International Tourist's Perspective of Environmentally Responsibility Behaviour

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Abstract
This study aims to determine the factors forming an intended general and site-specific environmentally responsible behavior intention (ERBI) and actual environmentally responsible behavior (ERB). The proposed conceptual framework of this study was drawn from the knowledge-belief-norm (KBN) Model. Using a convenient sampling technique, a survey of 560 international tourists in Bali was conducted. The data were analysed following Anderson and Gerbing's two-step approaches to confirmatory factor analysis (CFA) and Structural Equation Modeling (SEM). The results of Structural Equation Modeling (SEM) demonstrate that beliefs are critical in enriching personal norms and lead to a strong intention toward both general and site-specific ERBI. Further, the findings emphasize the positive influence of intended site-specific and general ERB on actual ERB. Specifically, Ascribed responsibility has a strong influence on personal norms. The influence of personal norms on specific ERBI was the strongest. However, among the thirteen proposed hypotheses, only the impact of biospheric value on awareness of consequences was not supported. These results can guide effective strategies and policy-making processes relevant to environmental protection in tourism destinations. Also, it would be a valuable asset for tourism destination managers in reducing tourist's footprint. This study is one of the few studies using the Knowledge Belief Norm Model to explore this issue in the context of international tourists in Bali. Besides this work's theoretical and practical contribution, this also provides a limitation that provides suggestions for future study.

1. Introduction

Generally, tourism serves as a major pillar supporting the welfare of the local community of Bali. It contributes over 61% to the local GDP of the island, and more than 70% of the population relies on tourism-related activities for their income every year (East Ventures, 2020). Recently, Bali has experienced remarkable growth in tourism, with a steady increase, however, it poses significant environmental threats and alerts the natural ecosystems (Haerulloh et al., 2020). Bali Island is renowned as one of Indonesia's most visited tourist destinations with diverse tourist destinations, including beaches, historical temples, volcanic mountains, and national parks (Antara et al., 2017; Asean.org, 2023). Consequently, the consistent increasing demand for tourism has led to various negative environmental consequences in many ways (Streimikiene, 2023) due to environmentally irresponsible behaviour and practices (Rosalina et al., 2023). In this regard, sustainable tourism practices are very crucial since they minimize the negative environmental impacts of tourism activities (Matijová et al., 2023). Thus, promoting environmentally responsible behaviour (ERB) among tourists is crucial for mitigating environmental deterioration (Sahri et al., 2020). Furthermore, to minimize the detrimental environmental effects in tourism destinations, it is crucial to understand tourists' environmentally responsible behavioural intentions (ERBI). It also provides insights into tourists' intentions and behaviours, effective strategies that can be developed to encourage environmentally responsible practices (Xu et al., 2023).

Some empirical evidences have identified several factors that influence and form ERBI (Mondal et al., 2021; Maminirina et al., 2022). Tourism research have framed this subject into the theory of planned behaviour (Chen et al., 2020), Normative action model (Luo et al., 2020). Some studies also merged and integrated these theories to better understand the problem (Liu et al., 2019; Maminirina et al., 2023). However, empirical-based findings in international tourism context particularly in Bali is scarce, also there is lack study investigate the ERB in distinguished the types of ERB and the impact on actual ERB (Wang et al., 2022). Despite the effort of various scholars, implemented and tested the value and norm driven model in various context, the direct relationship between the construct of the model is still questionable (Xiong et al., 2023) and the intention-behaviour gap have been rarely addressed (Viglia et al., 2023). Moreover, though scholars have validated the knowledge belief norm model in tourism context, Maminirina et al. (2022) encouraged the replication of the model in different context to broaden the existing knowledge in this topic and also to show the changes in behaviour over period.

First, within the context of ERB, tourism research has put various definitions for ERB, encompassing both site-specific ERB such as littering, recycling, and water conservation a general ERB which refers to comply with conservation and environmental protection (Lee et al., 2015). Thus, the present study aims to provide an insight of the formation of both general and site-specific ERB simultaneously (Lee et al., 2013; Gupta et al., 2022). Second, although tourism research on ERB has experienced growth over the years, the majority of studies have been conducted in specific countries such as China, South Korea, and Taiwan (Mondal et al., 2021). There is a scarcity of studies focusing on this issue within the context of Indonesia (Maminirina et al., 2023). Thus, this work aims to enrich the existing body of knowledge with evidence from Indonesia. Finally, to fill the intention-behaviour gap in this context, our work examines the link between intended and actual environmentally responsible behaviour. The objectives of the present study are determining the factors that form an intended both general and site-specific ERB and its influence on actual ERB. This study is drawn from the knowledge-belief-norm (KBN) model to establish empirical evidence from Bali, Indonesia. It also aims to advance and affirm the applicability and implications of the Knowledge-Belief-Norm theory in tourism research specifically in the international tourism context to expand the knowledge evidence of Maminirina et al. (2022)

2. Literature review

Environmentally responsible behaviour (ERB) refers to an individual's or group's commitment and engagement in taking specific actions to minimize their environmental footprint (Maminirina et al., 2022). ERB is categorized into two types; general ERB, including environmental conservation and protection, and site-specific ERB, such as preventing littering, water conservation, and recycling (Zhang et al., 2019; Chen et al., 2020). In this context, we investigate ERBI, which refers to "a person's judgment or the perceived subjective probability of engaging in a specific behaviour and reflects the willingness of the person to engage in that behaviour" (Wang et al., 2019). Shen et al. (2021) argued that intention best predict actual behaviour. General ERB include Civil action, Legal action, and Physical action (Lee et al., 2013). Site-specific ERB refers to water conservation, litter reduction, recycling, and any action that mitigate footprint when visiting a specific destination (Gupta et al., 2022). This work examining the formation of general and site-specific ERB concurrently (Wang et al., 2022). By doing so, this endeavour seeks to shed light on and enhance the existing knowledge in the context of international tourism.

