Research Article

Influence of mindfulness on environmental satisfaction among young adults: mediating role of environmental identity

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ABSTRACT

This study aims to analyze the relationship between mindfulness, environmental satisfaction, and environmental identity of adults. A sample of 367 adults was recruited using convenient sampling, and data were collected through online surveys. A quantitative analysis was carried out with SMART PLS-SEM to explore the structural relationships between these variables. The results demonstrated that mindfulness is significantly correlated with both environmental satisfaction and environmental identity, with environmental identity serving as a significant mediator between mindfulness and environmental satisfaction. These findings suggest that individuals with higher levels of mindfulness tend to have greater environmental satisfaction and a more robust environmental identity. The study highlights the importance of mindfulness in promoting environmental responsibility and suggests that mindfulness can enhance adults' affinity with nature and pro-environmental behaviors. This research contributes to the current understanding of the psychological determinants of environmental attitudes and behaviors, offering valuable insights for policymakers and practitioners aiming to foster environmental actions.

Keywords: mindfulness; environmental satisfaction; environmental identity; young adults

1. Introduction

Determinants of the psychological factors responsible for basic access to environmental perception are vital for creating appropriate strategies and tactics for environmental enlightenment and posterity. However, despite the growing number of studies in the field, the existing literature in this area still lacks sufficient research on the relationship between mindfulness, environmental satisfaction, and environmental identity, especially in Pakistan. Mindfulness is awareness of one's internal states and surroundings that is associated

with environmental satisfaction in which an individual can set the level of unity and their actual experience of the physical-spatial characteristics of a specific place and linked with environmental identity that demonstrates the extent to which people perceive themselves as a part of nature. Identity can be described as

the way of organizing information about an object. Environmental identity is some of the concentration of the people about the concept of nature and surroundings and a sense of connection to the natural environment.

Cross-sectional studies have mainly investigated western samples; therefore, most of the world's population did not participate in cognitive research. The present research explores the mediating role of environmental identity between mindfulness and environmental satisfaction among the Pakistani adult population. This investigation aims to fill the gap. Although the present study is grounded in the principles of environmental and social psychology, it differs from previous works through the use of a theoretically sound quantitative approach that will further the understanding of how mindfulness can benefit individuals in developing relationships with the natural environment and ultimately support the call for greater environmental responsibility.

Materialism is an important cause of pressure on ecosystems. Suppose the individual perceives that the environment as a valued object is threatened. The literature puts forward that mindfulness enhances research on subjective well-being since it concentrates on the present moment, enhances interpersonal understanding and compassion, helps define and get a clear vision of purpose and values, and, lastly, helps avoid the hedonic adaptation that generally states that humans return to a baseline level of happiness after experiencing positive and negative life events. Research also reveals the correlation between subjective well-being, compassion, empathy, and non-materialistic or intrinsic values[1].

Meditation is today one of the most well-known, long-standing, and researched worldwide, the correlation of mindfulness is positively interlinked with environmental satisfaction and identity[2,3]. Mindfulness is a specific method of mental training that leads to an enhanced state of awareness and is closely related to people's psychological aspects[4]. There has been much research investigating it over the last few years, and the results of the studies have helped subjects, for instance, develop well-being, value identification, perception, empathy, and compassion in relating to the environment, which can help in bringing about a change toward environmental satisfaction.

Unlike Buddhism, the basic skills of mindfulness practice can help people pay much more attention to bring attention back to themselves and their needs, which could help to open up new ways in which people can transform themselves as individuals and societies. Mindfulness requires knowing what's around us and how our bodies feel. Meditation is a practice that reels in our thoughts to calm the mind[5]. In the literature concerning mindfulness practice, much research has been conducted on how it is beneficial in cases of several health and well-being-related diseases. Another group of studies has also explored the question of how mindfulness can lead to the practice of empathy and compassion.

Comparatively little research pertains to the correlation of mindfulness with environmental identity and normalization, which refers to social processes through which ideas and actions come to be seen as 'normal' and become taken for granted or 'natural' in everyday life. However, studies that are not directly related to mindfulness but point toward its related facets also indicate that well-being, empathy/compassion, and intrinsic/non-materialistic values contribute to sustainability. Mindfulness can lead to positive psychological outcomes, and how positive outcomes, in translation, are positive for the environment is discussed[1].

Therefore, it can be posited that, as Rosenber[6] has postulated, mindfulness could 'disembowel' consumerism. Mindful consumption uses awareness of issues to inform purchasing decisions, from everyday items to long-term investments. Mindful consumption refers to being conscious about your choices as a consumer.

