Integrating Cognitive, Emotional, and Informational Predictors of Pro-Environmental Behavior

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This study aims to identify the factors that determine pro-environmental behavior. The study's sample consisted of 392 volunteer participants. A structural equation model was employed to examine the predictors of pro-environmental behavior. The determinants that we investigated are internet use, environmental knowledge, perceived environmental pollution threats, and environmental sensitivity. The fundamental findings of the current study indicate that environmental sensitivity is the most significant predictor of pro-environmental behavior. Furthermore, the study found that environmental sensitivity plays a significant mediator role not only between perceived environmental pollution threats and pro-environmental behavior but also between environmental knowledge and, pro-environmental behavior.

Keywords: pro-environmental behavior, environmental sensitivity, internet use, environmental knowledge, perceived environmental pollution threat

INTRODUCTION

The continued expansion of industrial activity and the resulting increase in carbon emissions (EPA, 2025) have significantly accelerated the accumulation of greenhouse gases, contributing to the global temperature rise. This warming has led to the fragmentation of ecosystems, depletion of clean water resources, deforestation, and a decline in biodiversity (Farmer and Cook, 2013). As a result, the adverse impacts of climate change on human health, agriculture, and natural systems are approaching critical thresholds (WHO, 2023).

Projections suggest a global sea level rise of approximately 0.48 meters by 2100, intensifying coastal flooding and erosion in vulnerable regions (Grandey et al., 2024). Additionally, a projected temperature increase of 2.5°C by 2080 could place nearly 50 million people at risk of hunger (EC-DGE, 2005). These alarming forecasts underscore the urgent need for strategies that mitigate climate change and its wide-ranging effects. Given the significant role of human behavior in environmental degradation (Lynas et al., 2021), understanding the drivers of pro-environmental behavior (PEB) is crucial for promoting sustainable practices and minimizing environmental harm.

In recent years, research on PEB has grown significantly, particularly in countries such as China and the United States (Tian and Xinyu, 2022). Pro-environmental behavior is defined as actions intended to reduce one's negative environmental impact (Kollmuss and Agyeman, 2002), emphasizing both individual agency and environmental responsibility.

Theoretical approaches to PEB typically fall into three categories: psychological, which examines individual-level predictors; sociological, which focuses on social influence and interactions; and economic, which explores the effects of external factors such as cost and income (Tian and Xinyu, 2022). Despite this growing body of literature, many previous studies have not systematically examined the mediating role of emotional and attitudinal variables, such as environmental sensitivity, in linking knowledge and perceived environmental threats to actual pro-environmental behavior. This gap is significant because a limited understanding of the psychological and social mechanisms underlying sustainable behavior may compromise the effectiveness of educational, cultural, or policy-based interventions.

In this regard, this study explores the determinants of pro-environmental behavior in the U.S. context. Drawing on existing literature, a theoretical framework is developed, followed by an analysis of empirical data collected in the United States. The paper concludes with practical recommendations and implications for promoting environmentally responsible behavior.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Pro-Environmental Behavior

Pro-environmental behavior (PEB) is broadly defined as deliberate actions undertaken to minimize negative environmental impacts (Steg and Vlek, 2009; Scannell and Gifford, 2010). This conceptualization emphasizes individual agency and environmental responsibility, encompassing behaviors aimed at conserving natural resources, reducing greenhouse gas emissions, and mitigating other ecological harms (Mesmer-Magnus et al., 2012; Kurisu, 2015).

The extant literature categorizes theoretical approaches to PEB into three primary domains: psychological, sociological, and economic. Psychological theories primarily focus on the predictive role of individual-level variables, while sociological theories emphasize the influence of social interactions and norms. Economic theories, on the other hand, investigate the impact of external conditions, such as price mechanisms and income levels, on environmentally relevant decision-making (Tian and Xinyu, 2022).