2.1 Knowledge-Belief-Norm Theory

The Knowledge-Belief-Norm (KBN) framework focused on explaining norm-driven behaviour and its relation to environmental practices and issues. According to the KBN theory, one's actions are driven by personal norms (Ünal et al., 2018), which is shape by ascribed responsibility, awareness of consequences, environmental concern, biospheric value, and knowledge (Maminirina et al., 2022). Biospheric value refers to the extent to which individuals care about the environment (Lee et al., 2021). Environmental knowledge, on the other hand, refers to "individuals' ability to recognize or comprehend various symbols, concepts, issues, problems, and behaviours related to ecology" (Kim, et al., 2017). Environmental concern, also known as the new environmental paradigm, refers to the level of concern an individual has regarding environmental problems (Stern, 2000). Awareness of the consequences reflects the degree of individuals' consciousness about the impact of their actions (Denley et al., 2020; Wu et al., 2022), while ascription of responsibility refers to the belief that one's behaviours can influence valued objects and that mitigating those influences is within one's control (Stern, 2000). Personal norm is considered the best predictor of intentional behaviour and is defined as the moral obligation individuals feel to take responsibility for the outcomes of their actions and decisions (Maminirina et al., 2022).

2.2 Biospheric value

Schwartz (1992) claim that values are deeply rooted in emotion-driven beliefs that inspire individuals to act and pursue their desired aims and life goals. Numerous empirical studies have identified both direct and indirect effects of biospheric value on intended behaviour. For example, Bouman et al. (2018) found that values can shape individuals' behaviour and motivate them to engage in specific environmental behaviours. Bouman et al.'s findings highlight the strong relationship between biospheric value and environmental concern, showing that biospheric value can increase an individual's concern about environmental problems such as climate change. Similarly, Ünal et al. (2018) suggested that values influence beliefs and have a direct impact on problem awareness. Consistently, Wang et al. (2021) supported these prior studies by demonstrating that personal biospheric values significantly influence environmental concern. Thus, it asserts that increasing biospheric value can enhance individuals' awareness and concern about environmental issues.

Hypothesis 1. Biospheric values have a positive effect on environmental concern
Hypothesis 2. Biospheric values have a positive effect on Awareness of consequences

2.3 Environmental knowledge

Environmental knowledge is a cognitive aspect that serves as an external factor shaping beliefs and influencing the affective aspect (Darvishmotevali et al., 2023). Wang et al. (2023a) argued that knowledge provides people with guidance, enabling them to make effective decisions to prevent and reduce potential sources of these problems. Saari et al. (2021) established that knowledge have both a direct and indirect influence on pro-environmental behaviour. Prior evidences have consistently highlighted and validated the connection between environmental knowledge, environmental concern, and awareness in various contexts and settings. Fang et al. (2018) conducted an empirical comparative study involving 420 Taiwanese and Chinese university students, and the results demonstrated that students with high environmental literacy are more likely to engage in pro-environmental behaviour. Similarly, Liobikienė et al. (2019) emphasized the significance of environmental knowledge in informing ERBI. Their findings revealed that a greater understanding of the ecosystem contributes to individuals' concern for the global ecological perspective and fosters behaviour aimed at minimizing the impact of their activities. Furthermore, Saari et al. (2021) recently indicated that environmental knowledge has a direct influence on behavioural intentions. Based on the aforementioned arguments and evidence, it can be concluded that higher levels of environmental knowledge among individuals are associated with greater concern and aware with environmental problems.

Hypothesis 3. Environmental knowledge has a positive effect on environmental concern
Hypothesis 4. Environmental knowledge has a positive effect on Awareness of consequences

2.4 Environmental concern

Scholars have recognized the significance of environmental concern in relation to various types of ERB (Schönherr, 2023). Researchers debate that this construct reflects the individuals' perception of environmental problems, they demonstrated the significance of environmental concern in shaping awareness of consequences and influencing intention behaviour (Maminirina et al., 2023). Zhang et al. (2024) found ecological vision's positive and significant effect on awareness of consequences. Similarly, Han (2020) confirmed that an ecological worldview positively influences awareness of consequences. Furthermore, in a study on sustainable consumption, Saari et al. (2021) emphasized the influence of environmental concerns on behavioural intentions. Additionally, in the Malaysian Context, Ibrahim et al. (2021) investigated the impact of environmental concerns on anti-littering intentions. Therefore, this work argues that greater environmental concern among tourists is associated with higher levels of environmental awareness. Furthermore, higher levels of environmental concern are linked to a greater intention towards ERBI.

