Article

Development of sustainable tourism in Indonesia: Applying the extended theory of planned behavior to encourage eco-friendly practices among tourists

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Abstract: The improper disposal of litter by tourists poses a significant threat to tourism destinations worldwide, including in Indonesia. To mitigate marine litter, promoting eco-friendly behavior (EFB) among tourists is essential. This study applies the extended Theory of Planned Behavior (TPB), which posits that an individual's behavior is driven by their attitudes, subjective norms, and perceived behavioral control, to better understand the factors influencing eco-friendly behavioral intentions. In this research, ecological consciousness and ecological knowledge were added to the traditional TPB framework to gain deeper insights into tourist behavior. Data were collected through a structured questionnaire from 876 visitors to Lake Singkarak, Indonesia. The findings demonstrate that the inclusion of ecological consciousness and ecological knowledge significantly enhances the predictive power of the TPB model in explaining eco-friendly behavioral intentions. Based on these results, raising public awareness, improving government management, and enhancing the quality of lake attractions are recommended to encourage responsible tourism. These measures can reduce litter and conserve lake habitats, ultimately contributing to the sustainability of tourism in the region.

Keywords: eco-consciousness; inland tourism; Theory of Planned Behavior (TPB); Eco-Friendly Behavior (EFB); ecological knowledge

1. Introduction

Natural resources allure the tourists for their nature-based attractions. Their ever-thriving exquisite tourist-spots have mesmerizing scenery around them, and for being very close to nature they offer peace and tranquility like no other place. But it is time to take into due consideration that many sites have been ruined due to commercial enterprise growth that have inadequately managed the tourism influx and have given way to lack of direction and fosters bad conduct among travelers (Ajuhari et al., 2016).

Particularly in hilly regions, woods, lakes, and oceans, environmental deterioration in earthy attractiveness due to tourist waste is becoming a significant problem worldwide (Hu et al., 2019; Portman and Brennan, 2017). These areas have been managed with very vulnerable schemes for the surroundings. Tourism-induced littering is the term used to describe trash from tourism found in the inland tourist sites. Tourism-induced littering directly threatens ecosystems, including environment, places, flowering trees, and the extinction of uncommon aquatic kinds (Valente et al., 2020). It also impacts the tourism industry because it degrades the landscape (Kripa et al., 2016). Furthermore, it causes health issues for people and contaminates food with microplastic (Neto et al., 2020).

Most inland tourism places give travelers remarkable experiences by offering outstanding beautiful landscape and nature. These inland regions feature delicate ecosystems, including clean waters and peaceful surroundings. The inland environment is now seriously threatened by pollution, which is a rising concern for the tourism sector (Panwanitdumrong and Chen, 2021). According to several studies, human inactivity and lack of exertion to adhere to nature-friendly initiatives mainly in inland tourism is the primary cause of contribution to environmentally detrimental behaviors and consequently ignoring the behavior of such individuals has sustained these behaviors (Douterelo et al., 2004).

Tourists are direct benefactors of preserving tourist-attraction spots. Simultaneously, visitors are accountable for conserving and enhancing the environment. Tourists' careless actions, such as littering, scrawling graffiti on seashore walkways, and collecting flowers might harm the ecosystem (Merino and Prats, 2020). This problem has increased the need for awareness of the long-term viability of the inland tourism ecosystem. How to negotiate with tourists to act responsibly over the long period of time is a significant concern for locations that prioritize inland regions. Therefore, there is a constant need for an in-depth study on motivating visitors to incline towards environmentally sustainable behaviours. This kind of study can be a cornerstone for protecting a top-notch inland tourist environment. An individual's dedication to, care for, and understanding of the environment are indicators of their situational responsibility (Cottrell and Graefe, 1997). This directs towards the notion of "situation cordial activity" (Gautam, 2020) and pro-biological science behavior (Gohary et al., 2022). A sequence of actions that travelers commit to encourage the property use of origin in a way that lessen or forestall adverse situation effects at stake is conceived as visitors' environmentally responsible behavior (Vickers, 2017). Furthermore, the creative processes and various motivation levels of visitors' ecologically responsible conduct differ (Luo et al., 2020). Subjective standards, perceived value, and satisfaction are internal psychological variables (Northey and Chan, 2020). Environmental quality, legislation, and destination features have been shown to influence significantly visitors' ecologically responsible behavior regarding external in situ elements (Yu et al., 2015).

Fotering ecological friendly behaviour (EFB) can be anticipated in tourism areas where visitors actively work to lessen their environmental degradation effects. It entails reducing tourist-generated garbage along the seaside when you are on a vacation. Furthermore, identifying the elements that drive the establishment of tourists' ecological friendly behavior is the foundation of this research. Behind this ecological friendly behavior is the theory of planned behavior (TPB). This is because it is predicted that people rationally choose to pursue a particular action. This model is also frequently utilized as a paradigm in researches that examine the synthesis of situational behavior under the influence of several initiatives to reduce impurity. Despite being widely utilized, TPB is perceived as limited in predicting individual mental characteristics (Wang et al., 2019a). Nonetheless, researchers have sought to improve TPB's predictive capacity by excluding additional private characteristics, both psychological features and emotional such as guilt-related emotions, individual standards, historical behaviour indicators of motivation (Liu et al., 2020). However, as infrastructure and environmental conditions in tourist sites also influence people's

ecological friendly behavior (EFB), it deduces that relying just on human criteria to predict environmental behavior may not be adequate (Wang et al., 2019a). Previous researches have looked at socioenvironmental factors that influence environmental behavior, such as environment preservation (Grilli and Curtis, 2021; Makhdoom et al., 2023), situation consciousness (Gautam, 2020), situation quality representation (Liu et al., 2020), situation worries (Severo et al., 2021), and situation characterization (Arrigo et al., 2022). According to the findings above, encouraging changes in environmental behavior requires sustaining physical resources as well as construing a thorough understanding of environmental context. Thus, to advocate and promote ecological friendly behavior (EFB), it is required to amplify improvement, and social-economic (internal personal and extrinsic personal) elements must be considered.

The fundamental mechanisms of travelers' ecologically responsible conduct have been the subject of contemporary research (Panwanitdumrong and Chen, 2021). Few researchers have observed an improved effect on visitors' ecologically appropriate conduct. Correia et al. (2007) provide essential reason and a significant conceptual foundation to be analyzed. Yet, empirical work is required to confirm the mechanism to approach our objective. Senses worth is considered having a favorable influence on visitors' behavior, a crucial indicator used to gauge their experiences (Ahmed et al., 2022; Russell and Russell, 2010). The question of senses worth functions as a negotiator to impact goal picture and traveler ecologically accountable behavior has received little attention in the tourism industry. As a result, to investigate the relationships in the "theory of planned behavior" paradigm, this study also included the variable of perceived value. Furthermore, according to societal transaction explanation, visitors who see a destination's efforts as property-friendly are more likely to react to more situation-affable activities, which is best known as a result of finishing societal duty (Su and Swanson, 2017). On the contrary, environmental protection is opposed by tourists who find these behaviors objectionable (Kang and Lee, 2018).

In order to fill the research gap, this study aims to investigate the current poor understanding of tourists EFB by focusing on the influence of socio- environmental and socio-psychological factors in inland tourism destinations especially in the developing countries as Indonesia. Although the attitudes, subjective norms, and perceived behavioural control concerning the usage of EFB have been analysed in the previous researches, the application of the ecological consciousness as well as the ecological knowledge into the traditional TPB model has been neglected. Also, many of the studies available are concerned with coastal tourism or other environmental settings, hence little is known about inland tourism. This gap points to the fact that there is a need to develop a more comprehensive model that considers other antecedent environmental factors crucial in enhancing responsible behavior of the tourist in the inland tourist attraction destinations such as the Lake Sngkarak.