There is a certain amount of literature that supports this view. For example, Brown and Kasser[7] investigated whether mindfulness, intrinsic value orientations, and voluntary simplicity lifestyles were

associated with subjective well-being and minorities. Ecology is responsible for actions among samples of adolescents and adults. They discovered the positive correlation between well-being and sustainable living and that mindfulness and intrinsic values bear the characteristics of higher well-being and higher tendencies towards ecological behavior.

Environmental identity (EID) is individuals' understanding of perceiving themselves as part of the natural environment. In this respect, EID can affect any activity one perceives as touching on environmentalism or impacting the environment. EID is also seen as the collection of attributes one has and how one defines oneself, starting from birth and proceeding to their last moments. Although the latter can speak about the social aspect of a person and how membership in a certain group can make people act in some ways that are by the group's norms, the former can center on one's perception of self and is a process by which people can relate to something greater than themselves or not a group; in this case, it is nature. Studies conducted based on these different points of view have tried to integrate them into environmental identity and show that both personal and social aspects of environmental identity are a positive contribution to environmental conservation and pro-environmental behavior[8].

The EID has been designed to measure dispositions concerning people and the environment, combining elements of affect and cognition[9]. Like other elements of identity, the connection with nature relativity is not changeable and seems to be determined by childhood experiences and socialization processes[10, 11]. Subsumed under a psychological environmental self-identity, people with a strong environmental identity are aware of the symbiotic relationship between them and the environment; they have a subjective experience about the environment and the self, and nature is salient and emotionally meaningful to the selves of people who have a strong environmental identity. Values are associated with identities, and biospheric values are utilized in interests that involve people's perception of the world and assess events and facts as cost/benefit characteristics of the biosphere or its sections[12]. EID predicts positive attitudes toward subjects that are included in the biosphere, which means that people high in EID attribute more moral status to nature and to animals, accept the biospheric values, and have a nonlinear, non-dualistic outlook where they and the world of living beings are equal members of the biosphere[9, 13].

In a more general theoretical framework, Clayton's conceptualization[9] and related measurement of environmental identity correspond to the ideas of identity centrality derived from the mentioned identity theories[14, 15]. If an identity is higher (compared to lower) and within the individual identity hierarchy, these components defining the particular identity will be more salient for the subject. In the same way, environmental identity is described as a cognitive structure by which an individual feels a sense of ownership and commitment to the environment[9]. Therefore, the idea of environmental identity is fully supported as a construct that measures behavior, attitudes, and value, and there is also clear integration with the more general theory of identity.

Environmental satisfaction in building studies refers to the symbolic assessment of the physical properties of a particular environment that shows the extent to which a particular built-in environment is viewed as meeting expectations and the perceived needs of the occupants[16]. Due to the relativistic factor of the individual's assessment of the environment based on his/her value system about the life cycle[17], as well as the goals and purposes that the individual has for the particular space[18,19], individual satisfaction with the environment is rather difficult to remove from the context or to be objectively assessed. According to the study's goal, Shin[20] provided a theoretical framework oriented to the process and contextually sensitive to environmental satisfaction.

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On the other hand, the positive association of mindfulness with the opportunity to expand the perceptive sense of self can point to these risks being potentially avoided. Similarly, as Brown et al[21] pointed out, "Mindfulness is not a way to retreat from life and emerge with a strategy that involves inactivity and disengagement, but rather is believed to direct one more fully to life by preventing narratives about life to which the self can become prematurely committed".

The proposed model of mindfulness during environmental interpretation was investigated. It was hypothesized that mindfulness was to be harnessed through a) mindfulness exercises used during the interpretation process and b) short mindfulness interventions practiced before participating in the interpretation process. This research used a 2x2 design, which was experimental. In this analysis, 450 participants were randomly assigned to the mindful instructions-present condition and the mindful instructions-absent condition and were exposed to the mindful interpretation-provided website versus the mindful interpretation-not provided website. Recommendations for further research, the possible reconception of mindfulness is proposed, where engaging in mindfulness should not be viewed as one of the dimensions of mindfulness but as a separate but connected concept[22].

Exploration of a model testing the direct effect of mindfulness and enjoyment of nature in people with a negative impact on environmental responsibility with a moderating impact of sustainable attitude (S.A.). Information stressing knowledge and understanding to support and develop long-term positive mindsets pushing nature enjoyment for more responsible and prudent inhabitants' behavior, specifically in tourist regions such as Antalya, is also highlighted.

