

RELATIONSHIP BETWEEN ECO-ANXIETY AND PRO-ENVIRONMENTAL BEHAVIOUR: MODERATING ROLE OF RESILIENCE

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ABSTRACT

The present study examined the relationship between eco-anxiety and pro-environmental behavior among young adults, with a focus on the moderating role of resilience. The sample included young adults (N = 650) with an age range of 20–35 years. Eco-anxiety was measured using the Hogg Eco-Anxiety Scale (Hogg et al., 2021), pro-environmental behavior was measured using the Pro-Environmental Behavior Scale (Aiman Khattak, 2023), and resilience was measured using the Brief Resilience Scale (Smith et al., 2008). Data were collected through convenient sampling. Results showed that eco-anxiety was positively related to pro-environmental behavior. Moderation analysis demonstrated that resilience moderates the relationship between eco-anxiety and pro-environmental behavior; the negative interaction term indicated that this relationship becomes weaker as resilience increases. Understanding the role of eco-anxiety in promoting pro-environmental behavior (PEB) is crucial for designing effective environmental policies and interventions.

1. INTRODUCTION

The term “ecological” is used to describe the natural environment, as well as the sociopolitical climate and a sense of community, which represent the collective impact of individuals (Katwak & Weihgold, 2022). Emotion is the most critical sensory process that humans employ to perceive their interactions with the environment from a biological perspective. Consequently, it is crucial for the survival and social cohesion of human societies (Hochschild, 2012). Ecological emotions are defined as a sensory capacity that provides individuals with essential insights into the changing dynamics of their natural and social environments (Katwak & Weihgold, 2022). More specifically, ecological emotions include eco-anxiety, eco-anger, eco-worry, eco-sadness, ecological grief, eco-paralysis, and eco-nostalgia. To begin, the idea of eco-anxiety exists within the broader area of anxiety, referring to unpleasant emotions like worry, unease, tension, and fear that humans express in reaction to stressful events or crises (Spielberger et al., 1983). All negative emotions are unpleasant, but their level of activation differs. It is important to note that less activating emotions lead to disengagement from a perceived threat. On the other hand, activating emotions predict behavior aimed at mitigating hazards, such as approaching or fleeing the situation (Stanley et al., 2021). For instance, depression is a deactivating emotion that does not encourage action. In contrast, eco anger is activating and associated with a tendency to confront the threat (fight), while eco anxiety activates and causes avoidance of the threat (Harmon-Jones, 2003; Stanley et al., 2021). Kollmuss and Agyeman

(2002) propose that positive eco-emotions, such as eco-hope, can increase engagement, whereas negative emotions, such as eco-anxiety, may result in both positive (increased pro-environmental behavior) and negative (avoidance or denial) outcomes, contingent upon the individual's coping mechanisms.

Eco-Anxiety

Eco anxiety is defined as “a chronic fear of environmental doom” ranging from mild stress to clinical disorders like anxiety and depression (Clayton, 2017). Eco-anxiety describes the psychological distress caused by environmental degradation and climate change. In reaction to the current climate crisis, this emotional response can encompass feelings of hopelessness, guilt, sadness, and worry (Léger-Goodes, 2022). As the deterioration of environmental conditions continues, eco-anxiety is increasingly recognized as a growing global issue (Parmentier, 2024). Two fundamental categories for understanding anxiety are trait anxiety and state anxiety. As a result of its tendency to interfere with daily functioning and serious risk to both health (Myles et al., 2020), trait anxiety is officially recognized in clinical psychology as a psychological disorder (Spalding et al., 2021). On the other hand, state anxiety, which is a common and non-clinical reaction to external stimuli, causes people to use a variety of coping mechanisms to reduce or even completely eradicate the pain it causes (Gino et al., 2012). Clayton and Karazsia (2020) constructed a climate change anxiety assessment encompassing rumination, functional impairment, and pure emotional components, including anxiety and concern. Dodds (2021) also described eco-anxiety as a persistent mental health condition triggered by environmental hazards, like the traits associated with trait anxiety. Eco-anxiety has been recognized as functional impairment (interference of concern about climate change with an individual's capacity to work or socialize) and cognitive-emotional impairment (such as rumination, difficulty sleeping or concentrating, and nightmares or crying due to climate change) (Schwartz et al., 2022; Patrick et al., 2023; Reyes et al., 2023).