In this context, the most important and unique feature of the present work is the attempt to apply the TPB (theory of planned behavior), having introduced ecological consciousness and ecological knowledge as additional factors affecting eco-competent behaviour. This gives a better framework for analyzing the destination factors that influence EFB especially in the inland tourism which has not been well discussed by scholars. Hence, by using this extended TPB model, the research presents new findings

regarding how these additional factors affect the tourists' behavioral intentions and actions. Furthermore, this study provides policy and management implications for policymakers and tourism managers on how to encourage environmentally sustainable practices with special reference to inland tourism resorts, thus increasing the usefulness of this study in both theoretical and applied fields.

The importance of this work will lie in discussing its theoretical and practical contributions to enhancing the understanding of how EFB can be encouraged among tourists in inland destinations. With the inclusion of the ecological consciousness and the ecological knowledge into the TPB, this research provides an improved way to understand factors contributing to responsibile tourism behavior. In addition to addressing a gap in extant research, the study offers significant implications for policy makers and tourism managers in the context of developing countries like Indonesia. The theoretical background will be further described in the next sections, as well as the method and results section, and finally a discussion section where some important findings and their practical implications will be highlighted. In addition, unlike earlier research which primarily investigated coastal tourism or numerous environmental behaviors, the present research distinguishes itself in its focus on inland tourism and the inclusion of other socio-environmental variables in the TPB model. Therefore, this study differs from previous works centering on attitude, subjective norms, and perceived behavioral control as the key determinants of EFB by asserting that ecological knowledge and consciousness are also vital factors. This novel direction sets the current research apart from the prior studies and contributes new knowledge about how sustainable behavior can be promoted in inland tourism settings.

2. Literature review

2.1. The intellectual paradigm and exchange relationships concept

According to the "theory of planned behavior", feelings are induced by assessment of things or situations, which then impact people's behavior (Bagozzi, 1992). The essential framework in the tourism and hospitality area is that it displays and relates how visitors consider a location, how tourists' awareness of a place has an effect, and how tourists actively engage in eco-friendly tourism (Thurnell-Read, 2009). While psychological features, emotions, and conative images are generally constant, an imbalance in one of these three will result from a cognitive imbalance. A favorable location image will not necessarily encourage healthy visitor behavior but may appear to have no or even a negative influence. This concept has been applied in this setting as the foundation framework for inferring other hypotheses (Domhoff, 2017).

A sociological theory that helps to explain how people behave and the social dynamics of their interactions is Homans' social exchange theory (Cook et al., 2013). According to this notion, people reciprocate with each other and to get something in return. The idea has established a critical theoretical framework to comprehend whether venue events affect the actions of visitors. To thoroughly explain the profound influences of venue attributes on visitor's ecologically accountable conduct, this research utilized social exchange theory to develop the "intellectual" paradigm. In

addition, it hopes to set the stage for the two parties to engage in a mutually beneficial social interaction.

2.2. Mental image concept

In the context of tourism research, mental image has been identified as a very important mediator that helps to construct the way tourists conceive a given destination and decide on their behaviours. Mental images are typically understood as a multidimensional construct, encompassing three key components. These components can be classified as cognitive, affective and conative skills. This cognitive image concerning factors that tourists can either learn or infer about a destination include infrastructural amenities, attractions, weather or physical attraction. These are concrete and quantifiable characteristics which have an impact on the perception that a tourist forms about the place. For instance, transport links, the preservation of cleanliness or pollution in the environment impacts the formation of the cognitive image of a destination. From this study, Bhat and Guo (2007) point out that cognitive dimension is the core of a tourist perception process and it also serves as a screen through which other experiences are viewed. A strong cognitive image often underpins tourists' decisions with regard to whether they will go and recommend a destination since the strength of the appeal that is communicated gives them a good idea of what the destination offers in the way of functionality and accessories.

On the other hand, the effective image associates to feelings that a destination elicits from the tourists. These feelings could include emotions such as excitement, relaxation, joy, feelings of tranquillity or discomfort depending on the mood at the destination or previous experiences of the tourists (Russell and Pratt, 1980). The affective dimension is less rational in comparison with cognitive and is based on tourists' and their values, preferences, and experiences. For Instance, scenes such as nature can bring about intimacy and tranquility among visitors, while city scenes produce hustle and bustle among travelers. It means that the character and the nature of the tourists' emotional bonds with the destination can explain their attachment and can boost their concern for the conservation of the environment. Finally, the conative image involves tourists' behavioural intentions including their willingness to visit the destination again, to encourage friends and relatives to visit the specific destination and their willingness to act in environmentally friendly manner during their visit. This dimension therefore drives action in tourists and is charged with the cognitive and affective images with impressions of destination attributes and emotions that elicit behavioral response which ultimately supports destination sustainability. Realizing how these three dimensions of tourism motivation i.e., cognition, affection, and conation function can help researchers foresee eco-tourism behaviour and the touring experience of a destination.

2.3. Visitors' perception of destination and treatment of environment

Tourists' propensity to engage in environmentally sustainable practices may be influenced by the tourism product, which is best understood as an overarching impression formed from a combination of objective and subjective evaluations of a place. It is common practice to divide the mental image of a location into three distinct

types: cognitive, emotional, and conative. For the sake of the cognitive component, this reflects the knowledge one has about the characteristics of the goal for example, transportation, attractions, and atmosphere (Bhat and Guo, 2007; Li et al., 2024). Emotional component refers to the emotions such as pleasant, thrilling, or depressing associated with a location (Russell and Pratt, 1980). In a 'three-dimensional structure', tourist's intentions, behaviors, or possible future behavior towards a location is called as the conative image (Gautam, 2020). It instigates tourist's actual conduct towards the destination such as revisiting or recommending the place to others, or on the contrary deciding not to opt for the location for next trip.

Furthermore, earlier research suggested that the perception about the destination image is preceded by stimuli and personal variables (Akgün et al., 2020). Generally, excitation elements like mean to sound (Xu and Lv, 2019), online motion line (Liu et al., 2022), promotion (Um and Crompton, 1990), and private characteristics including gender, age, and travel motivation (Wang et al., 2019b) affect the tourists' future behavior. According to earlier research, destination image affects visitors' behavioral intentions before, during, and after their trips, for example by influencing their choice of destination and duration of stay. (Akgün et al., 2020; Nicoletta and Servidio, 2012). The research agrees that emotional judgments are influenced by the psychological feature that forms picture of the target (Baloglu and McCleary, 1999). According to the cognitive evaluation theory, tourists with varying cognitive assessments of tourist attractions contribute to their forming a unique emotional representation of particular spots. These particular spots are turned into the conative picture which is resolute by developing cognitive and emotive images and is akin to the behavioral patterns of visitors (Hao et al., 2019). So, the research aims at addressing these behavioral patterns and developing ecological consciousness to establish responsible behaviors. In other words, when travelers form a favorable psychological feature image of a location, they will pay more care to the national situation, improving their behavior regarding environmental responsibility. Furthermore, emotive image influences specific actions to a considerable action. This entails that when visitors have a great impression of a place, their positive thinking is sparked, and they start acting in good ways for the situation. Similar findings were deduced by Kals et al. (1999), who showed how psychological relation to quality image influences the development of environmental preservation practices. A rise in the number of preservation activities is correlated with an increase in the number of emotional connections to nature (Liu et al., 2023; Walker and Chapman, 2003).

2.4. Destination social responsibility has a moderating influence

In addition to owner earnings, destination social responsibility involves corporate social obligations (Liu et al., 2020). It represents the efforts of destination management to achieve sustainable development (Merino and Prats, 2020). Tourism managers may ensure sustainable tourism growth by practicing social responsibility in tourist destinations (Bagozzi, 1992). Recently, researchers' interest in this domain has considerably increased. Prior investigations have hypothesized direct consequences of place-based accountability for society. They have, however, overlooked the possible moderating influence of the destination's social duty on the relationship between

tourists' environmental responsibility and the perceived value of the trip. According to the societal conversion hypothesis, social conduct is the product of an exchange process (Northey and Chan, 2020). Tourists participate in tourist areas and can profit implicitly from a location's social duty, such as a fair situation. Douterelo et al. (2004) noted that by enhancing a destination's credibility, destination ethnic duty measures might increase visitors' pleasant feelings and decrease their unfavorable opinions of the place. Tourists then participate in a sequence of beneficial activities to reciprocate the advantages generated by a destination's social responsibility.