Hypothesis 5. Environmental concern has a positive effect on awareness of consequences
Hypothesis 6. Environmental concern has a positive effect on the site-specific ERBI
Hypothesis 7. Environmental concern has a positive effect on the general ERBI

2.5 Awareness of consequences

Awareness of consequences implies that individuals consider environmental protection and conservation when taking a particular action. To address the issue of littering in Sorkhehesar National Park in Iran, Esfandiar et al. (2020) surveyed 220 visitors to investigate the factors influencing ERB. The findings emphasize the significance of enhancing visitors' sense of responsibility for protecting the destination's environment. Further, highlighted the importance of cultivating a strong awareness among visitors about the consequences of their behaviour, in fostering a sense of responsibility. Han (2020)

indicated that individuals are more likely to engage in sustainable consumption choices when they have a higher awareness of the consequences of their actions. Similarly, Confente et al. (2020) found that awareness of negative consequences is the strongest predictor of the ascription of responsibility. These findings have been consistently validated in various countries (Yayla et al., 2021; Tusl et al., 2020). Collectively, these evidences demonstrate that the ascription of responsibility is influenced by several factors, including awareness and environmental concern. Consequently, this study suggests that higher levels of awareness can lead to a stronger ascription of responsibility. In other words, individuals who have a greater concern for the environment are more aware of the consequences of their actions and are more likely to take responsibility for them.

Hypothesis 8. Awareness of consequences has a positive effect on the ascription of responsibility

2.6 Ascription of responsibility

Landon et al. (2018) defines it as an internal belief reflecting the extent of an individual's commitment and accountability to their actions, decisions, and behaviours. This concept has been extensively studied and conceptualized in research pertaining to pro-environmental behaviour. Scholars have noted the predictive nature of the ascription of responsibility on personal norms. In a study on environmentally responsible cruise products, Han et al. (2019a) confirmed that the ascription of responsibility activates personal norms. Subsequently, Han (2020) further validated the relationship between the ascription of responsibility and personal norms in the context of a green hotel. Consistently, Denley et al. (2020) assert that that individuals who feel responsible for reducing the environmental impact of their travel also experience a moral obligation to take action. Moreover, this linear relationship has been validated in various contexts of pro-environmental (Wang et al., 2021). Therefore, this study suggests that a higher ascription of responsibility can increase personal norms.

Hypothesis 9. Ascription of responsibility has a positive effect on the personal norm.

2.7 Personal norm

In this context, a personal norm refers to an individual's commitment to engage in ways that mitigate negative environmental impact, driven by a moral sense of obligation. Numerous empirical studies have consistently shown a strong association between personal norms and intention to engage in pro-environmental behaviour. For instance, Zhang et al., (2024) supported the link between personal norms and intention based on data collected from 339 National Park visitors. Additionally, Ünal et al. (2018) suggested that personal norms have a significant influence on intention toward eco-driving. The relationship between personal norms and intention has also been validated in the tourism context. likewise, Xu et al. (2019) supported the hypothesis in the context of China. Furthermore, this link was supported in different contexts and settings, including pro-environmental behaviour of tourists (Landon et al., 2018), green consumption on a cruise (Han et al., 2019b), waste management in a national park (Esfandiar et al., 2020), and eco-friendly travel. In short, the existing body of evidence consistently establishes that personal norms are strong predictors of intention to engage in pro-environmental behaviour. Strong personal norms regarding the minimization of environmental problems contribute to a higher intention to participate in ERB.

Hypothesis 10. Personal norms have a significant positive effect on site-specific ERBI
Hypothesis 11. Personal norms have a significant positive effect on general ERBI

2.8 Ascription of responsibility

In the prior studies, the intention-behaviour gap was often overlooked. However, it has been widely recommended to investigate this relationship. For example, in a recent study, Gancar et al. (2023) acknowledged the importance of actual environmentally responsible behaviour. However, the study did not emphasise its formation. Despite that, Lee and Jan (2015) examine the actual ERB in the context of natural-based tourism in Taiwan and demonstrate how actual ERB is directly formed by various external factors. Likewise, King-Chan et al. (2021) shows how value, attitude, and knowledge form actual behaviour. according to Ajzen (1991) and followed by several studies, intended behaviour have a direct influence on actual behaviour. Therefore, in this study, we assume that intended specific-site and general ERB determine actual behaviour. Consequently, this study proposes the following hypothesis.

Hypothesis 12. Site-specific ERBI have a significant positive effect on Actual ERB
Hypothesis 13. General ERBI have a significant positive effect on Actual ERB