Eco-anxiety is a commonly used phrase for discussing the emotional distress experienced by young people and children in relation to environmental concerns (Clayton, 2020). In response to environmental issues such as pollution, climate change, and biodiversity loss, individuals experience feelings of dread, worry, and concern, which are referred to as eco-anxiety. It is regarded as a subtype of general anxiety disorder that is distinguished by feelings of helplessness and powerlessness (Panu, 2020). Ecological anxiety (eco-anxiety) is a rational and potentially adaptive response to the severe threat of climate change to human health (Mathers-Jones & Todd, 2023). Hogg et al. (2021) stated a correlation between individuals who experience elevated levels of affective and behavioral eco-anxiety symptoms, rumination, and personal impact anxiety, and those who have lower mental health. In recent years, there has been a focus on gaining a deeper understanding of climate and eco-anxiety (Lutz et al., 2023). Young people who encounter direct impacts of climate change, such as severe weather, experience mental health consequences, including eco-anxiety (Burke et al., 2018). Eco-anxiety raises the chance of acquiring mental disease or worsening pre-existing mental health problems (Wu et al., 2020). There is concern that eco-anxiety affects young people, harming their mental health and decreasing environmental engagement (Martin et al., 2021). University students frequently encounter various life stressors that can contribute to burnout (March-Amengual, 2022). Concurrently, eco-anxiety has been identified as a motivator for pro-environmental behavior among young people (Mathers-Jones & Todd, 2023). A recent systematic review highlights a connection between eco-anxiety and adverse mental health outcomes, especially among younger individuals, women, and people in poorer countries in the Global South (Hwong, 2022). Young people are more aware of and susceptible to the effects of climate change than adults and older generations. Eco-anxiety can increase the risk of developing mental health issues or worsening existing ones, particularly for university students who face numerous life stressors that contribute to burnout (Lawrance & Jennings, 2022). Nonetheless, eco-anxiety has also been recognized as a motivator for pro-environmental behavior in young people (Mathers-Jones & Todd, 2023).

Theoretical Framework: Protection Motivation Theory

Protection Motivation Theory (PMT) was developed by Rogers in 1975, to describe how individuals are motivated to react in a self-protective way towards a perceived health threat. PMT posits that individuals' motivation to protect themselves from threats is determined by two appraisal processes: threat appraisal and coping appraisal (Kothe et al., 2019; Rogers, 1975). Threat appraisal: In the case of climate change anxiety, young adults may perceive various threats, including environmental degradation, loss of natural resources, and adverse effects on human health and well-being. These threats can evoke feelings of fear, worry, and anxiety, particularly if

individuals perceive climate change as a significant and immediate danger to themselves and future generations. Understanding how young adults appraise the threats posed by climate change can provide insights into the factors that contribute to their anxiety levels and motivate them to act (Rogers, 1995). Perceived Environmental Severity refers to the belief about the seriousness of environmental issues, such as climate change or pollution. High perceived severity leads to stronger eco-anxiety, and eco-anxiety amplifies perceived severity. Perceived Environmental Vulnerability refers to the belief about the likelihood of being personally affected by environmental threats; individuals who feel more vulnerable are likely to experience heightened eco-anxiety.

Coping appraisal: After assessing the threat, individuals evaluate their perceived ability to cope with and mitigate the impact of the threat. In the context of climate change anxiety, coping appraisal among young adults may involve adopting pro-environmental behaviors and contributing to climate change mitigation efforts. Response Efficacy is the belief in the effectiveness of actions to mitigate environmental threats; high response efficacy can reduce feelings of helplessness and enhance motivation to engage in pro-environmental behaviors. Self-Efficacy is the confidence in one's ability to perform pro-environmental behaviors; higher self-efficacy can lead to more consistent and effective environmental actions. Perceiving a threat as more severe increases one's intention to engage in preventive behavior (Kothe et al., 2019). Eco-anxiety arises from concerns about environmental issues, causing individuals to experience shame and remorse. Consequently, they are motivated to alleviate these negative emotions by acting. PMT provides a more extensive range of factors that can be used to forecast human behavior, helping to understand the factors that motivate or hinder the acceptance of environmentally friendly actions (Shafiei, Malkarid, 2020). Kim et al. (2013) found that PMT factors such as perceived severity, self-efficacy, and response efficacy related to climate change adaptation were strong predictors of Korean and American students' intentions to participate in pro-environmental behaviors. Individuals with elevated levels of perceived severity, vulnerability, response efficacy, and self-efficacy are more likely to participate in preventative actions such as waste reduction, environmental policy support, or conservation efforts.