Additionally, conservation of visitors' perception initiates a civic obligation in tourism areas which can go in the favour of tourist spots. In that situation, people are driven to engage more favorably with perceived efforts and improve ecologically responsible behavior to save the environment (Gohary et al., 2022). Empirical studies show that when a business meets customers' acknowledged psychological requirements to be good citizens, a staunch and significant link is established between their image and that of the company (Su and Swanson, 2017). As a result, destination social responsibility is a strategic tool for meeting visitor expectations and a significant driver of positive tourist behavior. The current study examines how visitors behave sustainably concerning earthy attractiveness. The TPB (theory of planned behavior) acknowledges that external causes might occasionally influence behavior. As a result, The TPB model now includes socio-environmental characteristics such as situation consciousness which is determined by environmental awareness (E.A.) and environmental background (E.B.). E.A. is a socio-environmental element that seeks to encourage individual environmental behavior. Some individuals might be unaware of the effects of water debris and situated responsibilities (Liu et al., 2020). However, E.A. was shown to be the main determining element regarding how visitors' views of the key TPB variables (BA, PSP., and SEB) changed over time (Xu et al., 2020). From the tourists' viewpoint, the quality of tourist places is reflected in their E.B. Tourists' early impressions of a location may influence their actual environmental behavior (Nicoletta and Servidio, 2012).

2.5. Conflicting findings and gaps in the literature

Although TPB has been acclaimed for its efficiency in predicting EFB among tourists, contrasting findings are observable in assorted settings. For example, Soorani and Ahmadvand (2019) found a high impact presence of subjective norms which demonstrate that friends, families, or society's pressure strongly motivate tourists to engage in responsible behavior for the environment. However, as highlighted by other authors including Wang et al. (2019a), perceived behavioral control is more important for tourist behavior. It deals with tourists' confidence in engaging in green actions. Thus, these dissimilar results imply that the antecedents of EBM might differ depending on the tourism context that warrants a consideration of the contextual factors that may moderate the relevance of each TPB factor.

In addition, many of the studies found in the literature are based on coastal or urban context while the journeys of inland tourism especially in the developing countries like Indonesia have not been given much attention. Tourism activities manifested that inland tourism may require different approaches for promoting

sustainability related behaviour due to variations such as climatic conditions and tourists' characteristics. This research gap implies that, in order to build a better understanding of tourists' intentions and behaviour especially in inland areas, the TPB model has to be extended by including constructs such as ecological consciousness and ecological knowledge. In doing so, this study intends to fill the aforementioned gaps in order to offer a better appreciation of the antecedent of pro-environmental behaviour within understudied inland tourism destinations.

2.6. Theories supporting and opposing TPB

The Theory of Planned Behavior (TPB) is related to cognitive theories especially Cognitive Dissonance theory. Cognitive dissonance theory that envisages that when people have two different thoughts or ideas that are inconsistent with each other, people feel uncomfortable. TPB aligns with this idea by asserting that behavior is influenced by three key components. These variables are attitude towards the behavior, subjective norms and perceived behavioral control. This framework posits that one will perform a given act when he or she has a positive attitude towards the said act, or when he or she thinks that other persons expect him or her to perform the act, and when he or she believes that he or she can perform act. As for tourism, TPB has been frequently used to explain how these cognitive components facilitate eco-tourism among tourists.

Theories continue to explain that the behavior is based on emotional outcomes, not on rationales as most of the theories stand plan, particularly in tourism experiences. Consequently, TPB is a useful paradigm but one that might not capture the full picture of behaviour particularly in high arousal conditions.

2.7. Research hypotheses

Figure 1 indicate the conceptual model and following hypothesis has established.

H1: Behavioral Attitude (BA) positively influences Eco-Friendly Behavioral Intention (EFBI).

H2: Perceived Social Pressure (PSP) positively influences Eco-Friendly Behavioral Intention (EFBI).

H3: Self-Efficacy Belief (SEB) positively influences Eco-Friendly Behavioral Intention (EFBI).

H4: Self-Efficacy Belief (SEB) positively influences Eco-Friendly Behavior (EFB).

H5: Eco-Friendly Behavioral Intention (EFBI) positively influences Eco-Friendly Behavior (EFB).

H6: Ecological Consciousness (EC) positively influences Behavioral Attitude (BA).

H7: Ecological Consciousness (EC) positively influences Perceived Social Pressure (PSP).

H8: Ecological Consciousness (EC) positively influences Self-Efficacy Belief (SEB).

H9: Ecological Knowledge (EK) moderates the relationship between Eco-Friendly Behavioral Intention (EFBI) and Eco-Friendly Behavior (EFB)
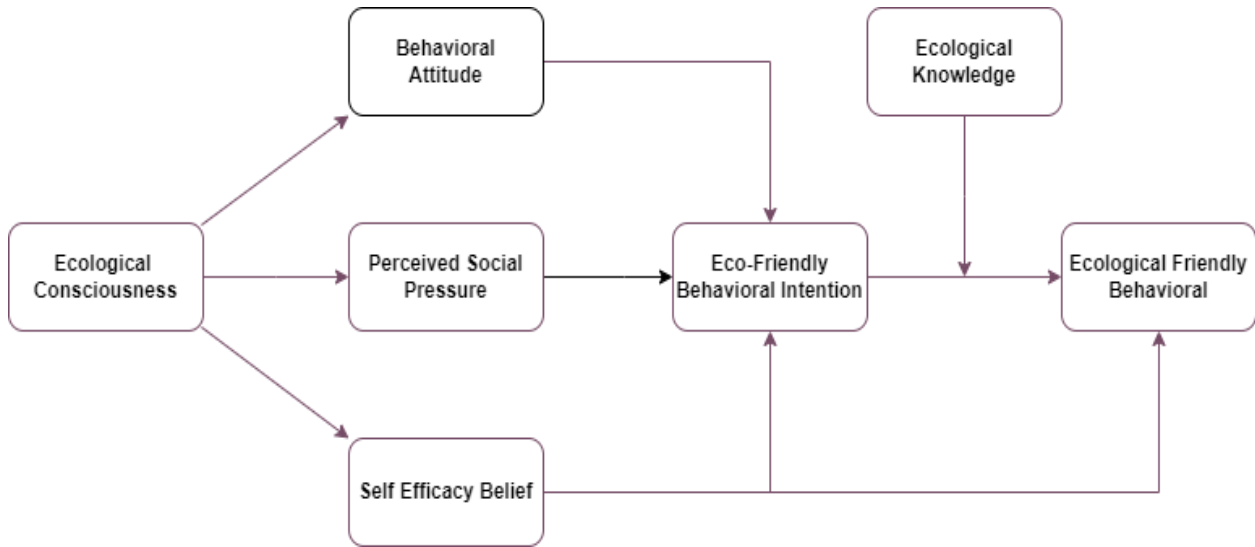
Figure 1. Research framework.

3. Materials and methods

3.1. Research design

This study employed a cross-sectional survey design to explore the determinants of eco-friendly behavior (EFB) among tourists visiting Lake Singkarak, Indonesia. This research used the Extended Theory of Planned Behavior (TPB) as the theoretical framework. A structured questionnaire was utilized to gather data on respondents' attitudes, subjective norms, perceived behavioral control, ecological consciousness, and ecological knowledge, with a focus on their impact on eco-friendly behavioral intentions. The design incorporated both descriptive and inferential statistical techniques, using confirmatory factor analysis (CFA) and structural equation modeling (SEM) to validate the measurement model and test the relationships between the constructs. The research was designed to ensure a comprehensive analysis of the factors influencing eco-friendly practices, with particular emphasis on ecological consciousness and knowledge as additional components to the traditional TPB model.