In one study, mindfulness is tested for its impact on daily pro-environmental behavior (PEB), nature connection, positive environment affect (PENA), and well-being. Using a daily diary design, it is revealed that mindfulness improves PEB the following day by facilitating connection with nature and PENA. These findings not only point to the fact that environmental considerations are often addressed in the context of awareness and daily actions but also signify the importance of mindfulness in initiating environmental actions and improving sustainable functioning[23].

Another correlational study found that organizational climate stress negatively impacted job satisfaction, moderating by dispositional mindfulness, while that by job control and organizational climate stress was not statistically significant. Occupation control and organizational climate stress; nevertheless, the moderating roles of dispositional mindfulness[24]. Another study of teachers and physicians revealed that mindfulness is a significant mediator between quality of life and work stress[25].

One research explores the interconnection between ecologically sustainable behavior (ESB) and perceived well-being (SWB) through the lens of ecological concern, spiritual orientation, and spiritual striving, with mindfulness meditation (MM) as the mediating variable. These findings suggest that, specifically in recipients with a higher level of spirituality, the proposed environmental lifestyle could be easily embraced, as the study by Jacob et al.[26] reveals.

Research is carried out to find the effect of mindfulness on mood behavior during outside activities in an urbanized environment. The 10-minute walk pattern was outdoor without mindfulness instruction (indoor) allocated using systematic random sampling. This is because the dimensions of mindfulness raise awareness and connectedness to the environment, lead to a better mood, and reduce negative effects compared to other activities, such as outdoor walking, without mindfulness. As posited, mindfulness did not enhance positive effects outdoors, although it seems to build on some aspects of the nature experience protocol[27].

Experimental research proposed a pre-and post-test design to examine the effects of an office ergonomic training program on employee psychological strain, environmental regulation, satisfaction, and interpersonal

interaction. Assimilation of the responses from a survey conducted before and after the intervention with the knowledge workers revealed a significant improvement in environmental control, satisfaction, and communication. However, the students' psychological stress levels did not decrease as expected. Therefore, the findings support the need to promote ergonomic training when preparing offices to increase satisfaction with the environment and perceived control[28].

2. Research methodology

For the reasons mentioned above, it becomes important to understand the relationship between mindfulness, satisfaction with the environment, and the environmental identity of adults. First, it unveils the directions on how such a popular tool for stress reduction might impact everyday behavior toward the environment. Second, investigating the relationship between mindfulness and environmental satisfaction can provide suggestions on how to improve the path of individuals to positive changes towards a more environmentally friendly approach.

Convergently, considering the correlation between the concepts of mindfulness and environmental identity proves useful in understanding how the former might enhance the latter so that people can better care for the environment and the world they inhabit. In general, integration of these findings can help in being mindful that will improve the health of citizens around the world as well as the health of the planet, which in turn will create improved population health and global health.

2.1. Hypothesis

H1: Mindfulness is positively associated with environmental identity.

H2: Higher levels of mindfulness will lead to greater environmental satisfaction,

H3: Environmental identity significantly mediates the relation between mindfulness and environmental satisfaction.
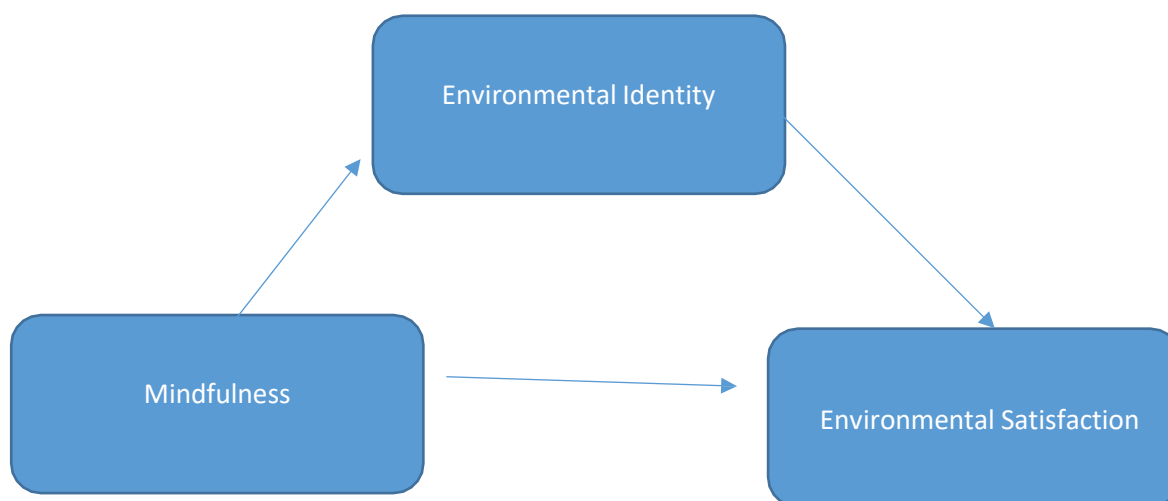
Figure. 1. Hypothetical mediation model