Pro-environmental Behavior

Human behavior is recognized as one of the primary contributors to environmental issues (Vicedo-Cabrera et al., 2021). Pro-environmental behavior (PEB) is instrumental in mitigating environmental issues by protecting or at least preventing any harm to the environment (Lange & Dewitte, 2019). Pro-environmental behavior, also known as green, sustainable, or ecologically conscious behavior, refers to the deliberate actions taken by individuals to support and protect the environment (Krajhanzl, 2010). Whether in private or public settings, individuals can contribute to environmental sustainability by engaging in activities such as recycling, conserving energy and water resources, encouraging others to adopt eco-friendly behaviors, and participating in environmental campaigns and events (Hadler & Haller, 2011). Stern (2000) categorized environmentally significant behaviors into four main groups: environmental activism (such as participating in protests or demonstrations), non-activist behaviors in the public sphere (such as petitioning on environmental issues), private-sphere behaviors (such as recycling and practicing green consumerism), and behaviors within organizations. Derckx (2015) established seven distinct categories of pro-environmental behavior, including water, transportation, electricity, food, materials, waste, and biodiversity. Human beings' pro-environmental behaviors play a vital role in preserving the ecological equilibrium of the Earth (Lange & Dewitte, 2019). Researchers and policymakers assert that environmental issues can be mitigated by encouraging pro-environmental behaviors (Dornhoff et al., 2019; Thondhlana et al., 2018; Jena, 2017; Akintunde, 2017; Bleys et al., 2017). University students, being part of the young population, play a crucial role as stakeholders in addressing the environmental issues resulting from past and present negligence (de Leeuw et al., 2015). Ando et al. (2010) found that people tend to engage in fewer collective pro-environmental behaviors compared to personal pro-environmental behaviors, and that individuals are generally more involved in personal pro-environmental behaviors than in collective pro-environmental actions.

Eco-anxiety and Pro-Environmental Behavior

A study conducted by Whitmarsh et al. (2022) revealed that individuals with increased climate anxiety were more inclined to participate in certain pro-environmental actions that necessitate exertion and pose challenges to the prevailing consumption-oriented society. These behaviors encompassed activities such as promoting energy conservation, purchasing pre-owned items, borrowing or renting items, and repurposing items. According to Clayton and Karazsia (2020), certain studies indicate that eco-anxiety does not lead to any observable changes in

behavior in response to climate change. The broader psychological literature shows that anxiety can serve as a signal for individuals to become aware of potential dangers in their personal lives and surroundings, thereby motivating them to act and seek information (Tannenbaum et al., 2015). Within ecological issues, various aspects related to eco-anxiety can have distinct effects on the encouragement of pro-environmental actions. The emotional aspect of eco-anxiety and climate worry has been associated with increased pro-environmental behavior, support for climate change policies, and intentions to act against climate change (Ogunbode et al., 2022; Stanley et al., 2021). However, these connections are generally not strong and may only be evident in certain countries (Ogunbode et al., 2022). Heeren et al. (2022) discovered that both cognitive-emotional and functional aspects of climate anxiety were moderately linked to pro-environmental behavior. However, this connection might not be consistent across all studies, such as those by Clayton and Karazsia (2020). A longitudinal study found a direct link between eco-anxiety and increased involvement in pro-environmental actions; people with higher levels of eco-anxiety are more likely to engage in pro-climate behaviors (Pavani et al., 2023).