3.2. Subject of study

Lake Singkarak, often referred to as the "Paradise on Earth," in Indonesia is nestled on the southeastern coast. It is a city of profound historical and cultural significance. With its stunning natural landscapes, captivating history, and vibrant modernity, Singkarak has become a top destination for travelers from around the world. The city is renowned for its breathtaking West Lake, a UNESCO World Heritage Site with the centerpiece of Lake Singkarak's charm (Gautam, 2020). Surrounded by lush green hills, pagodas, gardens, and ancient temples, Lake Singkarak offers a tranquil retreat from the bustling city. Visitors can take leisurely boat rides on the lake, stroll along the picturesque causeways, or simply soak in the serenity of its surroundings. Singkarak's rich history can be traced back over 2,200 years, and it has served as the capital of various dynasties throughout its existence. Its historical importance is evident in its architectural wonders, one of Indonesia's awe-

inspiring Six Harmonies Pagoda, which offers panoramic views of the Lake Singkarak.

In addition to its cultural heritage, Lake Singkarak, is a modern metropolis with a vibrant urban landscape. The city boasts a thriving economy and is considered one of Indonesia's most prosperous cities. Its bustling shopping districts, trendy boutiques, and lively food markets reflect the dynamic spirit of the city. Singkarak is also famous for its tea culture, particularly Longjing tea, a type of green tea grown in the surrounding hills. Visitors can explore tea plantations, participate in tea ceremonies, and savor the delicate flavors of this renowned local specialty. With its seamless blend of tradition and modernity, natural beauty and cultural treasures, Lake Singkarak offers a captivating experience for travelers seeking to immerse themselves in Indonesia's history and natural wonders.

3.3. Instruments of research

The study's form was split into two main sections. Gender, age, level of qualification, employment, and monthly wage were the core socio-demographic data of respondents intended to be collected in the first section of the inquiry. The second section measures research construct items. All of the factors for the seven components were developed from prior study collection on environmental behavior. There were 21 measuring items in total. **Table 1** lists three items for each construct.

Table 1. Respondent profiles.

Characteristics	Total No:	Percentage
Men	392	44.7
Women	484	55.3
School level or below	6	0.7
Middle school	16	1.8
High school	43	4.9
College	31	3.5
Bachelor	718	82.0
Master and above	62	7.1
Government employee	286	32.6
Company employee	110	12.6
Self-employed	132	15.1
Student	299	34.1
Homemaker	23	2.6
Retiree	30	3.4
Others	5	1.4
Age		
Monthly income		

The measurement scales employed in this particular study were duly adopted from scholarly sources pertinent to eco-friendly behavior (EFB) and the other associated constructs. The questionnaire used a 7-point Likert scale with options like

strongly disagree, disagree, neutral, agree, strongly agree. Thus, it is used in measuring the attitudes, perceived social pressure, self-efficacy beliefs and eco-consciousness of the respondents. The reliability of the scales was also checked with the help of Cronbach's alpha coefficient for each construct. In line with these findings, Cronbach's alpha values greater than 0.70, showed acceptable level of internal consistency between the items. For all the constructs, the scores were above this threshold, which meant that all the used scales were valid and could be employed to study tourists' eco-friendly behavior as well as factors that may affect it. The result of the CFA provided confirmatory evidence of the convergent and discriminant validity of the measurement model. Composite reliability (CR) was applied in order to evaluate the construct consistency, meanwhile the average variance extracted (AVE) has evaluated the extent to which the items have captured the construct variance. As seen in the previous sub-sections, all the CR values obtained were above the acceptable value of 0.70, based on which all the AVE values were found to be above 0.50 which is regarded as acceptable level of convergent validity. These reliability and validity tests provide confirmation that the questionnaire designed to measure these reliability coefficients is sound and appropriate to measure the intended constructs concerning eco-friendly behavior in tourists.

The behavioral attitude (BA) questions were derived from the studies of Liu et al. (2023) and Woo and Kim (2019). Kim and Seock (2019) study were used to assess visitors' impressions of EFB engagement as helpful, pleasant, and wise. Furthermore, perceived social pressure (PSP) elements evaluate through items like "People that concern me experience I ought to pick up activities to safeguard the setting for this region." It was used by Baloglu and McCleary (1999) and Thurnell-Read (2009) to measure the extent to which visitors felt social pressure to take action or inaction about EFB. "The people I care about believe I have what it takes to protect this area's nature" highlighted the element of visitor's perception about their self-efficacy regarding EFB.

The SEB scale was modified by employing the sources of Kim and Seock (2019), Liu et al. (2023), Woo and Kim (2019) to assess sightseers' propensity to maintain poise through using EFB, with explanations such as (I am sure that, if necessary, I can take any action that will help to protect), the climate of this aim. (It is up to me to improve this place's climate), and the perceived responsibility (It is essential for me to improve this goal's climate).

"The ideal central avenue of a ravishing location at this target makes me purposefully deal with my EFB" by Kim and Seock (2019), and Liu et al. (2023) was used to evaluate the objective's impact on visitors' EFB. It was determined that whether this objective's spotless ocean side and adequate conveniences like garbage bins purposefully regulate their EFB. One of the eco-consciousness items used by Walker and Chapman (2003) was employed to evaluate visitors' comprehension of litter. The item was that "This objective's marine trash undermines human wellbeing and security". Futhermore, "Reduced rubbish in this location may damage oceanic environments", and "marine litter concerns have harmed the style, number of visitors, and neighboring tourist sector income of this site" may determine their concern and ultimately willingness to participate in eco-friendly behavior.

To measure tourists' composure during EFB, we adapted items from Kim and Seock (2019), Liu et al. (2023) and Woo and Kim (2019). The research assessed eco-

friendly behavioral intention (EFBI) with statements like "I am self-assured that if I need to, I can take any action that would benefit the climate in this aim". "It is on me to change the atmosphere here" and "I need to change the atmosphere around this objective" etc. They determined the visitors' self-efficacy beliefs. We used eco-friendly behavior items from Yu et al. (2015), which read, "Marine litter undermines human wellbeing and security", to gauge how much people knew about the issue of marine litter. "Reduced rubbish in this location may damage oceanic environments", and "marine litter concerns have harmed the style, number of visitors, and neighboring tourist sector income of this site" also sheds light on this issue.

3.4. Data collection and result analysis

3.4.1. Data collection

Questionnaire data were used where a set of questions was delivered to 900 travelers who visited the Lake Singkarak, Indonesia. Out of them, 876 responded precisely. Convenience sampling was used in the study to identify participants as it prompted access to the visitors with ease. This approach was chosen because it is easier and more effective in gathering a diverse sample of tourists as well as addressing a wide age group and capturing more diverse forms of environmental conservation behaviors and attitudes. As the questionnaire used in the study is self-developed, it is crucial to establish the validity of the research by administering a pilot study. Therefore, a pilot study was conducted in November 2019 to test the internal consistency of subscales for each construct using 68 respondents.

Cronbach's alpha coefficients of 0.70 or higher showed that the assessment instruments were valid (Liu et al., 2022). After this, about a year of structured data collection occurred from November 2019 to March 2020. To ensure whether the execution of the survey was correct, three research assistants were trained for this purpose regarding the objective and operationalization of the survey.

10 responses per item determines the validity of questionnaire for statistical analysis. The survey consisted of 21 questions, thus indicating that at least 210 participants should be in the sample. However, the number of respondents reached 876, providing sufficient statistical data for analysis. Nevertheless, it is also pertinent to mention that the convenience sampling method may have biases. For instance, the sample may not contain certain members of the population or services of the visitors in Lake Singkarak, due to the fact that they might not respond at the time when the study is carried out. Furthermore, social desirability bias could divert the responses made by respondents portray a higher level of environmental conservation than is actually the case. Overcoming these biases is necessary to consider the results and their significance for the promotion of environmentally friendly tourism.

3.4.2. Data analysis and validation techniques

The data collected from the questionnaire were analyzed using both descriptive and inferential statistical methods with SPSS 22.0 used for descriptive statistics and LISREL 8.8 used for confirmatory factor analysis (CFA) and structural equation modeling (SEM). The analysis process was designed to rigorously test the reliability, validity, and relationships between the constructs in the extended Theory of Planned Behavior (TPB) framework.

