the preservation of cultural heritages within the protected areas, which is not as heavily emphasized in protected area management usually. To better facilitate social interactions, Pretty and Smith [90] suggested that a collective management program that involves local communities could enhance the place social bonding of people, as such a program would promote collective responsibility for the area and social interactions. Management authorities in China should consider the inclusion of local communities in the management of protected areas. The local community may also play a crucial role in representing and conserving the local and traditional cultures. At the same time, more experiential activities that facilitate social interactions for tourists could be designed, for example, volunteering programs, eco-tours, and educational activities, and they

could be coordinated by the locals. Ultimately, these implications and suggestions would help to build a more sustainable tourism industry in protected areas of China.

6. Conclusions

This study explored the correlations between place attachment, satisfaction, and ERBI and discussed the relevance of Western studies and models to Chinese visitors. The findings revealed the differences between Chinese and Western visitors in terms of place identity and the correlation of place attachment with ERBI. This study demonstrated the rarely explored relationship of place satisfaction and ERBI in nature settings, particularly in the greater China region. Chinese culture was shown to substantially influence the various findings regarding Chinese visitors in this study. Our findings not only offer a theoretical contribution to nature-based tourism research, but also provide great insights into management and policy-making regarding protected areas to address the massive number of forest park visitors.

Further studies may collect data from and investigate the visitors of protected areas across different regions of China. Doing so may provide a more comprehensive and representative sample of Chinese nature-based visitors than the sample in this study which focused on southern China.

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