Resilience

Resilience refers to an individual's capacity to effectively deal with, develop from, and transcend above difficult circumstances and adversity (Hobfoll et al., 2015). Individuals with a greater level of resilience may encounter reduced adverse consequences caused by environmental catastrophes and display reduced levels of anxiety (Ogunbode et al., 2019). Some individuals show less concern about environmental destruction, such as those who are impassive (Bickel & Preston, 2022) and politically right-leaning (Ogunbode et al., 2020). Additionally, Ogunbode et al. (2019) suggested that resilience, typically considered a positive trait, can influence emotions and behaviors when facing environmental hazards. Nevertheless, there is a possibility that individuals may underestimate the severity of the climate crisis due to excessive dependence on their ability to handle it, leading to a decrease in efforts to mitigate the problem and worsening its long-term vulnerability (Shaw et al., 2014). The “resilience paradox” is a term widely used to describe this occurrence. The theory suggests that people who have a strong amount of resilience experience fewer negative emotions, but they also engage in less coping mechanisms when faced with challenging situations. Although Ogunbode et al. (2019) specifically investigated the impact of resilience on the connection between flooding experience and unpleasant emotion, it is crucial to acknowledge that the resilience paradox may encompass multiple explaining mechanisms. Researchers have found that resilience contributed a moderating role in the connection between media coverage and eco-anxiety. The findings suggest that the resilience paradox involves not only reducing individuals' eco-anxiety in response to the climate crisis but also diminishing their efforts to mitigate the issue by undergoing emotional transformation (Tugade & Fredrickson, 2004). According to the broaden-and-build theory of positive emotions, people who have higher levels of resilience are more likely to use happy emotions to recover from negative emotions. This helps to reduce the connection between negative emotions and coping mechanisms, as shown by Tugade and Fredrickson (2004).

Conceptual Framework

Eco-emotions prompt behaviors that help people deal with the situation (Frijda et al., 1989), such as defensive actions (fight, flight, or freeze) when afraid. Individuals may adopt various pro-environmental behaviors to mitigate environmental threats (Schmitt et al., 2018). Research shows that eco-anxiety, the distress caused by environmental issues, is strongly linked to pro-environmental behaviors, with many studies indicating a moderate to strong connection between the two (Heeren et al., 2022; Sangervo et al., 2022; Verplanken et al., 2020). People who care deeply about environmental problems or feel a strong connection to nature are more likely to experience eco-anxiety (Clayton, 2020; Clayton & Karazsia, 2020). According to research on resilience, resilience played a moderating role in the connection between media coverage and eco-anxiety, as well as between eco-anxiety and pro-environmental action (Shao & Yu, 2023). Individuals with higher resilience are better equipped to manage eco-emotions and can channel these emotions into positive actions. For instance, resilient individuals might transform feelings of eco-anxiety into proactive environmental measures, whereas those with lower resilience might struggle with these emotions and exhibit less effective pro-environmental behaviors (Masten, 2001).

Rationale of the Study

Pakistan is highly vulnerable to the impacts of climate change, including extreme weather events, water scarcity, and agricultural challenges. Despite this vulnerability, there is limited research on how eco-anxiety influences pro-

environmental behavior in the Pakistani context. Addressing these issues requires a deep understanding of the factors that drive human behavior, particularly pro-environmental behavior (PEB), which is essential for promoting sustainable development. Prior study has predominantly focused on the correlation between eco-anxiety and pro-environmental behavior, consistently indicating a favorable association between these two factors. Whitburn et al. (2022) conducted a recent meta-analysis that showed a clear and meaningful correlation between ties to nature and PEB. The study also indicated the involvement of emotions, but the contribution of emotions was not thoroughly examined. General level of environmental behavior and awareness is very low in Pakistan. This is attributed to a lack of infrastructure supporting environmental behavior, lack of environmental value/culture, and general education level in Pakistan (Khattak, 2023). The purpose of investigating the relationship between climate change fear and pro-environmental behavior is to understand the connection between these two factors among Pakistani young adults, stemming from the pressing need to address environmental challenges in Pakistan, coupled with the potential psychological impacts of climate change.