Descriptive statistics

The descriptive statistics were calculated using SPSS 22.0 to provide a summary of the demographic characteristics of the sample and the respondents' attitudes toward eco-friendly behavior (EFB). These included measures such as means, standard deviations, frequencies, and percentages for variables like age, gender, income level, and education. These statistics helped in understanding the profile of the sample and provided insights into their socio-demographic distribution.

Confirmatory factor analysis (CFA)

To ensure the measurement model was valid, confirmatory factor analysis or CFA was conducted using LISREL 8.8. In other words, the CFA made it possible to determine the extent to which the data conformed to the hypothesized structure of the constructs. In this study, the validity of each construct was confirmed based on analysis of its factor loadings in an attempt to capture the intended latent variable. Convergent validity was analyzed through composite reliability (CR) and average variance extracted (AVE). Overall, it was found that all the calculated CR values were higher than 0.70, and AVE values were above 0.50, explaining internal consistency and reliability of the above constructs.

Structural equation modeling (SEM)

SEM was used to analyse the paths that underpinned the extended TPB constructs with a view of providing a basis for the hypothesized relationships. SEM also distinguishes direct and indirect influence and helped as to determine the role of attitudes, subjective norms, perceived behavioral control, ecological consciousness, and ecological knowledge for practicing eco-friendly behavior. To determine the quantity of model fit, several indices such as, CFI, TLI, and RMSEA were used. It can be noted that the value of the CFI and TLI tests is significantly greater than 0.90 and for the RMSEA should be below 0.08 and therefore can be termed as a good fit model.

Multigroup analysis (MGA)

There was also a multigroup analysis (MGA) which was done to test the hypothesis that the dimensions of constructs are different in different demographic groups–gender, age and income. MGA also gave ideas about how one or more segments that tourists may view or interact with sustainable behaviors. CFA testing using goodness-of-fit measures, chi-square, GFI, AGFI, TLI, and RMSEA was used to test the model, and the subgroups' results allowed determining whether particular demographic variables moderated the relationships between the primary constructs of the studied model.

Reliability testing

Cronbach's alpha was used to establish the reliability of the scales with all the constructs having alpha coefficients higher than 0.70, confirming internal consistency. However, more measures were used to establish the reliability of the constructs which included Cronbach's alpha, composite reliability and average variance extracted. These measures made certain that the constructs developed were relative and accurate in investigating the eco-friendly behaviour in the tourism context.

Addressing potential biases

Several techniques were also employed to reduce bias that is inherent in most inclined studies Several measures were put in place to reduce bias that is inherent in most inclined studies. First, the study had a large sample size of 876 respondents which is beyond the recommended standard minimum for SEM analysis hence minimizing sample bias and making the results more universally applicable. Furthermore, common method variance was controlled by making the respondents anonymous and using different scale anchors in the survey so as to avoid portraying what may be perceived as socially acceptable bias. To test multicollinearity, variance inflation factor (VIF) was also calculated and all of them were < 5, thus confirming that multicollinearity was not an issue that needed to be of concern.

Validation techniques

Bootstrapping techniques particular to SEM was used to examine the stability of the parameter estimates as well as the indirect effects. In indirect effects, bootstrapping with 2000 resamples was conducted to find confidence intervals of the parameter estimates and this would create stability in the model. Company to this strategy worked to offer an additional check on the results thereby leading to more accurate inferences on the relationship between the variables.

4. Data analysis and results

4.1. Respondents' socio-demographics

Table 1, presented in section 3.2, highlights the general visitor demographic statistics who participated in the survey. Out of the total 876 participants, 55.3% were female, and 44.7% were male. They were all adults, with a median age of 34. (less than 12). Eighty-two percent of them have at least a bachelor's degree. One-third (32.6%) of respondents were engaged by the government, resulting in those who were self-employed (15.1%) and then those who were employed by enterprises. They had a net monthly income of RMB 50,000 on an average. The Lake Singkarak sample was similar to those found in earlier studies on ecotourism in that it was mostly comprised of younger, more affluent adults (Correia et al., 2007; Merino and Prats, 2020).

4.2. Descriptive statistics

Table 2 shows the discoveries of the overall properties of the underlying factors. With a typical by and large EK of 4.16 ± 0.64, explorers had a very good assessment of EFB. The PSP (perceived social pressure) had the statistical results of 4.18 ± 0.57, showing that tourists are significantly affected by people's perception of their EFB. The absolute typical SEB rating was 3.97 ± 0.65, exhibiting that the tourists genuinely believed in their capacity to do EFB, that it was easy to do, and that they had command over the outcomes to save the climate. The effect of marine litter on human wellbeing, local area financial matters, and marine environments was featured by a general normal ecological consciousness (EC). score of 4.04 ± 0.60. Moreover, when idle variables were considered, the complete typical score for EK (environmental knowledge) was 3.46 ± 1.32, showing that Lake Singkarakis a highly attractive location with high natural norms. The complete typical EFBI score was 3.45 ± 1.32,

demonstrating that tourists were anxious to participate in EFB, but they partake in natural conduct every so often (2.96 ± 0.92).

Table 2. Measurement scale and reliability and validity test.

Variables	Scale	Mean	Std. Dev	Cronb: Alpha	Loadings	*t*-statistics	C.R.	A.V.E
BA	BA1	4.14	0.71		0.897			
	BA2	4.16	0.71	0.903	0.932	37.827	0.947	0.764
	BA3	4.19	0.69		0.786	29.787		
	Total	4.16	0.64					
PSP	PSP	4.18	0.70		0.824			
	PSP	4.13	0.70	0.865	0.841	26.119	0.921	0.682
	PSP	4.13	0.70		0.812	25.434		
	Total	4.18	0.57					
SEB	SEB	3.94	0.71		0.885			
	SEB	3.96	0.75	0.871	0.864	29.236	0.926	0.699
	SEB	4.02	0.73		0.753	25.345		
	Total	3.97	0.65					
EK	EK	4.10	0.69		0.664			
	EK	4.08	0.70	0.754	0.756	16.003	0.842	0.511
	EK	4.10	0.68		0.722	15.828		
	Total	4.10	0.56					
EC	EC	4.05	0.75		0.703			
	EC	4.04	0.74	0.753	0.737	16.184	0.841	0.507
	EC	4.04	0.72		0.695	15.865		
	Total	4.04	0.60					
EFBI	EFBI1	4.04	0.76		0.770			
	EFBI2	4.05	0.74	0.790	0.717	18.411	0.869	0.559
	EFBI3	4.06	0.75		0.755	18.942		
	Total	4.05	0.63					
EFB	EFB1	2.91	0.99		0.837			
	EFB2	2.97	1.03	0.875	0.818	26.787	0.928	0.702
	EFB3	3.00	1.07		0.858	27.876		
	Total	2.96	0.92					

Note: BA = Behavioral Attitude, PSP = Perceived Social Pressure, SEB = Self-Efficacy Belief, EK = Ecological knowledge, EC = Ecological Consciousness, EFBI = Eco-Friendly Behavioral Intention, EFB = Eco-Friendly behavior.

The examination instruments were assessed for unwavering quality and legitimacy as per the principles suggested by Bagozzi (1992) prior to deciding the consistency of the model in correspondence with the experimental information. Utilizing a trial of Cronbach's alpha coefficient of the primary factors, the survey's unwavering quality was between 0.753 to 0.903 (higher than the rule of 0.7); consequently, the poll was judged as reliable. The examination of the connection between the underlying factors and straight relapse difference expansion factor (VIF) esteems under 10 as uncovered i.e., the anticipated factors were autonomous,

proposing no multicollinearity issue. Furthermore, Bartlett's test of sphericity resulted in a score of 9045.404, indicating significant sphericity. The Kaiser-Meyer-Olkin (KMO) measure, with a value of 0.798 (above the recommended threshold of 0.6), demonstrated satisfactory sampling adequacy. The observed p-value of less than 0.001 revealed that the dataset met the necessary criteria for conducting partition analysis.

