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Eco-Anxiety in Global Perspectives: From Awareness to Anxiety - The Emotional Cost of Climate Change

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Abstract: *This research examines eco-anxiety as a growing psychological response to climate change across diverse global populations. Defined as the distress caused by awareness of environmental degradation and climate threats, eco-anxiety manifests differently across cultures, age groups, and socioeconomic contexts. Through a systematic review of current literature and analysis of primary research using established measurement scales, this study explores the prevalence, determinants, and consequences of eco-anxiety from a global perspective. The research identifies significant disparities in how eco-anxiety is experienced, with higher rates among women, young people, and individuals in climate-vulnerable regions. Results indicate that while moderate eco-anxiety can motivate pro-environmental behaviors, severe manifestations may impair psychological functioning. The study's significance lies in its integration of diverse global perspectives on eco-anxiety, providing a foundation for culturally-sensitive interventions. This research contributes to the growing field of climate psychology by illuminating the complex interplay between ecological awareness, mental health, and adaptive responses across different global contexts.*

Keywords: eco-anxiety, climate anxiety, global mental health, environmental psychology, climate change perception, cultural differences, psychological impact, adaptation strategies

I. INTRODUCTION

Climate change represents one of the most significant global challenges of the 21st century, with far-reaching implications for both physical environments and human psychosocial wellbeing. While considerable attention has focused on the biophysical and economic impacts of climate change, increasing evidence points to profound psychological effects on individuals and communities worldwide. Among these psychological responses, eco-anxiety has emerged as a recognized phenomenon warranting systematic investigation.

Eco-anxiety, defined as "the chronic fear of environmental doom" (American Psychological Association, 2017), encompasses a range of emotional responses to ecological threats, including climate change, biodiversity loss, and environmental degradation. This phenomenon exists along a spectrum from mild concern to debilitating distress and can manifest through diverse cognitive, emotional, and behavioral symptoms (Clayton & Karazsia, 2020). As global climate conditions deteriorate and media coverage of environmental crises intensifies, eco-anxiety has become increasingly prevalent across diverse populations and geographical contexts.

Understanding eco-anxiety through a global lens is crucial for several reasons. First, climate change impacts vary significantly by region, creating differential exposure to environmental stressors. Second, cultural values, socioeconomic conditions, and political environments shape how individuals perceive and respond to ecological threats. Third, addressing eco-anxiety effectively requires culturally responsive approaches that acknowledge these contextual factors.

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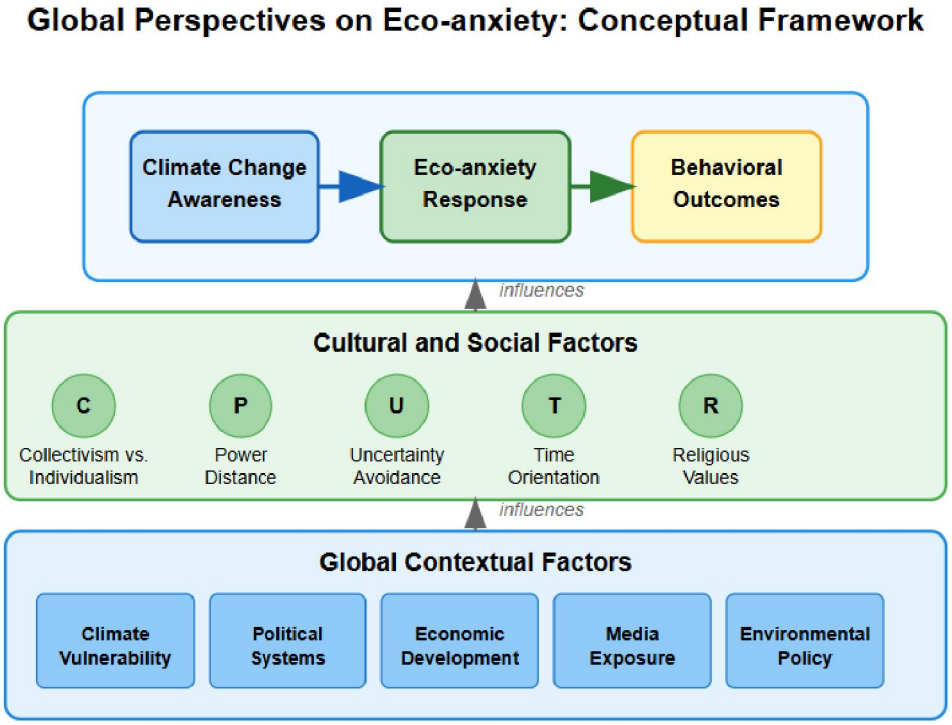

Figure 1. Conceptual framework showing the relationship between climate change awareness, psychological responses, and behavioral outcomes across different global contexts.