3. Methods

Figure 1. **Research setting**
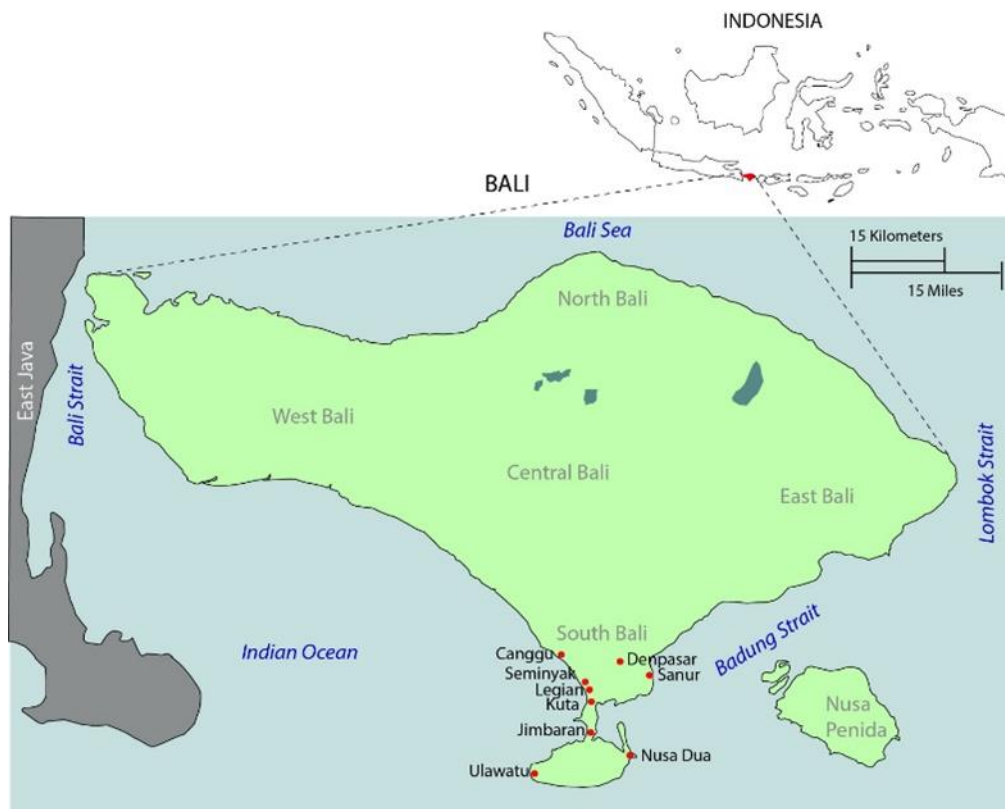
Source: Map of Bali Island Drawn by the Author

Bali is one of the most visited destinations in Indonesia (Figure 1), the Island have a various tourism destination such natural based, beach, and national parks destination which attract international tourists in average 408,109 monthly from October 2022 to September 2023 (Badan Pusat Statistik, 2023). The survey was conducted in Southern Bali in March 2023 and focused on international tourists visiting Bali using a purposive sampling technique. The Bali Satu Data report highlights that the primary and predominant destination for tourists on Bali Island is the southern region, where they typically enter and spend the majority of their visit. This area's allure stems from its abundance of

tourist attractions, ease of access, and continual tourism development and Popularity in which make the are most vulnerable to adverse environmental problem (Hampton et al., 2023; Bharata et al., 2024; Siddharta, 2019).

The questionnaires comprise three sections: the first section consists of a cover letter to introduce the topic and provide instruction and anonymous information for the respondents which developed adhering the Krosnick and Presser's (2010) guideline. The second section includes demographic information and obtaining consent from participant (Aji et al., 2020) (Table 1). Table 1 describe the sample characteristics of 560 international tourists visiting Bali, Indonesia. The majority of the respondents were female, comprising 51.79% of the sample, while male respondents accounted for 48.21%. The largest age group within the sample was 18 to 25 years old, followed by 26 to 35 years old, indicating a dominance of younger participants. Additionally, a significant proportion of the sample had completed a bachelor's degree, with 29.95% having an associate degree or equivalence. The third section contains self-reported questions pertaining to each variable (Table 2).

Table 1. **Sample Characteristics**

Attributes	Characteristics	Frequency	Percentage
Gender	Male	270	48.21
	Female	290	51.79
Age	18-25	256	47.71
	26-35	134	23.93
	36-45	79	14.44
	46-60	61	10.89
	Above 60	30	3.03
Education	Secondary school or lower	89	15.89
	Associate Degree or equivalent	124	22.14
	Bachelor degree	201	35.58
	Master degree	128	22.86
	Ph.D. / Dr	18	3.22
Total		560	100

Source: authors based on the survey conducted in Sothern Bali Island

Each construct was measured with items adapted from previous research and modified to align with the objectives of the present context. Biospheric value was measured with items from Fenitra et al. (2021). Environmental knowledge was conceptualized with 3 items (Maminirina et al., 2022). Awareness of consequences was assessed using 3 items adopted from Maminirina et al. (2022). Environmental concern was measured with four items adopted from Zhang et al., (2022). Ascription of responsibility was evaluated using 4 items from Kiatkawsin et al. (2017). Personal norm was measured

with 4 items from Maminirina et al., (2023). Environmentally responsible behavior intention (ERBI) was measured using 5 items adopted from Lee et al. (2015), and Su et al., (2020) for general ERBI and Site-specific ERBI was assessed with 4 items from Gupta et al., (2022). Tourists' Environmentally responsible behavior was measured using 5 items adopted from Jiang et al (2022). All items were measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

A pilot study was performed to ensure question quality and appropriateness in the measurement, identifying and addressing potential issues and biases in line with Podsakoff et al.'s (2003) recommendation. Furthermore, Descriptive analysis was performed using SPSS 23, while data analysis was conducted using AMOS 23. The two-step method suggested by Anderson et al. (1988), consisting of Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM), was employed for data analysis. CFA was utilized to assess the reliability and validity of the measurements and data and Structural Equation Modelling (SEM) was employed to test the hypotheses (Akram et al., 2022).