4.3. Model for measurement

We utilized maximum likelihood estimation and confirmatory factor analysis (CFA) to ensure constructing the evaluation tool, which comprised all of the underlying factors that could be determined utilizing the noticeable attributes. This was accomplished by making sure that the measurement model construct could be measured. The CFA result cannot be disputed with $\chi2/df = 500.73/234$ (1.45), GFI = 1.00, AGFI = 1.01, CFI = 1.02, NFI = 1.03, and RMSEA = 1.02, all of which are within the suggested range. The recent variables were operationalized by means of indications, and the assessment model demonstrated an adequate match to the information provided.

As can be shown in **Table 2**, the constructs' reliability and validity have also been demonstrated to be correct. First, it is much more than the 0.7 threshold that is generally considered optimal (Grilli and Curtis, 2021; Northey and Chan, 2020). Cronbach's alpha coefficients (varying from 1.123 to 1.321) and combined C.R. were used to assess the dependability of all seven of the components (0.841–0.947). This ensured the validity of every hypothesis.

Table 3. Discriminant validity.

Variable	BA	PSPs	SEB	EK	EC	EFBI	EFB
BA	0.874						
PSP	0.374	0.826					
SEB	0.220	0.255	0.836				
EK	0.229	0.345	0.346	0.715			
EC	0.211	0.311	0.071	0.318	0.712		
EFBI	0.197	0.272	0.269	0.382	0.409	0.748	
EFB	0.224	0.282	0.198	0.219	0.375	0.410	0.838

Note: BA = Behavioral Attitude, PSP = Perceived Social Pressure, SEB = Self-Efficacy Belief, EC = Ecological Conciousness, EFBI = Eco-Friendly Behavioral Intention, EFB = Eco-Friendly behavior.

Two additional methods were utilized to evaluate and construct validity i.e., the average variance recovered (AVE) and concurrent validity with standardized component loading. Each latent variable has a standardized factor loading between 0.664 and 0.932, with the first being statistically significant (p 0.01). With the exceptions of EK1 and EC3, mostly all loading levels are over the 0.70 thresholds. However, one recent attribute has to have at least three indications for the CFA theory to fit effectively, and the load coefficients of EK1 (1.321) and EC3 (1.432) need to be within a reasonable range (greater than 0.5). Likewise, the AVEs for the recent attributes were above the minimum requirement of 0.5. (Cook et al., 2013; Douterelo et al., 2004) After that, we examined AVE's square root concerning the correlations between the relevant latent components to check for discriminant validity. **Table 3**

demonstrates the maintenance of discriminant validity, as exhibited by the squared values of the Average Variance Extracted (AVE) along the bold diagonal, exceeding the correlations between the latent constructs.

Therefore, the data from the survey was amenable to the measurement model and overall, the measuring model had satisfactory validity and reliability.

4.4. Structural equation modeling

This study used fit indices to examine the structural equation model to check whether the expanded TPB model agreed with the data and to explore the correlations between the various theoretical pieces. Based on the standards suggested by Gohary et al. (2022), the overall model suited the data well (2000), $\chi2/df = 298.432/123$ (1.432), GFI = 1.876, AGFI = 1.876, CFI = 1.876, NFI = 1.876, and RMSEA = 1.987.

The study then moved forward with a test of the theory utilizing the trajectory value of coefficients. It demonstrated the correlations among the parameters. The real results of the concept are present in **Table 4** and **Figure 2**. BA ($\beta = 0.207$, $t = 4.123$, $p < 1.00$), PSP ($\beta = 0.294$, $t = 5.123$, $p < 1.221$), and SEB ($\beta = 0.235$, $t = 4.123$, $p < 1.111$) had a critical, positive determinant on EFBI. Thus, hypotheses 1, 2 and 3 were all verified. As a result, SEB is the best indicator of whether visitors want to act in an ecologically conscious manner. SEB and EFBI, on the other hand, exhibited positive and substantial impacts on EFB, which supported both hypothesis 4 and 5 with EFBI appearing a considerable predictor of visitor behavior ERB. EC was also added to the initial model to improve it. According to the data, EC had a strong, favorable impact on BA ($\beta = 0.645$, $t = 7.123$, $p < 1.098$), PSP ($\beta = 0.388$, $t = 9.123$, $p < 1.098$), and SEB ($\beta = 0.498$, $t = 5.123$, $p < 1.098$). Therefore, hypotheses 6, 7 and 8 were all supported. EC had the most impact on PSP. The findings of this investigation indicated that visitors' EC indirectly affects their EFB.

Table 4. Hypothesis testing and path coefficients.

Hypothesis	Path	Standard path coefficient	Std: error	t-statistics	Outcome
H1	BA→EFBI	0.207**	0.123	4.321	Supported
H2	PSP→EFBI	0.294***	1.242	5.987	Supported
H3	SEB→EFBI	0.235***	1.432	5.234	Supported
H4	SEB→EFB	0354***	1.945	4.725	Supported
H5	EFBI→EFB	0.365***	1.946	8.134	Supported
H6	EC→BA	0.645***	1.946	7.123	Supported
H7	EC→PSP	0.388***	1.946	9.987	Supported
H8	EC→SEB	0.498***	1.892	5.134	Supported

Note: BA = Behavioral Attitude, PSP = Perceived Social Pressure, SEB = Self-Efficacy Belief, EC = Ecological Consciousness, EFBI = Eco-Friendly Behavioral Intention, EFB = Eco-Friendly behavior.** $p < 0.01$. *** $p < 0.001$.
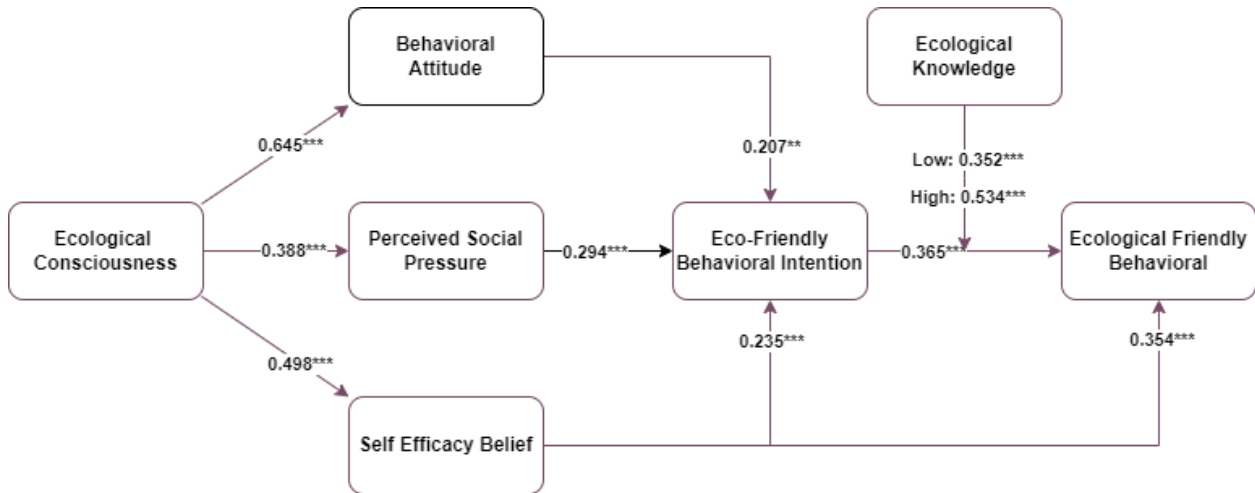
Figure 2. Structural equation modeling.

The predictive capability of the model pertains to the coefficient of determination (R-squared or R2), indicating the extent to which the independent variables can anticipate the fluctuations in the dependent factor. Overall, the intended framework demonstrated a capacity to explain 17.4% of the variance in EFB (R2 = 0.174). Furthermore, the variation in ERBI accounted for 14.1% (R2 = 0.141) of its previous state.