Participants: An explorative quantitative research was adopted for the study. The current study has used a quantitative research approach and survey method to investigate the relationship of variables. Measuring research variables and using a quantitative research design help assess individuals' attitudes, opinions, and behaviors. To ensure an adequately diverse sample, the study recruited 367 adult participants

(over 18 years old) with various characteristics. Convenient sampling techniques were used for data collection. **Table 1** explains the demographic characteristics of the participants.

Table 1

Demographic Details (N=367)

Employees Particular	Description	Frequency	Percentage
Gender	Female	165	44.9
	Male	202	55.04
Academic Qualification	Intermediate	38	10.35
	Graduation	126	34.33
	Masters	168	45.77
	MS/ MPhil or Higher	35	9.53
Age	18- 25 Years	112	30.51
	26-30 Years	76	20.7
	31-35 Years	54	14.71
	36-40 Years	27	7.35
	41-45 Years	46	12.53
	46-50 Years	27	7.35
	Above 50 Years	25	5.8

2.2. Measures

Mindfulness: The participants' mindfulness was determined using self-report data collected from a validated scale. The state MAAS is a 5-item scale designed to assess the short-term or current expression of a core characteristic of mindfulness, namely, a receptive state of mind in which attention, informed by a sensitive awareness of what is occurring in the present, simply observes what is taking place. These 5 items included 1. I was finding it difficult to stay focused on what was happening. 2. I was doing something without paying attention. 3. I was preoccupied with the future or the past. 4. I was doing something automatically, without being aware of what I was doing. 5. I was rushing through something without being really attentive to it. The 5-item mindful attention awareness scale (MAAS)-state was created to evaluate how a fundamental aspect of mindfulness, a receptive mental state in which attention is guided by a sensitive awareness of what is happening at the moment and merely observes what is taking place, is being expressed in the short term or right now. It is a 6-point Likert scale[29].

Environmental satisfaction: A scale of internal environment satisfaction was used to measure the overall level of satisfaction with the environment in which the participant worked. Eight elements were adapted and validated from the scale[30].

Environmental identity: This was done by administering the environmental identity scale (EID), which was slightly adopted to establish the level of environmental identity; that is, the level at which the participants feel that they are an integral part of the environment and how important the environment is to the person's self-conception. 9 items were tested and validated[9].

2.3. Procedure

Participants were mainly selected through Web-based announcements, community settings, and social networks. The participants read and received details of the purpose and process of the study and consented to participate in the study voluntarily. The Google forms were used through mail and social media to fill up the

questionnaire o the study. Initially, 395 questionnaire links were distributed, and 367 participants responded to the quantitative survey. Hypothesis testing was performed using the multivariate PLS-SEM method's structural analysis to investigate the interconnection between mindfulness, satisfaction with the environment, and environmental affiliation.

Antecedent demographic measures, such as age, gender, and education, were kept as covariates to assess their impact on the relation of interest. In the present investigation, all ethical guidelines were followed for the identity of the study participant, and their privacy and anonymity remained secure all the time. The methodological strategy used in this study was to view the theoretical frameworks regarding mindfulness and how it affects adults' environmental satisfaction and identity. Thus, by stating such relationships, the work extends existing knowledge about the psychological factors influencing environmental involvement and sustainable action.

3. Results

3.1. Demographic and correlation analysis

First, basic analysis was done on smart-PLS software version 4.1.0 and demographic characteristics and Mean, standard and correlation of the constructs have been examined.

Considering that the nature of the sample size, age, and qualification of the selected population is presented in **Table 1**, this paper takes them as control variables.