Among these frameworks, the Value-Belief-Norm (VBN) theory (Stern et al., 1999) provides a comprehensive explanation of PEB by proposing a causal chain that links values, environmental worldviews, awareness of consequences, personal responsibility, and pro-environmental norms. This model suggests that individual actions are shaped not only by cognitive and affective factors but also by broader socio-demographic characteristics and internalized normative beliefs (Jansson, 2011; Choi et al., 2015).

Environmental Sensitivity

Environmental sensitivity (ES) can be defined as "a predisposition to take an interest in learning about the environment, feeling concern for it, and acting to conserve it, on the basis of formative experiences" (Chawla, 1998). In this sense, ES can be defined as an environmental attitude. It's also a combination of beliefs, responses, effects, and actions people have regarding their environmental activities (Hoffmann and Muttafarak, 2017). These attitudes are embedded in the individuals' cognitive framework and are manifested in their response to environmental issues (Hsu, 2004). In distinct socio-political contexts, such as the United States (Hungerford and Volk, 1990), Germany (Kals et al., 1999), and China (Wang et al., 2014), the concept of ES is identified as the primary determinant of PEB. It can be argued that an increase in emotional responses to the natural environment may lead to a greater inclination toward protecting natural resources. This may subsequently enhance perceptions regarding the detrimental consequences of environmental degradation, thereby activating personal norms (Wu, 2018; Yusuf et al., 2022). In that sense, based on VBN theory, we formulated the following hypothesis.

***H1**: Environmental sensitivity is positively associated with an individual's pro-environmental behavior.*

Environmental Knowledge

Schahn and Holzer (1990) explain that environmental knowledge (EK) includes understanding the ecosystem, its structures, functions, and primary processes. EK is a crucial variable explaining PEB, reflecting individuals' awareness of environmental issues and their general understanding of relevant facts, concepts, and relationships concerning the natural environment and its major ecosystems (Fryxell and Lo, 2003). The predominant consensus within the academic community is that individuals are unlikely to engage in deliberate actions that benefit the environment unless they possess a sufficient degree of knowledge about it (Gifford and Nilsson, 2014). Aligning with this view, scholars posit that EK predicts PEB (Levine and Strube, 2012; Polonsky et al., 2012). Also, scholars observed that individuals with long-term EK appear to purchase more green and environmentally friendly products (Brosdahl and Carpenter, 2010; Ogbeide et al., 2015). Conversely, according to some studies, no relationship exists between these variables (Laroche et al., 2002; Kollmuss and Agyeman, 2002). Moreover, Fielding and Head (2012) posit that making environmentally conscious decisions without precise information is challenging. Therefore, we furnish the following hypothesis.

***H2**: Environmental knowledge is positively associated with an individual's pro-environmental behavior.*

Prior research has demonstrated that environmental knowledge has a positive impact on environmental sensitivity (Pan et al., 2018; Bala et al., 2023). Moreover, according to some studies, ES mediates the relationship between EK and Environmentally Responsible Behavior (ERB) (Ramkissoon, et al., 2013; Cheng and Wu, 2015). Considering this evidence, we hypothesize the following ones.

***H3**: Environmental knowledge is positively associated with environmental sensitivity.*

***H4:** Environmental sensitivity mediates the relationship between environmental knowledge and a individual's pro-environmental behavior.*

Perceived Environmental Pollution Threat

Perceived environmental pollution threat (PEPT) refers to an individual's assessment of the risks posed by environmental degradation (Arthur and Quester, 2004). According to Protection Motivation Theory, individuals who recognize environmental threats and believe they can respond effectively are more likely to engage in protective, pro-environmental behaviors (Carrete et al., 2018; Li et al., 2018). Research supports a strong link between environmental concern and pro-environmental attitudes. For example, Leiserowitz et al. (2006) found that environmental concern has a positive influence on environmental attitudes. Similarly, Yu and Yu (2017) reported that heightened awareness of climate change risks and potential consequences increases support for mitigation efforts and pro-environmental policies.