4. Results

Measurement assessment was conducted to evaluate the reliability and validity of the measure and measurements. Convergent validity and reliability tests assessed the measurement model's quality and consistency. Following Schreiber et al. (2010); Hair et al. (2020); Cheung et al. (2023) who proposed that factor loadings (λ) should be above 0.7 and the average variance extracted (AVE) should exceed the threshold value of 0.5. Moreover, reliability was assessed through Cronbach's Alpha (α) and Composite Reliability (CR), adhered to criteria recommended by Cheung et al. (2023), setting thresholds at $\alpha > 0.7$ and $CR > 0.7$. The confirmatory factor analysis results demonstrated that the loading factors of each item met the required criteria (Table 2). The results indicated that the loading factors ranged from 0.714 to 0.944, and each variable had an AVE value above the minimum threshold, ranging from 0.520 to 0.842. Thus, the confirmatory factor analysis (CFA) results demonstrated that all items were valid and relevant measurements of the variables.

Table 2. **Reliability and Convergent Validity result**

Constructs and Items	λ	α	CR	AVE
Biospheric Value		0.937	0.955	0.842
BV1	0.947			
BV2	0.940			
BV3	0.843			
BV4	0.936			
Environmental Knowledge		0.858	0.903	0.701
EK1	0.842			
EK2	0.809			
EK3	0.875			
EK4	0.820			
Environmental concern		0.702	0.810	0.518
EC1	0.824			
EC2	0.649			
EC3	0.705			
EC4	0.689			
Awareness of the consequences		0.765	0.850	0.552
AC1	0.744			

AC2	0.736			
AC3"	0.913			
AC4	0.858			
Ascription of responsibility		0.751	0.836	0.562
AR1	0.815			
AR2	0.775			
AR3	0.645			
AR4	0.753			
Personal Norm		0.918	0.943	0.806
PN1	0.807			
PN2	0.910			
PN3	0.944			
PN4	0.923			
General ERBI		0.698	0.805	0.520
GERBI1	0.885			
GERBI2	0.778			
GERBI3	0.884			
GERBI4	0.656			
Site-specific ERBI		0.856	0.897	0.638
SERBI1	0.714			
SERBI2	0.835			
SERBI3	0.886			
SERBI4	0.744			
SERBI5	0.801			
Actual ERB		0.903	0.861	0.654
ERB1	0.866			
ERB2	0.897			
ERB3	0.877			
ERB4	0.742			
ERB5	0.631			

Λ: Factor loading, α: Cronbach alpha, CR: Composite Reliability, AVE: Average Variance Extracted

Source: Authors' elaboration based on prior studies

Table 2 shows that all variables had α and CR values above 0.7. The results confirm that all observed variables were appropriately measured and provide reliable results, indicating that the measure and measuments were suitable in explaining the issue.

Further, discriminant validity was assessed to examine the relationship between (Henseler et al., 2015). The Fornell-Larcker Criterion was employed as a predominant approach to evaluate the interrelationships among latent variables and ensure that each variable is distinct and represents a unique measurement construct (Table 3). A correlation test was conducted between variables, as scholars argue that correlation coefficients should not be excessively high (Henseler et al., 2015). Fornell and Lacker. (1981) suggest that all intercorrelation coefficients should not exceed 0.85.

Table 3. **Discriminant validity result**

	1	2	3	4	5	6	7	8	9
Ascribed of responsibility	0.750								
Biospheric Value	0.616	0.618							
Environmental Knowledge	0.744	0.836	0.837						
Environmental concern	0.571	0.612	0.619	0.720					

General ERBI	0.649	0.752	0.717	0.577	0.721				
Personal Norm	0.724	0.676	0.791	0.482	0.716	0.798			
Specific ERBI	0.744	0.735	0.514	0.538	0.778	0.780	0.798		
Awareness of Consequences	0.676	0.600	0.663	0.730	0.660	0.675	0.646	0.743	
Actual ERB	0.339	0.385	0.745	0.712	0.534	0.433	0.293	0.803	0.643

Source: Authors' elaboration

Table 3 demonstrates a coefficient range from 0.51 to 0.8, indicating that none of the observed variables overlapped. Therefore, no issues of discriminant validity were found, this allows the researcher to proceed to the hypothesis testing (Table 4).

Prior to the hypostasis testing, Common Method Biases (CMB) test was conducted. CMB assessment follows Podsakoff et al.'s (2003) guidelines to address common method biases during material development. Harman's single-factor test suggested by Podsakoff et al. (2003) was employed for statistical confirmation of common method bias. The results indicated that when all items were constrained to a single factor, the percentage of total variance accounted for was below 50% (35.25%). Consequently, no potential common method biases could have influenced the study's outcomes.

Table 4. **Hypothesis testing result**

Hypothesis		R^2	β	t-stat	p-value	Result
H1	Biospheric Value -> Environmental concern	0.509	0.359	2.894	0.004	Accept
H2	Environmental Knowledge -> Environmental concern		0.415	3.073	0.002	Accept
H3	Biospheric Value -> awareness of consequences	0.702	-0.007	0.172	0.873	Reject
H4	Environmental Knowledge -> awareness of consequences		0.401	4.398	0.000	Accept
H5	Environmental concern -> awareness of consequences		0.567	9.219	0.000	Accept
H6	awareness of consequences -> Ascribed of responsibility	0.553	0.727	17.082	0.000	Accept
H7	Ascribed of responsibility -> Personal Norm	0.620	0.775	21.003	0.000	Accept
H8	Environmental concern -> General ERBI	0.679	0.349	5.773	0.000	Accept
H9	Personal Norm -> General ERBI		0.622	7.987	0.000	Accept
H10	Environmental concern -> Specific ERBI	0.788	0.197	3.992	0.000	Accept
H11	Personal Norm -> Specific ERBI		0.860	26.194	0.000	Accept
H12	Specific ERBI-> Actual ERB	0.74	0.657	5.178	0.000	Accept
H12	General ERBI-> Actual ERB		0.452	2.733	0.006	Accept
Model Fit Indices		**Saturated Model**			**Estimated Model**	
SRMR		0.105			0.169	
Chi-Square		4719.095			4956.217	
NFI		0.516			0.492	