Table 2

Descriptive & Correlation Validity

Constructs	Mean	S.D	kurtosis	Skewness	MIND 1	Mind	ES	EI
Mindfulness	3.615	0.696	0.703	-0.63	0.708	1		
Environmental Satisfaction	4.018	0.537	0.456	-0.3	0.406	0.594	1	
Environmental Identity	3.751	0.573	0.055	-0.208	0.446	0.685	0.75	1

Note: ES=Environmental Satisfaction, EI= Environmental Identity, MIND= Mindfulness

Descriptive statistics and correlations of variables are shown in **Table 2**. The mean values for mindfulness (M = 3.615), environmental satisfaction (M = 4.018), and environmental identity (M = 3.751) are presented in **Table 2**. We further noted positive correlations of mindfulness with environmental satisfaction (r = 0.708, p < 0.01), and environmental identity (r = 0.406, p < 0.01).

The hypothetical model was tested and analyzed in the current research on the Smart-PLS 4.1.0.0 version by employing the PLS-SEM (Partial least squares-structural equation modeling) technique. The partial least squares structural equation modeling technique PLS-SEM helps assess complex models' direct and indirect relationships with the variables. PLS-SEM examines the item-wise reliability of the construct in the outer model assessment and the direct and indirect hypothetical relationship between the whole construct in the inner model assessment.

It also explains and ascertains the coefficients across significant paths. The PLS-SEM technique is used in academic research with the variance-based analysis approach to explain the variance in the target construct[31]. The analysis consisted of two phases. In the first part, the outer model was tested by assessing the commonalities of each item in the outer loadings, the convergent and divergent validity, and the values extracted from the average variance.
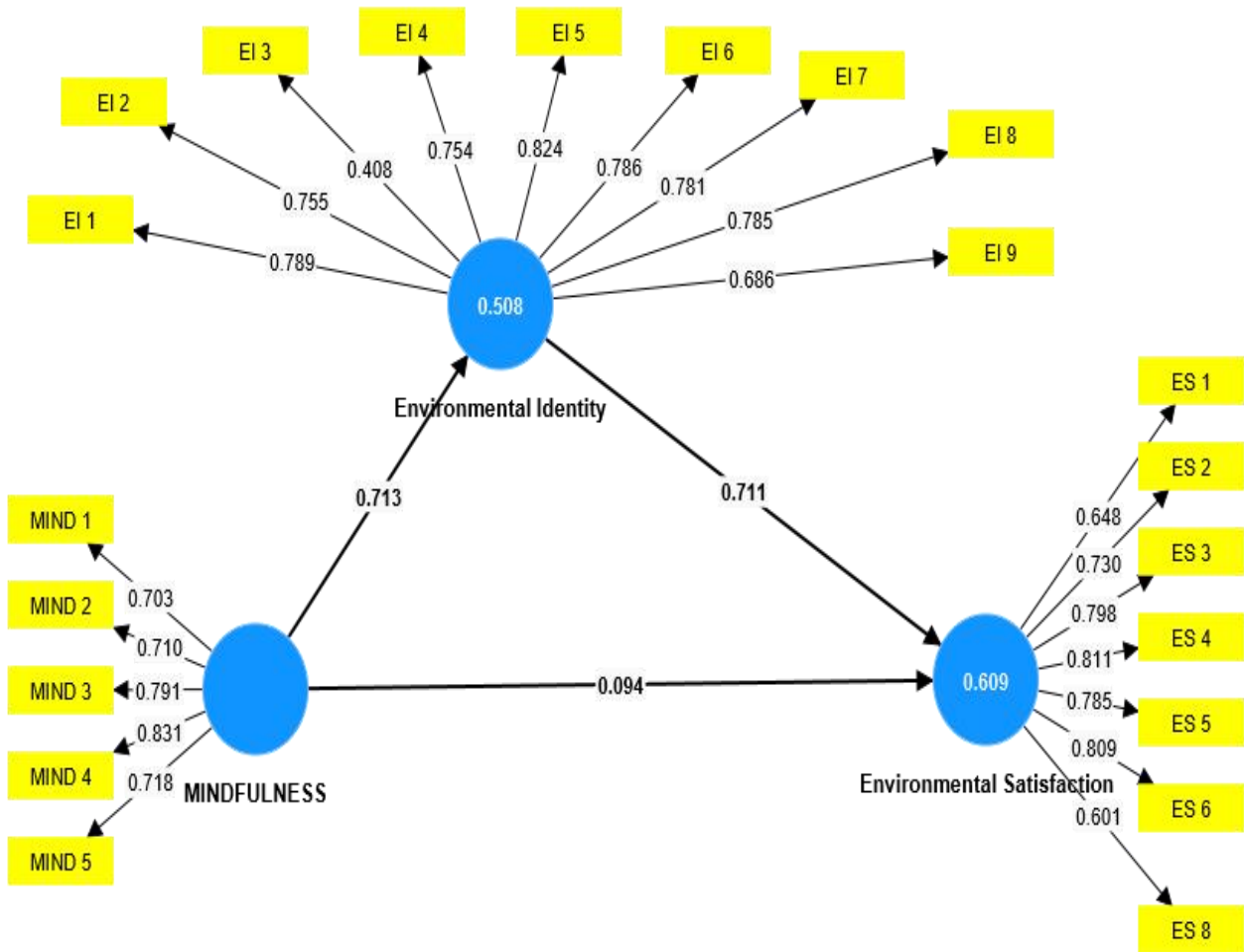
Figure. Path diagram