Pakistan is particularly vulnerable to the adverse effects of climate change, including extreme weather events, water scarcity, and agricultural disruptions. These challenges contribute to heightened anxiety among the population, especially young adults who are likely to be concerned about their future in the face of environmental uncertainty (Gibbons, 2023). Young adults were sampled given that they are the main group that can protect the future of environmental sustainability in colleges, universities, and public settings for the long term (Clayton et al., 2020). Around 62% of Pakistan comprises youth aged 15–33 (UN Population Fund Report, 2017). Currently, there is no available data regarding the correlation between the various aspects of eco-anxiety and pro-environmental behavior in Pakistan. However, it is worth noting that these relationships are generally feeble and may only manifest in certain countries, as stated by Ogunbode et al. (2022). Despite Pakistan's high vulnerability to climate change, there is limited research on how eco-emotions such as eco-anxiety influence pro-environmental behavior in this context.

Objectives

1. To study the relationship between eco-anxiety and pro-environmental behavior among young adults.
2. To investigate the moderating role of resilience between eco-anxiety and pro-environmental behavior among young adults.

Hypotheses

1. There is a positive relationship between eco-anxiety and pro-environmental behavior.
2. Resilience moderates the relationship of eco-anxiety and pro-environmental behavior.

II. METHOD

Participants

A cross-sectional survey research methodology was used in this study. The sample was collected with convenience sampling. The sample of the main study is composed of young adults from different educational backgrounds and occupations, both male and female, with an age range of 20–35 years.

Measures

Demographics sheet. In the current study, demographics of participants were obtained by a demographic sheet. The sheet comprised questions about age, gender, education, marital status, family system, ethnicity, and current residence. **[I]** Hogg Eco-Anxiety Scale (Hogg et al., 2021) is a 13-item scale. It includes affective symptoms of eco-anxiety, an additional three items measuring ruminative thoughts relating to environmental issues (e.g., “unable to stop thinking about future climate change and other global environmental problems”), three items measuring impairment to behavioral and social functioning (e.g., “Difficulty working and/or studying”), and three items measuring anxiety about one's impact on the planet (e.g., “Feeling anxious about the impact of your personal behaviors on the earth”). An overall eco-anxiety score was calculated by averaging all items, with higher scores indicating greater eco-anxiety on a scale of 0–3. This scale has demonstrated excellent internal consistency in previous research (Hogg et al., 2021), and in the present study ($\alpha = .92$). **[II]** Pro-environmental Behavior Scale (PEB; Aiman Khattak, 2023) was a five-point scale with the following response options: 1 = Never, 2 = Rarely, 3 =

Sometimes, 4 = Often, 5 = Always. This scale is comprised of three subscales: Volunteering Behaviors, Conservation Behaviors, and Reuse and Recycle. The possible score range on the overall PEBS is 20–100. Higher scores indicate higher pro-environmental behaviors. Internal consistency of the scale is $\alpha = .87$. Volunteering Behaviors subscale (e.g., “I take part in environmental protection events”) included 8 items with scores ranging from 8 to 40 ($\alpha = .84$). Conservation Behaviors subscale (e.g., “I try to use less water...”) included 6 items with scores ranging from 6 to 30 ($\alpha = .73$). Reuse and Recycle subscale (e.g., “I avoid discarding things that can be repaired”) included 6 items with scores ranging from 6 to 30 ($\alpha = .73$). [III] Brief Resilience Scale (BRS; Smith et al., 2008) was used to determine resilience. The scale comprises six items, including the statement “I tend to bounce back quickly after hard times.” Items 2, 4, and 6 were assigned scores using a method of reverse coding. Responses were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Procedure

Permission was taken from the authors of the scales via email. The sample for the present study was approached with official approval from the head of department and the permission of authorities in organizations and universities. Data were collected in Islamabad and Rawalpindi from different institutions, universities, private institutions, and government institutions. The researcher gave a brief introduction and aim of the study. The estimated time for data collection was also briefed. All respondents were given informed consent, which they signed. Participants were given full rights to withdraw from the study at any time. The privacy and confidentiality of participants was ensured. Each participant completed the questionnaire in approximately 15 minutes. After data collection, statistical analysis was computed using SPSS and the PROCESS v4 macro (Hayes, 2013) for moderation analysis.