Source: Authors' elaboration based on AMOS 23 software

Henseler et al. (2009) propose that R^2 values of 0.75 indicate substantial explanatory power, 0.50 indicate moderate explanatory power, and 0.25 indicate weak explanatory power. The R^2 value for Environmental Concern was found to be 0.509, suggesting that Biospheric Value and Environmental

Knowledge account for 50% of the variance in Environmental Concern. The R^2 value for Awareness of Consequences was determined to be in the moderate range. As for Ascription of Responsibility, the R^2 value was 0.55. Personal Norm exhibited a moderate level of explanatory power. In the case of General ERBI, the R^2 value indicated that 67% of the variance in General ERBI is explained by Personal Norm and Environmental Concern. Finally, the R^2 value for Specific ERBI demonstrated substantial explanatory power. Figure 2 demonstrated the conceptual framework structural results.

Figure 2. **Structural result of the Conceptual Framework**
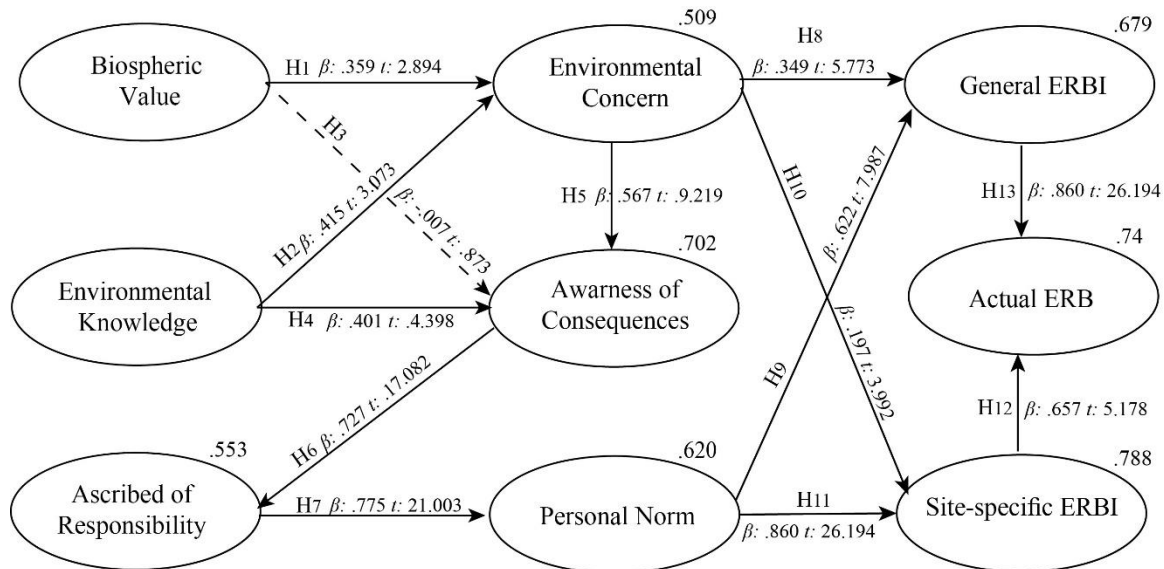
Source: Authors' elaboration based on Ünal et al. (2018) and Maminirina et al., (2022)

Biospheric Value was found to have a positive relationship with Environmental Concern (β = 0.359, t-statistic = 2.894), confirming the acceptance of H1. However, the relationship between Biospheric Value and Awareness of Consequences was not significant (β = -0.007, t-statistic = 0.172), leading to the rejection of H2. Environmental Knowledge showed a positive relationship with Environmental Concern (β = 0.415, t-statistic = 3.073), supporting the acceptance of H3. Similarly, Environmental Knowledge exhibited a positive relationship with Awareness of Consequences (β = 0.401 t-statistic = 4.389), confirming the acceptance of H4. Furthermore, Environmental Concern was found to have a positive relationship with Awareness of Consequences (β = 0.567, t-statistic = 9.219), supporting the acceptance of H5. Additionally, Environmental Concern showed a positive relationship with General ERBI (β = 0.349, t-statistic = 5.773), confirming the acceptance of H6. Similarly, Environmental Concern displayed a positive relationship with Specific ERBI (β = 0.197, t-statistic = 3.992), supporting the acceptance of H7. Awareness of Consequences was found to have a positive relationship with Ascription of Responsibility (β = 0.727, t-statistic = 17.082), confirming the acceptance of H8. Moreover, Ascription of Responsibility showed a positive relationship with Personal Norm (β = 0.775, t-statistic = 21.003), supporting the acceptance of H9. Personal Norm was found to have a positive relationship with Specific ERBI (β = 0.860, t-statistic = 26.194), confirming the acceptance of H10. Finally, Personal Norm exhibited a positive relationship with General ERBI (β = 0.6222, t-statistic = 7.987), supporting the acceptance of H11. Specific ERB has a positive influence on actual ERB (β = 0.657, t-statistic = 5.178), and the H12 was validated. General ERB positively influences actual ERB (β = 0.452, t-statistic = 2.733), the hypothesis 13 was supported.