The path diagram in **Figure 2** describes the direct positive impact of government mindfulness on environmental satisfaction. Furthermore, the relationship between mindfulness and environmental identity is also positive. The mediating variable, e.g., environmental identity, intervenes in the positive link between mindfulness and environmental satisfaction. This also shows the loadings of the items after running the pls-algorithm, which depicts the significant level of each item commonality concerning the relevant construct.

Initially, the PLS- algorithm was run to measure the outer model. The PLS algorithm has assessed the outer loadings, composite reliability, discriminant validity, and outer loadings to establish an outer model. Composite reliability should be 0.70, and items with loading greater than 0.70 indicate that the model describes more than 50% of the variance in the constructs. The composite reliability of the constructs higher than 0.60 establishes the model significance and generally should be higher than 0.70. In the next phase, the average variance extracted, which should be greater than 0.50 for each construct, presents the outer model fit for the mediation and moderation concept[31]. Examining collinearity is an important part of assessing the structural model. We checked the VIF (variance inflation factor) to assess the collinearity. Values of VIF equal to or above three present collinearity issues; ideally, values of VIF should be close to 3. Values that fall from 1 to 3 present that there is no issue of multi-collinearity in the data.

Table 3

Measurement of Outer Model

Items	Factor Loadings (>0.6), Hair et al., 2019	VIF (<0.3), Hair et al., 2019	C.R (>0.7), Hair et al., 2019	AVE (>0.5), Hair et al., 2019	Cronbach's Alpha, Hair et al., 2019
Environmental Identity					
E.I.1	0.789	2.649	0.914	0.547	0.892
EI 2	0.755	2.387			
EI 3	0.408	1.172			
EI 4	0.754	1.998			
EI 5	0.824	3.167			
EI 6	0.786	2.560			
EI 7	0.781	2.534			
EI 8	0.785	2.087			
EI 9	0.686	1.638			
Environmental Satisfaction					
ES 1	0.648	1.676	0.896	0.554	0.865
E.S. 2	0.730	1.976			
ES 3	0.798	2.289			
ES 4	0.811	2.494			
ES 5	0.785	2.496			
ES 6	0.809	2.785			
ES 7	0.601	1.448			
ES 8	0.701	1.308			
Mindfulness					
MIND 1	0.703	1.529	0.866	0.566	0.807
MIND 2	0.710	1.486			
MIND 3	0.791	1.814			
MIND 4	0.831	1.891			
MIND 5	0.718	1.487			

Note: ES=Environmental Satisfaction, EI= Environmental Identity, MIND= Mindfulness

CA= Cronbach's alpha, CR=Composite reliability, AVE= Average Variance Extracted, DV=Discriminant Validity

Table 3 presents all values of composite reliability above 0.6, indicating the constructs' significant position. Secondly, the extracted average variance values captured the amount of variance of the constructs due to measurement error. Convergent validity higher than 0.50 shows that items explain less error in the constructs. As shown in Table 3, the AVE values are higher than 0.50, indicating a significant level of convergent validity in the data; this is also presented in **Table 3**, which explains the convergent validity of all constructs at a significant level.

The next step is to examine the validity of the discriminant. Discriminant validity shows that the construct is distinct from the related construct when testing the research model. Specifically, "these shows of each latent construct must exceed the highest squared correlation with any other latent variable. This

criterion ensures discriminant validity at the aggregate level, commonly called the Fornell–Larcker criterion[32].

Table 4

Discriminant validity

Constructs	EI	ES	MIND
Environmental Identity	0.778		
Environmental Satisfaction	0.739	0.752	
Mindfulness	0.713	0.600	0.744

Fornell-Larcker criterion, Note: ES=Environmental Satisfaction, EI= Environmental Identity, MIND= Mindfulness

Table 4 shows that by the adaptation of the Fornell-Larcker criterion, all diagonal values of the constructs are higher than related below constructs, demonstrating the study model's distinct level.