Empirical evidence further underscores the behavioral impact of perceived environmental threats. Keshavarz and Karami (2016) demonstrated that perceived severity and vulnerability had a significant influence on farmers' environmental behavior during drought. Zhou et al. (2020) found that perceived soil pollution risk positively predicted PEB, suggesting that individuals who perceive greater environmental threats may feel a stronger sense of responsibility. Additionally, Soares et al. (2021) demonstrated that raising awareness of plastic pollution can motivate pro-environmental actions.

Based on this body of literature, Hypotheses 5 through 7 were formulated.

***H5**: Perceived environmental pollution threat is positively associated with an individual's pro-environmental behavior.*

H6: *Perceived environmental pollution threat is positively associated with environmental sensitivity.*

H7: *Environmental sensitivity mediates the association between perceived environmental pollution threat and an individual's pro-environmental behavior.*

Internet Use

In line with the progression of the global economy, the number of internet users is projected to rise. By 2024, approximately 5.52 billion people worldwide are expected to be using the internet, representing about 67.5% of the global population (Statista, 2024) Therefore, it is essential to examine the connection between internet usage (IU) and pro-environmental behaviors. Research has shown that individuals who frequently use the internet tend to have a better understanding of and greater awareness regarding environmental issues (Zhao, 2009; Burton et al., 2018). Consequently, increased internet usage has been demonstrated to influence an individual's pro-environmental behavior positively (Ho et al., 2015; Liu et al., 2021). Based on these findings, we propose the following hypothesis.

H8: *Internet use frequency is positively associated with an individual's pro-environmental behavior.*

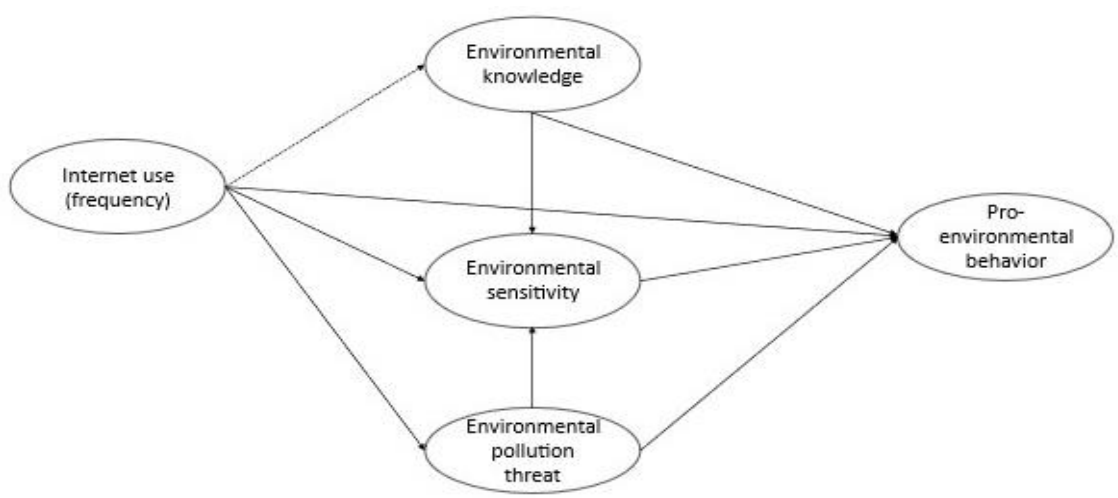
Research has demonstrated that negative perceptions can intensify internet users' awareness of environmental pollution and promote engagement with environmental issues. Consequently, netizens may deliberately and proactively modify their environmental attitudes and engage in pro-environmental behaviors (Rozin and Royzman, 2001; Zhang et al., 2018). The perception of the harm caused by environmental degradation has been shown to encourage individuals' participation in green behaviors (Dong et al., 2018). In this context, internet use can significantly enhance the perception of environmental pollution threats, ultimately fostering pro-environmental behaviors. Also, the hypothesis 9 was developed.