Ethical Considerations

The researcher strictly followed ethical considerations before and during the data collection process. The researcher introduced herself to the participants and informed them about the purpose and objectives of the study. Informed consent was obtained from all participants before administering the questionnaires. Participants were assured that their participation was voluntary and that they had the right to withdraw from the study at any stage without any consequences. Confidentiality of the information provided by the participants was also assured. The questionnaires were administered in person by the researcher. After completion of the questionnaires, the researcher thanked the participants for their cooperation and participation.

III. RESULTS

Table I: Descriptive Statistics of Demographic Variables of the Main Study (N = 650)

Demographic	n	%
Gender – Male	310	47.7
Gender – Female	340	51.8
Education – Intermediate	191	29.1
Education – Graduate	288	43.6
Education – Postgraduate	171	26.6
Marital Status – Unmarried	377	57.3
Marital Status – Married	273	41.8
Age (19–35)	650	M(SD) 26.59 (4.48)

Note. n = frequency; M = Mean; SD = Standard Deviation

Table 1 shows the distribution of demographic characteristics in terms of frequency and percentages. Out of the total sample, (n = 310) were male and (n = 340) were female participants. The findings show that the percentage of education was intermediate 29.1%, graduate 43.6%, and postgraduate 26.6%. Additionally, 41% of participants were married, while 53% were unmarried. Participant ethnicity spanned different areas of Pakistan, and participants were living in Islamabad and Rawalpindi, from Punjab (29.5%), Baluchistan (12.3%), Khyber Pakhtunkhwa (13.5%), Sindh (12.1%), Federal (14.7%), Kashmir (10.7%), and Gilgit (4.3%). Regarding family system,

39.4% (n = 259) lived in nuclear families, whereas 59.5% (n = 391) lived in joint families. Regarding current residence, a majority lived in Islamabad (54.9%, n = 355) and Rawalpindi (n = 295).

Table II: Alpha Reliabilities and Descriptive Statistics of Eco-Anxiety Scale, Pro-environmental Behavior Scale, and Brief Resilience Scale (N = 650)

Scale	K	M	SD	α	Skew	Kurtosis
HEAS (Eco-anxiety)	13	19.15	8.47	.87	-.14	-.31
PEB (Pro-environmental Behavior)	20	65.22	12.44	.86	-.14	.42
BRS (Brief Resilience)	6	19.28	4.28	.71	.01	.34

Note. K = No. of items, M = Mean, SD = Standard Deviation, α = Alpha reliability.

All the study instruments showed excellent reliability. Reliability coefficients over .50 suggest moderate reliability, which is often considered acceptable (Perry et al., 2004). The data is normal as skewness and kurtosis values are in acceptable range.

Table III: Correlation between Eco-anxiety, Pro-environmental Behavior, and Resilience (N = 650)

Variable	1	2	3
1. Eco-Anxiety	—		
2. Pro-environmental Behavior	.27**	—	
3. Resilience	.13**	.26**	—

**p < .01.

Pearson correlation was computed to evaluate the relationship between the study variables. Descriptive statistics show the average and variability of each variable, whereas correlations reveal the magnitude and direction of connections between variables. The skewness and kurtosis values were within the acceptable range of +3 to -3 (Field, 2009). The correlational analysis supported Hypothesis 1: there was a significant positive correlation between eco-anxiety and pro-environmental behaviors ($r = .27$, $p < .01$). Individuals with higher levels of eco-anxiety reported higher levels of pro-environmental behavior. The findings of this study are in accordance with previous literature suggesting that eco-anxiety is positively correlated with pro-environmental behavior; for example, research revealed a positive correlation between individuals with elevated levels of negative emotions and their proactive engagement in personal endeavors aimed at promoting environmental change.

Moderation Analysis

The moderation analysis concerning study variables was computed using Hayes' PROCESS v4, which helped to identify the condition of when and for whom the correlation exists between the independent variables (Hayes, 2013).

Table IV: Moderating Effect of Brief Resilience for Eco-anxiety in Predicting Pro-Environmental Behaviors Among Young Adults (N = 650)

Predictors	B	p	95% CI	
			LL	UL
Constant	34.83	.00	24.28	45.39
Eco Anxiety	.91	.00	.36	1.45
Brief Resilience (Moderator)	1.20	.00	.64	1.76
Brief Resilience $\times$ Eco Anxiety	-.03*	.04	-.06	-.00
R ²	.13			
F	32.91			

Note. CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit. *p < .05.