4.5. Moderating analysis

Multigroup analysis (MGA) was used to determine whether EK acts as a moderator between EFBI and EFB (Su and Swanson, 2017; Um and Crompton, 1990). The EK data was split into strong (n = 631) and low (n = 245) categories using K-means cluster analysis (Nicoletta and Servidio, 2012). The moderating variable was then tested using the route of interest for the model. As suggested by Awang, the chi-square ($\chi2$) difference test was used to compare the confined and unconstrained models in both groups. In cases where the $\chi2$ difference exceeds the critical value of 3.84 with one degree of freedom, it indicates the presence of a moderating role in the specified pathway.

Table 5. Moderator test results for ERBI-ERB path.

Hypothesis	EK. groups	SPC	t-statisics	Chi-square			Interaction Effect	Outcome
				CM	UM	Difference		
H9	High	0.534***	9.765	502.04	503.32	9.78	Significant	Supported
	Low	0.352**	4.184	304.43	204.11	29.67	Significant	

Note: SPC = Standard Path coefficients, CM = Constrained Model, UM = Unconstrained Model. ** $p <$ 0.01; *** $p <$ 0.001.

The test results for both groups in **Table 5** demonstrated significance, with the high group showing better performance than the low group $\Delta\chi2$ [1] = 9.78, than the low group $\Delta\chi2$ [1] = 29.67. This finding supports the hypothesis that well-maintained tourist destinations effectively stimulate visitors' motivation to engage in environmentally responsible behavior, particularly among those with a high EK rating (β = 0.534, t = 9.765, $p <$ 0.001). The moderating effect was more pronounced in the

high group ($\beta = 0.352$, $t = 4.184$, $p < 0.01$) compared to the low group, as depicted in **Figure 2**.

5. Discussion

This research developed a paradigm to explain how inland tourist visitors' ERB causes marine trash. Expanding the TPB paradigm, this framework incorporates socio-environmental (EC, EK) and socio-psychological (BA, PSP, SEB, and EFBI) elements. Empirical evidence supports this study's conclusions and therefore, the model can predict EFB. The next section discusses the importance of each aspect that affects EFB visitor engagement.Previous studies (Domhoff, 2017; Gautam, 2020) were backed up by the results of this study, which showed a direct and positive link between TPB factors and tourists' participation in ERB. Here are these conclusions:

Tourism EFB may be predicted in connection to the cleanup of maritime areas using SEB and EFBI (see **Table 4**). The first factor provides a more compelling rationale for the observed variation in EFB than the second. To rephrase, EFBI is critical to TPB's success. Intentional EFB participation increases the likelihood that tourists will strive for excellence. The findings of the proposed model also demonstrate that SEB influences EFB through EFBI. This finding is consistent with studies that analyzed real-world data on tourists' ERB in the setting of Indonesia's mountain tourism (Wang 2019a, 2019b).

A consensus is reached on the EFBI simultaneously by the SEB, the PSP, and the BA (see **Table 4**). SEB has the most significant and widespread impact on EFBI. As reported by a group of researchers (Soorani and Ahmadvand, 2019), SEB accurately predicts EFBI. The quantity of garbage in the water along the shore may be reduced if efforts are made to raise visitors' SEB of EFB and urge them to do so. The fact that PSP have such a robust positive impact on EFBI suggests that they may influence visitors' inclinations to act on EFB. Individuals need to be reminded, persuaded, and given examples of how to be more environmentally friendly. They are influence by others they look up to, such as friends, family, classmates, colleagues, famous people, and tour guides (Grilli and Curtis, 2021; Liu et al., 2020). Many studies have been conducted on this topic previously (Gautam, 2020; Soorani and Ahmadvand, 2019; Wang et al., 2019a). All have come to the same conclusion. Hu et al. (2019) investigated how tourists' views of social standards influenced their willingness to carry their rubbish down the mountain and vice versa. They saw firsthand how powerful blood bonds may be. The environmental behavior of tourists may be improved by using familial pressure. This demonstrates the superiority of families over other social groupings.

However, BA has a significant and beneficial influence on the EFBI of tourists. This indicates that EFB is a popular activity visitors are eager to partake as elucidated by previous researches (Hu et al., 2019; Wang et al., 2019a). According to Wang et al. (2019a), BA has a beneficial influence on environmentally friendly behavior. When people see the activity results of using ERB, they will immediately become devotees of that action (Ajuhari et al., 2016). This research employed the TPB model to determine the two components that contribute to tourists' EFB and consolidate that BA, PSP, and SEB all play a role in the EFBI to combine a SEB with an EFBI. If every

aspect of the TPB model were improved, then more visitors would engage in EFB. The findings support further investigating how tourists interact with inland ecosystems using the TPB model.

The present research predicted tourists' EFB using a modified TPB that contained the environmental awareness (E.A.) element. The outcomes for BA, PSP, and SEB were improved and were statistically significant (see **Table 4** and **Figure 1**). The results showed that tourists cared about environmental issues and thought that rubbish in the ocean was bad for people, money, and marine life. As a consequence, EC influences visitors' normative and self-efficacy views as well as their behavior. Based on descriptive data, it was found as shown in **Table 2**, that the attendees had a high level of emotional intelligence i.e., 4.04 mean and 0.60 standard deviation. As EC is intrinsic to humans, it does not have an impact on EFB. The TPB factors of BA, PSP, and SEB have been shown to mediate behavioral intention in prior research (Xu et al., 2020).

If we desire more visitors to behave responsibly, we must push forward for government measures to be taken that increase EC. Evidence to include EC as a pretreatment variable in the enhanced TPB model, that can be used to predict visitors' EFB at inland places, is provided by the structural equation model.

This research was motivated by the desire to address the knowledge gap about the destination setting and to promote tourists to participate in ecologically responsible behavior. By combining the EK and TPB models, this research examined the moderating influence of ecological knowledge (EK) on the interconnection between EFBI and EFB and MGA. EK substantially changes the causative link between EFBI and EFB as discovered by Wang et al. (2019a). In other words, when the EK rises, so does the EFBI which directly correlates with EFB. This connection was stronger between high-EK tourists and low-EK tourists. To put it another way, travelers in the high EK group were more willing to participate in EFB because they recognized a location's high environmental quality. According to Hao et al. (2019), the shattered windows argument suggests that the elements of the deteriorated environment for visitors who were more likely to experience low environmental quality (low group) may have overcome their behavioral intention.

Prior research in tourism management (Liu et al., 2020) demonstrates that visitors' perceptions of environmental quality influence EFB participation. Visitors are discouraged from acting in an eco-friendly manner due to tourist destinations that are filthy and disorganized. On the other hand, tourists are more likely to work on their ERB in clean environments. So, the government should improve how environmental backdrops are managed at tourist spots to get more people to participate in EFB (Wang et al., 2019b). So, EK is one of the most critical factors tourists use to decide whether or not to participate in EFB. The link between EFBI and EFB is made possible by EK's role in moderating destinations for both groups of tourists.

Practical implications

Inland tourism's EFB is essential for resolving disputes between people and their environment's resources. As eco-friendly vacation spot trends grow, tourists must be encouraged to utilize EFB. Tourists' euphoric reactivity biases were shown to be

strongly and favorably influenced by these elements. It is necessary to reinforce certain features to limit the quantity of trash in the water around Lake Singkarak. The following advice is derived from the managerial and practical experiences of destination managers and is intended to inspire visitors to engage in EFB to decrease ocean garbage.

It is imperative to highlight certain detrimental consequences associated with water debris, such as the entanglement or ingestion of waste by water organisms (Valente et al., 2020), the degradation of ecosystems (Akgün et al., 2020; Valente et al., 2020), and the loss of aesthetic appeal. As stated by Panwanitdumrong and Chen (2021), responsible tourists are always looking for ways to make a difference in the places they visit. The most common shift in behavior is supported by a rise in awareness and education (Grilli and Curtis, 2021). Some visitors may still be unaware of the dangers posed by rubbish in the water to marine life and their ecosystems. There are many effective ways to disseminate information to tourists at tourist hotspots, such as knowledge boards, onsite broadcasts, social media and pamphlets attached to major thoroughfares, major attractions, lodgings, and tour guides (Cook et al., 2013; Northey and Chan, 2020). It can be propogated via highly specialized visitor projects initiated in light of special occurrences such as Earth Day, Global Diversity Day, World Environmental Day, International Internal Cleaning Day, World Oceanic Day. An up-to-date website detailing West Lake's natural history should be immediately made available to the general public. Government tourism marketing organizations should provide opportunities for tourists to learn about and participate in environmental projects, as well as raise concerns and suggest solutions through these public forums.