H9: *Environmental knowledge mediates the relationship between internet use frequency and pro-environmental behavior.*

H10: *Perceived environmental pollution threats mediate the relationship between internet use and pro-environmental behavior.*

Figure 1 presents our research model.

FIGURE 1
RESEARCH MODEL



METHOD

Procedure

The research model was tested using a quantitative research method. We used a survey to gather research data. IBM SPSS 24 and AMOS 24 software products performed the required statistical analyses. The research procedure received approval from the appropriate Ethics Committee.

Participants

The study participants comprised 392 volunteers in the United States. Of the total participants, 238 (60.7%) were in the 18-29; 47 (12.0%) were in the 30-39; 38 (9.7%) were in the 40-49; 32 (8.2%) were in the 50-59 age range, and 37 (9.4%) were above 60. Of the participants, 254 (64.8%) were female, 123 (31.4%) were male, and the remaining 15 (3.8%) didn't report their gender.

Measures

Internet use was measured using a single item that asked the participants how often they used the internet in the recent year (Liu et al., 2021). That was a 5-point Likert scale ranging from 1 (never) to 5 (always). High scores indicate a high frequency of internet usage.

Environmental knowledge was evaluated using a 10-item environmental knowledge scale (Xiao and Hong, 2010). For each item, participants indicated whether the provided information about the environment was true or false. The sum of correct answers constituted the scale score, which ranges from 0 to 10. A higher score indicates a greater level of environmental knowledge.

Perceived environmental pollution threats were measured using a 6-item scale (Liu et al., 2021) assessing perceived environmental pollution threats. Each item corresponds to a different environmental pollution threat. Participants indicated the seriousness of the threat they perceive on a 5-point Likert scale ranging from 1 (not a problem) to 5 (extremely serious). In the current study, Cronbach's alpha for the scale was α= .87.

Environmental sensitivity was evaluated using a 9-item environmental sensitivity scale (Tirri and Nokelainen, 2011). Participants indicated their degree of agreement with each statement using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree) (e.g., "Protecting nature is important to me"). The scale consists of three subscales: love for nature, nature conservation, and environmentally friendly consumer habits. High scores from the total scale indicate high levels of environmental sensitivity. In the current study, Cronbach's alpha for the total scale was α= .80.

Pro-environmental behaviors were evaluated by a 25-item pro-environmental behaviors scale (Krettenauer, 2017). Participants indicated how much they agreed with each statement on a 5-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree) (e.g., "I collect and recycle used plastic containers"). The scale measures individuals' pro-environmental behaviors within four domains (energy conservation, waste reduction, recycling behavior, and hazardous household waste). However, Krettenauer (2017) suggests assessing all items using one single factor. In the current study, the 18-item form was used by removing the items that reduced the internal consistency of the scale. The Cronbach's alpha for the total scale was α=.82.

RESULTS

Reliability and Validity Analysis Results

In the first stage of the analysis, the validity of the measurement tools was examined. We conducted confirmatory factor analyses for each latent variable (Perceived environmental pollution threats, environmental sensitivity, and pro-environmental behaviors) and for the measurement model that included all variables in the research. Fit indices confirmed a six-item, one-factor model of the PEPT scale, a second-order, single-factor model (with three sub-dimensions) of the ES scale, and a four-parcel, common-factor model of the PEB scale. The factorial base parceling technique (Little, et al., 2013) was used to ensure convergent validity for the 18-item PEB scale. The items of PEB scale within the four factors were grouped under four parcels. These results indicate that both the scales and the research model fit the data well (Hu and Bentler, 1999). Table 1 presents the confirmatory factor analyses results.