Table 4 shows that Brief Resilience has a strong moderating influence on the association between eco-anxiety and pro-environmental behaviors, $\beta = -.03$, $p < .04$. Brief Resilience plays an important moderating role in the link between eco-anxiety and pro-environmental behaviors. The negative β value (-.03) suggests that the relationship

between eco-anxiety and pro-environmental behaviors becomes weaker as resilience increases. The negative interaction term indicates that resilience moderates the relationship between eco-anxiety and pro-environmental behaviors.

Figure I: Interaction Effect of Brief Resilience with Eco Anxiety and Pro-Environmental behavior

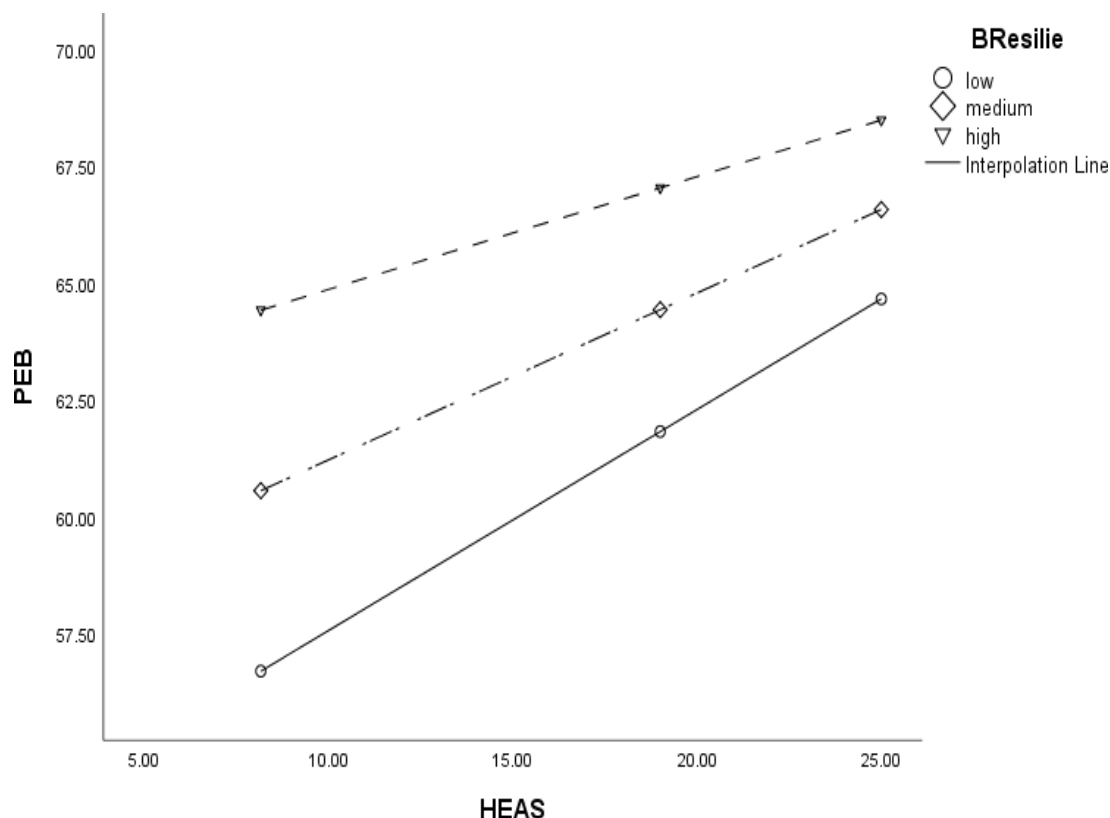


Figure 1 shows how resilience moderates the relationship between eco anxiety and pro-environmental behaviors. This plot effectively demonstrates that resilience moderates the relationship between eco-anxiety and pro-environmental behaviors, with the strength of this relationship decreasing as resilience increases. The graph effectively illustrates that while eco-anxiety generally promotes pro-environmental behaviors, the strength of this relationship depends on the individual's level of resilience. Those with lower resilience show a stronger link between their anxiety about the environment and their actions to protect it, while those with higher resilience show a weaker link, suggesting that resilience can mitigate the impact of eco-anxiety on behavior.