3.2. Test of hypothesis

The structural model was measured using the bootstrapping technique in a partial least squares approach to structural equation modeling (PLS-SEM) with Smart PLS 4.0.0 version. The path coefficients, direct and indirect variables' relationship, hypotheses, and significance were investigated with a bootstrapping step using 5,000 bootstrap samples on SMART-PLS software. The level of significance was examined at the 95% level of the confidence interval and 0.05% of the margin of error[33].

Table 5

Hypotheses Testing

Constructs	Independent Variable	Mediator	Dependent Variable	β	T statistics, >1.96	P values, <0.05	Decision
H1	Mind	EI		0.713	20.179	0.000	Accepted
H2	Mind		ES	0.094	13.302	0.000	Accepted
H3	Mind	EI	ES	0.711	3.052	0.002	Accepted

Mind=mindfulness, EI=environmental Identity, ES=Environmental satisfaction, t>1.96, p<0.05

Table 5 indicates the direct and indirect effects of the study variables. The relationship between mindfulness and environmental identity is (β = 0.713; t = 20.179, p <0.045) and the effects of mindfulness on environmental satisfaction are also positive and significant (β = 0.094; t = 13.302, p <0.045) that establish the direct positive impact of the independent variable on the dependent variable. In addition, the role of the mediator variable between the independent variable and the dependent variable is positively interacted (β = 0.711; t = 3.052, p <0.045) and proved the H3 of the study.

4. Discussion

This discussion explains how mindfulness affects environmental identity and satisfaction among adults. Utilizing the method of SMART PLS-SEM, this particular work confirmed hypothesis one and two, maintaining the understanding that mindfulness is positively related to both environmental identity and satisfaction. Further, it was hypothesized that there would be an interaction between mindfulness, environmental identity, and satisfaction, and this hypothesized relationship was supported. These results suggest that mindfulness may be one of those interventions that can help facilitate pro-environmental behaviors and improve subjects' sense of relatedness with nature.

An aspect of human behavior that could impact human actions toward the environment is mindfulness[26,34,35]. The self-compass is multiplied by being mindful, as it influences the ethical change in how one takes ethical action in individuals with attentiveness or empathy[36,37]. It also impacts pro-environmental action and behavior[35,38]. It involves assigning a specific focus on presence and acceptance of what one is experiencing when practicing it. This could involve changes in a person's relationship with the environment and a deeper sense of ascribe to nature. Research has established mindfulness effectively raises the general public's awareness and sense of connection with nature[27].

Mindfulness exercises aim at directing people's attention to the external and internal environment in a non-reflective and non-critical manner. Therefore, this awareness and acceptance translate the subject into having a higher sense of place identity. H1 shows a significant relationship between mindfulness and environmental identity meaning people who practice mindfulness will likely have a closer connection with the environment. This association raises the idea of mindfulness as a mechanism through which people may develop more relationships with and identification with nature. Based on the results obtained in this study, it is possible to claim that it is worthwhile to investigate the relationship between mindfulness and environmental identity further. Therefore, there is an improvement in organizational environmental productivity by practicing organizational mindfulness[39]. In particular, mindfulness in nature improves social relationships[27].

Environmental identification is studied in current research. It measures individuals' cognition of the environment as their own and the importance they accord to environmental issues as constituent components of their self-schema. The self-categorization theory to environmental identity means that such people are sensitive to their environment and feel responsible for the environmental outcomes, hence having higher self-rated environmental satisfaction. Research has also shown that people with a slight environmental identity exhibit higher levels of environmental satisfaction and communicate more frequently about environmental issues and conservation[9]. This means that environmental identity contributes significantly to people's overall satisfaction with the environment in which they live or have been placed. Experts sought to understand the factors and motives influencing environmental behavior as positive stimuli that encourage people to perform activities reflecting their appreciation of the natural environment over the last forty years[34,35,40]. However, in various studies, scholars have worked hard to explain the role of the psychological perspective of science in defining the acts of people towards the environment[41].

Hypothesis 2 explored that individuals with higher levels of mindfulness are likely to experience greater environmental satisfaction. Mindfulness practices, which promote heightened awareness and acceptance of the present moment, may enable individuals to fully perceive and appreciate the natural environment.