TABLE 1
CONFIRMATORY FACTOR ANALYSIS FIT MEASURES

Measurement Model	χ^2	*df*	x^2/df	*CFI*	*SRMR*	*RMSEA*	*RMSEA 90% CI*	
							Lower	*Upper*
Environmental pollution threat (EPT)	18.72	7	2.67	.99	.03	.06	.03	.10
Environmental sensitivity (ES)	86.11	22	3.78	.96	.07	.08	.07	.10
Pro-environmental behavior (PEB)	1.15	2	0.57	1.00	.01	.00	.00	.09
Total measurement model	539.63	222	2.43	.92	.07	.06	.05	.07

x2/df = Chi-square Goodness of Fit / Degree of Freedom, CFI= Comparative Fit Index, SRMR=Standardized Root Mean Square Residual, RMSEA= Root Mean Square Error of Approximation

Composite reliability values were examined to assess the reliability of the latent variables. All Composite Reliability (CR) values were above .70. To evaluate the convergent validity of the scales, Average Variance Extracted (AVE) values were examined. The AVE value for the EPT scale was .56, and the ES scale was .72. The AVE value for the PEP scale was .47, which was found below the .50 threshold (Fornell and Larcker, 1981). However, all the factor loadings range from .62 to .74. Hair et al. (2009) recommend that factor loadings ideally be .70 and above and at least .50 for convergent validity assessment. When all these findings were evaluated together, it was assessed that the convergent validity of the PEB scale was ensured. To examine the discriminant validity of the measures, Heterotrait-Monotrait (HTMT) analysis (Henseler et al., 2015) was conducted. All the HTMT ratios of correlations ranged from 29 to .87, below the .90 threshold for discriminant validity. The (HTMT) ratio of correlations, CR, and AVE values of latent variables are presented in Table 2.

TABLE 2
HETEROTRAIT-MONOTRAIT (HTMT) RATIO OF CORRELATIONS, CR AND AVE VALUES OF LATENT VARIABLES

Constructs	**EPT**	**ES**	**PEB**
1. Environmental pollution threat (EPT)	(.88 / .56)		
2. Environmental sensitivity (ES)	0.289	(.87 / .72)	
3. Pro-environmental behavior (PEB)	0.206	0.866	(.78 / .47)

Note: n = 392, Composite Reliability (CR) / Average Variance Extracted (AVE) values are given in parenthesis

Descriptive Statistics and Correlation Analysis Results

Next, we performed correlation analysis to examine the relationships between the variables in the research model. As seen in the Table 3, pro-environmental behavior is positively related with environmental sensitivity (r = .73, p< .01), perceived environmental pollution threats (r = .17, p< .01), environmental knowledge (r = .33, p< .01), income (r = .19, p< .01), age (r = .25, p< .01), and gender (r = .17, p< .01). Environmental sensitivity is positively related to perceived environmental pollution threats (r = .22, p< .01), environmental knowledge (r = .36, p< .01), income (r = .11, p< .05), age (r = .22, p< .01), and gender (r = .12, p< .05). Perceived environmental pollution threats are positively related to environmental knowledge (r = .18, p< .01), income (r = .19, p< .01), age (r = .15, p< .01), and gender (r = .15, p< .01). Environmental knowledge is positively related to income (r = .10, p< .05), and age (r = .24, p< .01). Internet use was not found to be significantly related to any research variables.