IV.DISCUSSION

The present study aimed to determine the relationship between eco-anxiety and pro-environmental behavior, and to examine the moderating role of resilience in this relationship among young adults. Considering previous research, it was proposed in Hypothesis 1 that there is a positive relationship between eco-anxiety and pro-environmental behavior. The result of correlation analysis supported Hypothesis 1: there was a significant positive correlation between eco-anxiety and pro-environmental behaviors. The findings of this study are in accordance with previous literature which suggested that eco-anxiety was found to have a positive correlation with pro-environmental behavior. Hypothesis 2 stated that resilience moderates the relationship between eco-anxiety and pro-environmental behavior. A moderation analysis was conducted to assess how resilience affects the link between eco-anxiety and pro-environmental behavior, and the results were found to support the hypothesis. Resilience plays an important moderating role in the link between eco-anxiety and pro-environmental behaviors. The negative β value ($-.03$) suggests that the relationship between eco-anxiety and pro-environmental behaviors

becomes weaker as resilience increases. Prior research indicated that resilience played a moderating role in the connection between media coverage and eco-anxiety, as well as between eco-anxiety and pro-environmental behavior (Shao & Yu, 2023).

Limitations and Suggestions

There are some limitations of this study that may restrict some suggestions for future research. Despite efforts to include generalizability as much as possible in the current study, due to resources and time restrictions, the following deficiencies must be addressed in the future. Close-ended questions restrict participants' ability to properly convey their opinions; to get a thorough understanding of the topic matter, future studies should use a mixed-method approach. The results may differ due to unique cultural values, beliefs, and diverse usage patterns in different populations, as the data was collected from two cities. Future researchers may choose to undertake interviews to determine the predictors of pro-environmental behavior or conduct a meta-analysis in the same field. There are limitations of this study in terms of design and methods that should be recognized when interpreting findings. Given the cross-sectional design, data collection was conducted at one point in time. Emotional responses and impacts associated with climate change are likely transient and dynamic over time, but the data are unable to capture such trends (Brosch, 2021). Considering the findings of the present investigation, longitudinal research should be conducted to investigate the ways in which reactions and experiences evolve and change over time, and how these changes influence subsequent pro-environmental behavior.

Implications

Recognizing climate change as Pakistan's greatest existential challenge and the need to address it, the study's results have uncovered the significant role that emotional and psychological factors can play in promoting and educating youth to adopt more pro-environmental behavior. These discoveries can be employed by policymakers to concentrate on the development of targeted messages intended to encourage pro-environmental knowledge, attitude, and behavior among young people. Furthermore, the study highlights the vital role of eco-anxiety, indicating that addressing emotional responses to environmental issues in environmental campaigns and educational programs is crucial. Helping individuals understand and express their emotions about environmental issues can contribute to more effective environmental communication and behavior change (Chawla, 2015). Strategies that acknowledge and validate individuals' emotional reactions to environmental issues while providing actionable steps, and that account for individual differences in resilience, may be more effective in promoting pro-environmental behaviors (Clayton, 2020; Maibach et al., 2010). Pakistan faces significant environmental challenges, including air and water pollution, deforestation, and the impacts of climate change. Understanding the role of eco-anxiety in promoting pro-environmental behavior (PEB) is crucial for designing effective environmental policies and interventions. Research on eco-anxiety and its influence on PEB can provide valuable insights for Pakistan's unique socio-economic and cultural context, informing psychological well-being, environmental consciousness, policy and advocacy, community engagement, and educational initiatives.

V. CONCLUSION

In summary, the objective of the study was to investigate the impact of eco-anxiety on pro-environmental behavior within the Pakistani cultural context. The findings of this study align with existing literature and theoretical insights. A significant positive correlation was discovered between eco-anxiety and pro-environmental behavior. Notably, resilience exhibited a moderating role in this association, such that the positive relationship between eco-anxiety and pro-environmental behavior weakened as resilience increased.

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