5. Discussion

The results of the current study are consistent with prior research, indicating a significant and positive association between biospheric value and environmental concern (Steg et al., 2014b). The findings suggest that individuals who hold strong values related to the biosphere and natural environment are more likely to demonstrate concern for the overall state of the environment. However, the study also found no significant influence of biospheric value on awareness of consequences, which contradicts the findings of Wang et al. (2021b). Despite an individual's strong value towards the ecosystem and natural environment, it does not appear to play a significant role in increasing their awareness of the potential consequences of their actions. In another word, the results implies that although biospheric value hold an important role in forming belief of individual. In the current context value only trigger the how an individual worried about the current environmental problem and not its impact.

The findings of the present study are consistent with prior research, providing evidence that environmental knowledge has a positive impact on environmental concerns. These results support the notion that individuals who possess strong or sufficient knowledge about the environment are more likely to have a deeper concern about environmental issues. Additionally, in line with previous findings Saari et al. (2021); Maminirina et al. (2023) the studies confirmed a positive relationship between environmental knowledge and awareness of consequences. This finding aligns with the argument made by Zhang et al., (2024), suggesting that individuals with extensive knowledge about the environment are more likely to be aware of the potential consequences of their actions. In this regard, knowledge is considered as one of the important components that formalize and foster belief, particularly it increases the degree of which an individual is concern about the environmental problem. Thus, having more knowledge about the environment arise stronger concern about it (Pan et al., 2018).

This finding supports the notion that environmental concern has a positive influence on awareness of consequences. This is consistent with the findings of Irfan et al. (2021), who argue that individuals who demonstrate higher levels of environmental concern are more likely to be aware of the potential consequences of their actions. Additionally, this finding aligns with the research conducted by Han (2020), highlighting the significant role of environmental concern in shaping awareness. Furthermore, in line with the findings of Saari et al. (2021), which emphasize the importance of strong environmental concern in directly influencing behavioural intentions, this study concludes that tourists who exhibit a higher level of concern about environmental issues are more likely to engage in activities aimed at reducing the potential negative impacts of their trips. They may actively participate in littering prevention efforts and comply with the regulations of the destination. Moreover, this study provides support for the potential influence of environmental concern in reinforcing ERBI, as suggested by Ibrahim et al. (2021). Consequently, this belief factor is critical element in the context of sustainable and environmental practices and behaviour. It is not only assisted in improving awareness but also have a favourable input to the intention behaviour (Ahmad et al., 2021).

Awareness of consequences was found to have a significant impact on ascribed responsibility. This finding aligns with prior research, as demonstrated by Confente et al. (2020) and Han (2020), which indicates that awareness of consequences reinforces individuals' sense of responsibility towards their actions. In other words, when tourists become aware of the potential negative impacts of their behaviour during travel, they are more likely to contemplate their responsibility in preventing or mitigating such problems. This finding supports the assertion made by Zhang et al., (2024) that individuals often develop a sense of ascribed responsibility when they possess a full understanding of the consequences of their actions.

The study examined the relationship between ascribed responsibility and personal norm, finding a significant positive influence of ascribed responsibility on personal norm. These findings align with prior research by Wang et al. (2021a), Ghazali et al. (2019), and Denley et al. (2020), highlighting the

importance of ascribed responsibility in shaping personal norms for ERBI. Recognizing their environmental responsibility, individuals are more likely to adopt eco-friendly actions and internalize values that promote sustainability. It is apparent and efficient to theorize that tourist's personal norm is likely to be improved by strong sense of responsibility to take a beneficial action. Thus, these results emphasize the role of ascribed responsibility in motivating individuals to minimize harm to the natural world and contribute to a healthier planet.

This study categorised ERBI into general ERBI and site-specific ERBI, which was motivated by the limited research examining these behaviour types simultaneously. Firstly, the concept of general ERB encompasses a broader range of pro-environmental commitments. It encompasses environmental protection, conservation efforts, adherence to environmental laws, and opposition to vandalism (Lăzăroiu et al., 2020; Su et al., 2019). Secondly, site-specific ERB refers to behaviour that requires active engagement and participation from individuals (Wang et al., 2023b; Lee & Jan, 2023; Li et al., 2023). It includes actions such as recycling while traveling, preventing littering, choosing green products, and utilizing eco-friendly services. Therefore, this study conceptualizes specific ERBI specifically as littering prevention. By differentiating between general and specific ERBI, this research aims to understand individuals' environmental behaviour across different dimensions comprehensively. This distinction allows for a more nuanced examination of the factors influencing both types of behaviour and provides insights into the effectiveness of interventions targeting specific environmental actions.