TABLE 3
DESCRIPTIVE STATISTICS AND CORRELATIONS

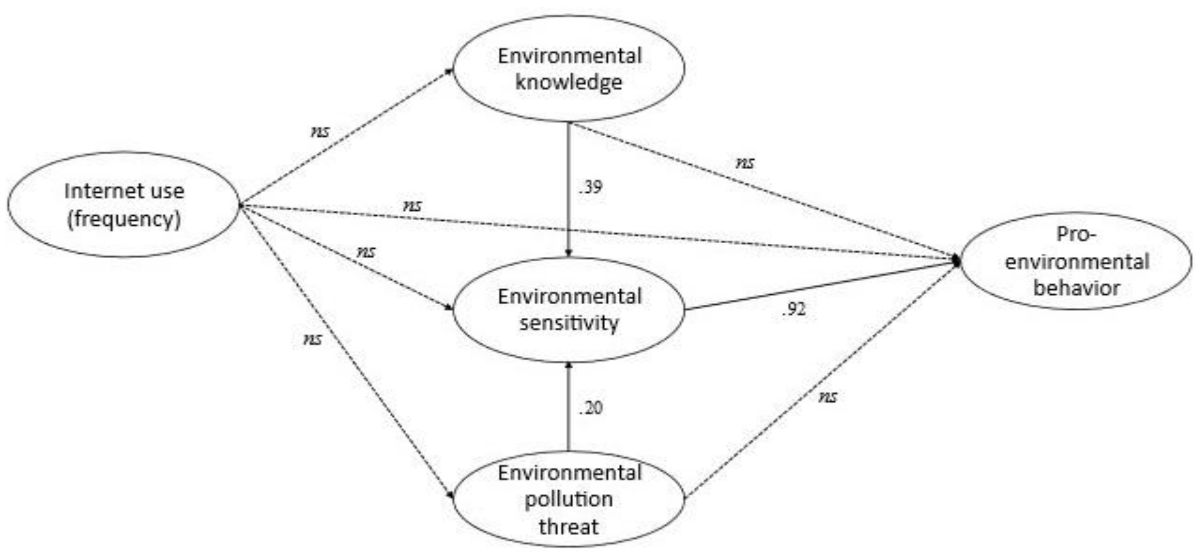
Variables	M	Sd	1	2	3	4	5	6	7
1. Gender	-	-							
2. Age	1.94	1.37	-.13*						
3. Income	2.27	1.42	-.15**	.71**					
4. Internet use (frequency)	4.84	0.70	-.02	.07	-.03				
5. Environmental knowledge	5.92	1.99	-.02	.24**	.10*	.05			
6. Environ. pollution threat	3.50	0.85	.15**	.15**	.19**	.09	.18**		
7. Environmental sensitivity	3.87	0.67	.12*	.26**	.11*	-.03	.36**	.22**	
8. Pro-environmental behavior	3.42	0.63	.17**	.25**	.19**	-.03	.33**	.17**	.73**

Note: *p < .05, **p < .01, Gender coded as male=1 - female=2, M= mean, Sd= standard deviation, n= 392

Structural Equation Model Analysis Results

Structural equation modeling (SEM) with IBM AMOS 24 was conducted in the last step of analyses to test the research hypotheses. The effects of demographic variables also were controlled while making estimations. The ensuing discussion shall focus on the results obtained from the SEM analysis, presented in Figure 2. This figure elucidates the direct and indirect relationships between the variables under consideration.

FIGURE 2
THE RESULTS OF SEM ANALYSIS



The SEM analysis results for direct estimates are presented in Table 4. The results indicated that environmental sensitivity has a significantly positive effect on pro-environmental behaviors (β = .92, p < .01). This finding supports H1. Gender (β = .11, p< .01) and income (β = .17, p< .01) were found to be positively associated with pro-environmental behavior. Perceived pollution threats, environmental knowledge, and internet use were not observed to have a positive association with pro-environmental behavior. These results did not support H2, H5, and H8. Environmental knowledge (β = .39, p< .01) and perceived environmental pollution threats (β = .20, p< .01) were found to have significant positive effects on environmental sensitivity. These results supported H3 and H6.

TABLE 4
SEM ANALYSIS RESULTS FOR DIRECT ESTIMATES

Path						%95 CI	
			B	SE	β	LL	UL
Environmental knowledge	<---	Internet use (frequency)	.14	.14	.05	-.06	.15
P.Environ. pollution threat	<---	Internet use (frequency)	.08	.05	.08	-.06	.21
Environmental sensitivity	<---	Internet use (frequency)	-.04	.02	-.09	-.19	.03
Environmental sensitivity	<---	Environmental knowledge	**.06****	**.01**	**.39**	**.29**	**.50**
Environmental sensitivity	<---	P.Environ. pollution threat	**.09****	**.03**	**.20**	**.07**	**.33**
Pro-environmental behavior	<---	Gender	**.08****	**.03**	**.11**	**.04**	**.18**
Pro-environmental behavior	<---	Age	-.01	.02	-.04	-.15	.09
Pro-environmental behavior	<---	Income	**.05****	**.02**	**.17**	**.07**	**.28**
Pro-environmental behavior	<---	Internet use (frequency)	.01	.02	.02	-.04	.08
Pro-environmental behavior	<---	Environmental knowledge	-.00	.01	-.01	-.11	.08
Pro-environmental behavior	<---	P.Environ. pollution threat	-.02	.03	-.04	-.13	.05
Pro-environmental behavior	<---	Environmental sensitivity	**3.02****	**.40**	**.92**	**.82**	**1.09**