Mindfulness could establish its impact on environmental behavior towards nature in a manner that enhances and increases the person's experience. As most actions and acts are deliberate and automatic, mindfulness might only facilitate the change in behavior by increasing awareness of the environmentally appropriate behavior and initiating the environmental behavior. Since mindfulness increases the focus on the literal feelings surrounding environmental stimuli, it creates a stronger bond with nature[43]. In addition to these pathways, there is evidence that how certain aspects of mindfulness relate to environmental behavior vary. It was discovered that the dimension of witnessing was more consistently strongly connected with environmental behavior and related factors, such as personal ecological norms and attitude[44,45]. According to Baer et al.[46], observing is the awareness of internal and external stimuli, including feelings, thoughts, emotions, sights, sounds, and smells. Observation has been identified as the core component of

mindfulness[47], and research has shown that it is especially closely associated with a sense of being connected to nature[35].

Hypothesis 3 explores the mediating role of environmental identity in the relationship between mindfulness and environmental satisfaction. This hypothesis suggests that mindfulness practices may indirectly influence environmental satisfaction by developing a stronger environmental identity. Environmental identity as the concept of distinct self-categorization based on the environment helps to understand the role of mindfulness on environmental satisfaction. The effect of mindfulness can be assumed to improve environmental identity, leading to higher satisfaction with the environment, whose quality is further influenced by a closer relationship to nature. Prior literature on mediation analyses has shown that environmental identity moderates the correlation between other psychological characteristics or perceptions (e. g., psychological connectivity with the environment or environmental stance) and environment-related behavior or result. These results show that when it comes to predicting environmental outcomes influenced by individual characteristics, the identity of the environment should not be overlooked.

Scholars try to assess psychological antecedents that underpin environmental behavior and can claim that pro-environment behaviors enhance aspects of nature or minimize the destructive nature of the environment exercised by particular individuals. Mindfulness has received immense attention regarding psychological factors related to environmental behavior[26,38,42]. The literature shows that mindfulness allows people to monitor their behaviour appropriately.

In summary, the theoretical framework of this proposed model indicates that mindfulness affects environmental satisfaction through its effects on environmental identity. Because mindfulness raises people's awareness of their environment and their relationship with it, this could increase the level of what has been called 'environmental identity' and, in turn, the extent to which people feel satisfied with their environment.

5. Conclusion

This work contributes to understanding the associations between mindfulness, environmental satisfaction, and environmental identity among adults. The present study indicates that mindfulness practices have a positive influence in altering the perception people have about the environment. In particular, the present study revealed that mindfulness has positive and significant relationships with environmental satisfaction and identity. These findings indicate that mindfulness impacts can contribute to individual well-being and help people develop an appreciation of nature and engage in behaviors that benefit the environment. By doing so, mindfulness may help to raise people's awareness of the present moment and accept it, which in turn may make people appreciate their environment and act to protect it.

Our findings indicate that mindfulness practices significantly improve individuals' perceptions and appreciation of their environment, promoting well-being and environmentally beneficial behaviors. By highlighting the potential of mindfulness to foster environmental responsibility, our research provides valuable implications for designing interventions that can positively impact both people and the planet. These insights emphasize the psychological processes underlying environmental involvement and suggest that mindfulness can be a powerful tool in promoting sustainable environmental action. Policymakers and practitioners can use these findings to develop strategies that leverage mindfulness to benefit the environment.

6. Limitation

The study has few potential limitations, including self-reported biases and cross-sectional data. The study was conducted in one city, so the collected data may not be generalizable. Therefore, future studies can overcome these deficiencies by conducting research with a longitudinal design and including concrete measures.

7. Implication

The implications of this study are of great importance for future research and practical applications in mindfulness and environmental psychology. First, they emphasize that mindfulness interventions can contribute to an individual's subjective well-being and a higher level of individual-environment connection. As a result of contributing to people's need for environmental satisfaction and identity, mindfulness practices can be considered suitable to foster adult pro-environmental attitudes and behaviors.

Furthermore, since the findings of this study show that mindfulness has a positive and significant correlation with environmental attitudes, it is important to include mindfulness interventions in other large-scale programs geared toward increasing environmental awareness and responsibilities. By training people on how to develop awareness of the present moment and the ability to empathize with the environment, such initiatives can contribute to developing an environmentally conscious society. In summary, the findings of this study are not limited to the individual level but also encompass broader social and physical contexts. In understanding the ability of mindfulness to enable a better relationship with nature, policymakers and implementers can contribute to the development of systems that support both personal and environmental well-being, thus contributing to a brighter future for all.

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Conflict of interest

The authors declare no conflict of interest.

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