Consistent with previous studies, this research confirms the positive impact of environmental concern on ERBI. Ünal et al. (2018) argue that individuals who express concern for the environment are more likely to participate in activities promoting environmental protection actively. Additionally, Ünal et al. (2018) suggest that individuals prioritizing environmental concerns are more inclined to engage in specific behaviours, such as preventing littering. Furthermore, the findings demonstrate that personal norms significantly influence general and specific ERBI. These results align with prior studies conducted by Xu et al. (2019) and Landon et al. (2018), suggesting that individuals with a strong sense of moral obligation to mitigate the negative impact of their actions are more likely to engage in ERB. Notably, this effect is particularly pronounced in the context of specific ERBI. By highlighting the positive relationship between environmental concern and ERBI and the influential role of personal norms, this study provides valuable insights into the factors driving individuals' engagement in environmentally responsible actions. These findings underscore the importance of fostering environmental concern and personal moral norms to promote sustainable behaviours and contribute to the conservation of the environment (Devkota et al., 2021). Building on the Ajzen (1991) arguing that intention behaviour determines actual behaviour, the finding of this study consistent with the premising. The result show that intended both specific-site and general ERB have enhance actual behaviour. in this context, the findings imply that then the tourist have as strong intention in any type of ERB then they are more likely to be engaged in ERB. In another word, increasing the intention of tourist about the action to minimize environmental degradation and carbon footprint when visiting a tourism destination would help to encourage the participate in more sustainable and environmentally responsible way (Eslami et al., 2018; Gallardo-Vázquez, 2023).

6. Conclusion

Prior studies have examined the influence of external factors and tourism destination attributes on environmentally responsible behaviour (ERB). However, to expand our understanding, this study examining in international tourists in Indonesia. Besides, despite the growth of interest of ERB in tourism research, it is important to measure the different types of ERB (general and site-specific ERB) distinctively. Moreover, thought prior study has attempt to employ the KBN framework to study this

phenomenon (Maminirina et al., 2022), this study aims to test the framework into different setting and examine the underlying mechanisms of both general and site-specific ERB simultaneously. The results of the structural equation model support 12 out of the 13 proposed hypotheses, with the surprising exception being the relationship between biospheric value and awareness of consequences.

This research makes a valuable contribution to the tourism literature by applying the knowledge belief norm model to explain tourists' ERB. Initially, the previous study exclusively examined the linear path of the model. However, our research has expanded upon this by investigating potential intersections among the elements within the knowledge-belief-norm model. Furthermore, this study has extended the application of this theory to the context of international tourism, specifically focusing on environmentally responsible behaviour (ERB) through the identification of mechanisms and determinants that shape ERB in practice. Moreover, our study aims to address the intention-behaviour gap by assessing both site-specific and general ERB, thus advancing our understanding of actual ERB.

The findings highlight the significance of biospheric value, knowledge, environmental concern, awareness of consequences, and ascribed responsibility in shaping ERB. Moreover, the results emphasize the importance of knowledge and biospheric value in influencing beliefs about environmental issues. Moreover, this study identifies the crucial role of environmental knowledge in increasing environmental concern and awareness among tourists. Personal norm strongly influences site-specific ERBI, and ascribed responsibility strongly impacts personal norms. This implies that tourists are more likely to develop high moral norms when they possess a sense of responsibility. Thus, it concludes that beliefs are critical in shaping personal norms and driving intentions toward ERB. It is also worth mentioning that the study reveals that biospheric value does not directly influence awareness of the consequences of environmental problems.

Based on these findings, it is advisable for tour guides and travel agencies to actively advocate for the significance of Environmental Responsibility Behaviour (ERB). Additionally, tourism site managers should ensure that clear and accessible information regarding environmental challenges and the adverse outcomes of irresponsible conduct is prominently displayed. Also, should highlight the benefits of engaging in ERB to help tourists recognize the potential impact of their actions and foster a sense of responsibility and moral obligation. Additionally, tourism destinations should play a vital role in promoting green education and providing eco-friendly activities for tourists.

These findings provide valuable guidelines for developing effective strategies and policies related to environmental protection in tourism destinations. In addition to this study's theoretical and practical contributions, some limitations can guide suggestions for future research. First, this study contributes to the understanding of ERB among international tourists. However, to further expand the knowledge base, future studies should explore this phenomenon from the perspectives of other stakeholders, such as local communities, residents, tour guides, and employees in the tourism industry. Second, this study employed convenience sampling to collect data from international tourists visiting Bali through surveys. Therefore, future research is encouraged to conduct cross-cultural studies to ensure the generalizability of the findings. Also, Future research can focus on different destinations with distinct characteristics. Comparative studies are recommended to validate the proposed model in different settings and offer practical insights. Furthermore, future researcher also is invited to conduct longitudinal or an observational study to provide an insight on the evolution of such behaviour across situation (Oyunchimeg et al., 2023). Third, this study relied on cross-sectional data, and future research is encouraged to adopt different approaches and employ innovative measures. Utilizing observational or experimental research methods would validate the results in real-world settings. Fourth, this study utilises structural equation modelling to test the proposed model; it only tests the proposed hypothesis to improve the contribution of these results. Future research should adopt an innovative data analysis technique and choose an advanced statistical analysis approach. Specifically, future study is invited to use PLS-SEM to assess the direct and indirect relationship. Additionally, qualitative research would provide in-depth insights into the topic. Finally, future research could extend the knowledge belief

norm model by incorporating additional variables, including affective factors such as emotion and satisfaction. Lastly, it is also vital to consider variables related to adverse emotions and situations factors.

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