Note: *p < .05, **p < .01, B = unstandardized regression weight, β = standardized regression weight

Table 5 shows the SEM analysis results for indirect estimates. Environmental knowledge (β = .36, p < .01, 95% CI [.26, .48]) and perceived environmental pollution threats (β = .19, p < .01, 95% CI [.06, .31]) were found to have significant positive indirect effects on pro-environmental behavior through environmental sensitivity. In other words, environmental sensitivity positively and significantly mediated the effects of environmental knowledge and perceived environmental pollution threats on pro-environmental behaviors. It was found that Internet use did not have any significant indirect effect. These findings supported H4 and H7 but did not support H9 and H10.

TABLE 5
SEM ANALYSIS RESULTS FOR INDIRECT ESTIMATES

Path					*B*	*BSE*	*β*	*%95 CI*	
								LL	*UL*
Env. sensitivity	<---	(Env. knowledge P.Env.poll.threat)	<---	Int. use (frequency)	.02	.01	.04	-.03	.10
Pro-env. behavior	<---	(Env. knowledge P.Env.poll.threat Env. Sensitivity)	<---	Int. use (frequency)	-.03	.03	-.05	-.13	.05
Pro-env. behavior	<---	Env. sensitivity	<---	Env. knowledge	**.08****	**.01**	**.36**	**.26**	**.48**
Pro-env. behavior	<---	Env. sensitivity	<---	P.Env.poll.threat	**.11****	**.04**	**.19**	**.06**	**.31**

Note: *p < .05, **p < .01, BSE = Bootstrap standard error, B = unstandardized regression weight, β=standardized regression weight

DISCUSSION

This study investigated the predictors of pro-environmental behavior (PEB) using a structural equation model, aiming to identify key determinants and understand the mechanisms through which they influence environmentally responsible actions. The findings indicate that environmental sensitivity is the most significant predictor of PEB. Both environmental knowledge and perceived environmental pollution threats indirectly influence PEB through environmental sensitivity, supporting the mediating role of this variable.

Among the examined factors, environmental sensitivity emerged as a core attitude shaping individuals' environmentally conscious behaviors. This supports Hypothesis 1 (H1) and aligns with prior studies (Hungerford and Volk, 1990; Kals et al., 1999; Wang et al., 2014; Cheng and Wu, 2015; Wu, 2018; Yusuf et al., 2022). The results underscore the importance of emotional and attitudinal responses in driving PEB.

Hypothesis 2 (H2), which proposed a direct positive relationship between environmental knowledge and PEB, was not supported. This contrasts with several studies (e.g., Levine & Strube, 2012; Xie & Lu, 2022), but aligns with others suggesting that knowledge alone may be insufficient to drive behavior (Laroche et al., 2002; Kollmuss & Agyeman, 2002). This variation may be context-dependent, suggesting a need for further cross-cultural investigation.

Hypothesis 3 (H3) was supported, indicating that environmental knowledge significantly contributes to the development of environmental sensitivity—consistent with prior findings (Pan et al., 2018; Yusuf et al., 2022; Bala et al., 2023). Thus, environmental sensitivity can be viewed as an attitude shaped by knowledge acquisition.

In contrast, Hypothesis 5 (H5), predicting a direct relationship between perceived environmental pollution threats and PEB, was not supported. This finding diverges from prior research suggesting that perception of environmental harm increases PEB (Keshavarz and Karami, 2016; Zhou et al., 2020; Soares et al., 2021).