Furthermore, government officials ought to promote eco-friendly conduct to increase travelers' comprehension of the importance and worth of such actions. This is because each individual should ensure an ingeniously positive environmental impact. It will inadvertently raise the experience of social pressure on the visitors to behave in an acceptable manner (S.N.s), to reassure them that there is a positive attitude toward the ecologically responsible activities that they do (BA), and to reinforce their self-efficicy belief (SEB). In addition, the government should aid EFB by crafting its rules and regulations. To reduce marine litter, Indonesia has made the decision to extend the ban on plastic bags that are smaller than 36mm, Styrofoam food boxes, one-time plastic cups, and plastic straws until the year 2020. This is one of the restrictions that is growing more stringent (Hao et al., 2019). Certain countries have previously established this kind of policy (Liu et al., 2022; Soorani and Ahmadvand, 2019). However, the majority of waste generated by visitors is plastic waste (Akgün et al., 2020; Russell and Russell, 2010). It ends up in the ocean if not disposed off correctly. Therefore, these tactics have to be used more often in tourist-heavy inland regions, particularly on deserted islands. Monetary and non-monetary incentives are economic instruments that may be used to assist EFB by enticing individuals to alter their behavior or enact new policies (Grilli and Curtis, 2021). It rewarded ecologically beneficial activities and deterred damaging ones, such as carelessness with natural resources, by the prospect of penalty (Wang et al., 2019a).

In order to promote stronger EFB, the EK of a tourism destination must be enhanced. EK reinforces the link between a traveler's EFB and EFBI. By boosting

EK, we may induce tourists to "turn a damaged window into a protected window" and avoid additional harm to the natural environment (Wang et al., 2019a).

Investing in infrastructure, such as tidy and attractive landscaping based on a site's condition and scientifically placed signage and garbage bins, to boost visitors' likelihood of joining EFB can be an imperative way of conditioning in seaside areas (Kals et al., 1999; Wang et al., 2019a). Trash cans and other signage should be "simple to locate, guide, and install" (Wang et al., 2019b; Walker and Chapman, 2003). Consequently, ecotourism and EFB standards will also be enhanced. Marine litter occurs from either trash left behind by inhabitants or inadequate waste treatment in inland regions, which might be remedied by improved waste management by local authorities (Gohary et al., 2022).

Maintenance budgets for infrastructure, electricity, and sanitary services are often inadequate in isolated places. Because of the high unit prices of transportation and waste removal, the federal government should provide subsidies to reduce pollution levels (Nicoletta and Servidio, 2012; Su and Swanson, 2017; Um and Crompton, 1990). Subsidies may enhance infrastructure building (Domhoff, 2017; Gautam, 2020). It can reduce trash collection costs, boost collection frequency, and expand public participation initiatives such as rubbish reduction, reuse, recycle, and cleaning (Vickers, 2017). Polluting natural resources can be costly, so charging visitors for their use is another method of attracting more tourists (Baloglu and McCleary, 1999; Neto et al., 2020). Thurnell-Read (2009) recommended utilizing admission fees to support tourist management to help equalize the budgets of the government and the citizens. Even though Lake Singkarak is accessible to the public for free, the polluter should be obliged to pay for its maintenance. Thurnell-Read (2009) suggest that entry prices may restrict travel while helping popular places to recuperate their diminishing government subsidies. Tourists' reckless disrespect for the environment has increased the marine debris problem in popular inland spots. However, no single factor alone determines whether a person exhibits EFB. Therefore, the above recommendations must be implemented as part of an ongoing, cohesive effort.

6. Conclusions and recommendations

This article extensively uses TPB to shed light on the aspects contributing to the development of tourists' EFB who are staying at a seaside resort. The structural equation model showed that visitors' emotional connection has a substantial impact on their perceived social pressure, views about behavioral attitude (BA), and self-confidence to participate in the self-efficacy belief (SEB). The presence of SEB, PSP, and BA were all shown to have substantial beneficial impacts on EFBI. In addition, the SEB and EFBI of the tourists had a considerable impact to exhibit better EFB. Furthermore, EK and EC prompts visitors' EFBI, which subsequently improves EFB.

In addition, the findings of this study provide an actionable advice for Lake Singkarak, Indonesia that may be used to increase the number of visitors as well as unleash prosperous EFB. The basic TPB model has the potential to be developed further by future researches, if other socio-demographic, socio-psychological, and socio-environmental components are included in the model as well. These factors are considered to be potentially relevant features. It is possible to introduce additional

moderating variables to improve understanding of the factors that play a role in EFB processes in inland regions. In addition, research in other areas, both within and beyond the nation may be carried out to get a more in-depth grasp of these associations in various cultural and geographical settings. This is something that may be done both inside and outside the country.

6.1. Future applications of study

The findings of this research can be beneficial for several areas and situations linked with tourism management and the environment. First and foremost, the findings would prove useful for policymakers and tourism authorities in Indonesia and other comparable areas concerning the motives behind tourists' eco-friendly actions. Specifically, the study examined the relationship between ecological consciousness, self-efficacy beliefs, and social norms Furthermore, knowing all these aspects of the impact of stakeholders will help to create goal-oriented campaigns and educational programs for respondents, encouraging the use of responsible tourism. Furthermore, the extension of the TPB theory carried out in this study can become a background for future investigations in various geographical areas and types of tourism. The model enables researchers to examine various factors influencing the adoption of sustainable practices in coastal tourism and urban or even inland environments to enhance the understanding of factors surrounding sustainable tourism behaviour.

Likewise, the findings of this study can prove crucial for the tourism operators and businesses, where tourist's values and expectations can be incorporated into improving the marketing strategies and creating the sustainable services. Consumers are more likely to book accommodation that is eco-friendly. Thus, when companies embrace sustainable practices they are likely to turn a profit while at the same time preserving the ecosystems.

6.2. Limitations and generalizability

It is important to note that there are limitations to this study, which can be enumerated in the following points. These are the limits of this study in examining the factors affecting eco-friendly behavior (EFB) among tourists at Lake Singkarak. First, the use of convenience sampling method may reduce the generalization of the study results. While the sample size was appropriate for the statistical analysis, the data may not reflect the other Indonesian tourists visiting other areas in Indonesia or other non-coastal tourist attractions across the globe. Therefore, there is need for utmost care when generalizing these results to other geographic or cultural areas. Second, it is important to note that the work is contextually limited to Lake Singkarak which is an inland tourist destination in Indonesia. It will also be understood that the behavior of tourists in terms of their impact on the environment and adherence to sustainable practices will depend on the specifics of the environment and culture of the visited country. There could be differences in other Southeast Asian countries especially in the general cultural practices and practices with regards to the environment that could affect the results reflected in Indonesia. Hence, it is possible that some facets of environmentally conscious behaviour are masked in other tourisms that are not

captured in this study due to differences in the level of environmental pollution, legal requirements, or culture of sustainability.

Third, the study relies on self-reported data. Consequently, the possibility to get variety of biases such as social desirability bias is higher. Self-reported measures can be misleading due to social desirability bias in the participants that may report higher levels of willingness to engage in pro-environmental behaviour than is actually the case. It would be useful for future studies related to this topic to control for these sources of bias or to use an observational or a longitudinal design. Finally, the study does not capture the factors that may influence the tourists' behavior by the season of the year. It is also important to note that the data was collected between November 2019 to March 2020, which might not be representative of tourists' behavior during other months when environmental factors, number of tourists or local legislation may vary. Future research may focus on performing a short-term intervention where future studies comprise changes in eco-friendly behavior with different season and changes in environmental policies.

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