Hypothesis 6 (H6) was supported, showing that environmental awareness—particularly concern about pollution—positively influences environmental sensitivity. This finding is consistent with the existing literature (Leiserowitz et al., 2006; Yu and Yu, 2017), which highlights the role of awareness in shaping environmental attitudes.

Additionally, Hypotheses 4 and 7 (H4 and H7), which proposed the mediating role of environmental sensitivity between environmental knowledge and perceived threats with PEB, were supported. These findings are consistent with previous studies (Cheng and Wu, 2015; Bala et al., 2023), confirming environmental sensitivity as a key mediating factor.

However, Hypotheses 8, 9, and 10 (H8–H10)—concerning the impact of internet use frequency on environmental knowledge, threat perception, sensitivity, and behavior—were not supported. This contradicts earlier findings (Ho et al., 2015; Gong et al., 2020; Xiao et al., 2022) that identified a positive association between internet use and PEB. A likely explanation is that this study measured only the frequency, not the nature or purpose, of internet use. In contexts like the U.S., where internet access is ubiquitous, usage frequency may not reflect meaningful engagement with environmental content. Future research should employ qualitative or purpose-driven measures of internet use to more accurately capture its impact on environmental attitudes and behavior.

Finally, the study found that gender significantly influences PEB, with women demonstrating higher levels of environmentally friendly behavior. This supports previous findings that women are more likely to engage in actions such as recycling and eco-conscious consumption (Newman and Fernandes, 2016; Pisano and Lubell, 2017).

These results refine existing theoretical models and offer a more detailed understanding of the psychological drivers of environmentally responsible behavior. Bridging this research gap contributes not only to theoretical development but also provides practical guidance for educators, policymakers, and environmental organizations seeking to promote sustainable behavior in society.

Practical Implications

Human behavior significantly impacts the extent of environmental degradation. Adopting environmentally friendly behaviors is greatly influenced by the availability of accurate and realistic environmental information. The first step toward making pro-environmental behaviors widespread in society is to provide the public with accurate information about environmental issues. The next step involves raising awareness about the extent of environmental damage and pollution. The dissemination of information plays a crucial role in fostering environmental awareness and enhancing sensitivity toward environmental protection. Consequently, pro-environmental behaviors are more likely to flourish in societies composed of environmentally sensitive individuals.

Limitations and Directions for Future Research

This study has several limitations that offer opportunities for future research. First, using cross-sectional data may introduce endogeneity concerns, a common issue in studies relying on single-survey designs. Future research should consider longitudinal data or experimental designs to strengthen causal inferences. Second, the reliance on self-reported measures of pro-environmental behavior may be subject to social desirability bias. Employing mixed-methods approaches that integrate qualitative insights can enhance the validity and reliability of behavioral assessments.

Additionally, the voluntary nature of participation may have led to a sample skewed toward individuals with higher environmental awareness, which could potentially limit the generalizability of the findings. Finally, this study found no significant relationship between internet use frequency and environmental attitudes or behaviors, contrary to prior research. This result highlights the need for further investigation, particularly in diverse cultural contexts. Future studies should adopt varied analytical models, estimation methods, and cross-cultural comparisons to deepen our understanding of the factors driving pro-environmental behavior and validate these findings across different populations.

CONCLUSION

This study employed a structural equation model to investigate the predictors of pro-environmental behavior, aiming to identify key determinants and understand their impact on individual actions. Findings indicate that environmental sensitivity is the strongest predictor of pro-environmental behavior and serves as a significant mediator between environmental knowledge and perceived environmental pollution threats, on the one hand, and pro-environmental behavior, on the other. These results highlight the importance of fostering environmental sensitivity to promote sustainable behavior. Educational interventions—such as nature-based experiences, environmental film screenings, and targeted training programs—may effectively enhance environmental knowledge and awareness, thereby encouraging and translating these attitudes into meaningful pro-environmental actions.

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