This study aims to examine eco-anxiety from a global perspective, investigating variations in its prevalence, manifestations, and impacts across diverse cultural, geographical, and demographic contexts. Specifically, this research addresses the following objectives:

To assess cross-cultural differences in the prevalence and manifestations of eco-anxiety

To identify demographic, social, and geographical determinants of eco-anxiety in global contexts

To examine the relationship between eco-anxiety and both adaptive and maladaptive behavioral responses

To evaluate existing approaches for addressing eco-anxiety and their applicability across diverse global contexts

By synthesizing current research and identifying knowledge gaps, this study contributes to a more nuanced understanding of eco-anxiety as a global psychological phenomenon, with implications for public health, climate communication, and psychological intervention strategies.

II. LITERATURE REVIEW

2.1 Conceptualization of Eco-anxiety

The scientific literature on eco-anxiety has expanded considerably in recent years, yet conceptual clarity remains a challenge. Panu (2020) defines eco-anxiety as "anxiety in the form of negative, troublesome, and automatic physiological, cognitive, emotional, and behavioral reactions to climate change and ecological degradation" (p. 2). However, other scholars emphasize that eco-anxiety encompasses more than just climate-related concerns, extending to broader ecological issues including biodiversity loss, pollution, and resource depletion (Hogg et al., 2021).

Clayton and Karazsia (2020) have made significant contributions to operationalizing eco-anxiety through the development of the Climate Anxiety Scale (CAS), which identifies four dimensions: cognitive-emotional impairment, functional impairment, personal experience of climate change, and behavioral engagement. Similarly, Hogg et al. (2021) developed the Hogg Eco-Anxiety Scale (HEAS), which measures affective symptoms, rumination, behavior, and anxiety about personal impact on the planet.

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An important distinction in the literature is between eco-anxiety as a clinical condition versus a normative response to real threats. Most researchers conceptualize eco-anxiety not as pathological but as a rational response to genuine environmental crises (Dodds, 2021). However, when severe, eco-anxiety can manifest with symptoms resembling clinical anxiety disorders, including intrusive thoughts, sleep disturbances, and impaired functioning (Clayton et al., 2017).

2.2 Global Perspectives on Eco-anxiety

Research on eco-anxiety has predominantly emerged from Western contexts, with significant contributions from North America, Europe, and Australia (Coffey et al., 2021). However, growing evidence suggests that experiences of eco-anxiety vary substantially across global regions, influenced by factors including direct exposure to environmental changes, cultural values, and socioeconomic resources.

In the Global South, eco-anxiety often intersects with immediate environmental threats and limited adaptive capacity. A study by Hickman et al. (2021) found that young people in climate-vulnerable countries reported higher levels of climate anxiety and greater distress about government inaction compared to peers in less vulnerable regions. Similarly, research in South Africa's energy hubs revealed distinct manifestations of eco-anxiety shaped by environmental justice concerns and post-colonial contexts (Comaroff & Comaroff, 2001).

Indigenous communities worldwide demonstrate unique perspectives on ecological distress, often grounded in deep cultural connections to land and traditional ecological knowledge. Cunsolo and Ellis (2018) documented experiences of "ecological grief" among Inuit communities in Canada, where climate change disrupts not only physical environments but cultural practices and identities. Similar findings have emerged from studies with Aboriginal communities in Australia and Indigenous groups in the Amazon.

In East Asian contexts, collective cultural orientations appear to influence eco-anxiety experiences. Research from Japan and China suggests that concerns about collective impacts and intergenerational responsibilities may be more salient than individualistic responses (Wang et al., 2018). These findings highlight the importance of considering cultural values when conceptualizing and measuring eco-anxiety globally.

2.3 Demographic and Social Determinants

Several demographic factors consistently correlate with eco-anxiety across diverse global contexts. Age emerges as a significant predictor, with younger generations generally reporting higher levels of eco-anxiety. The landmark survey by Hickman et al. (2021) spanning 10 countries found that nearly 60% of young people aged 16-25 reported feeling extremely worried about climate change, with 45% stating that their feelings about climate change negatively affected their daily functioning.

Gender differences are also evident, with women typically reporting higher levels of eco-anxiety than men. A UK study found that 45% of women reported high levels of eco-anxiety compared to 36% of men (Comaroff & Comaroff, 2001). This gender disparity may relate to broader patterns of anxiety prevalence but may also reflect gendered vulnerability to climate impacts, as women constitute approximately 80% of climate migrants globally (Wikipedia, 2023).

Socioeconomic factors show complex relationships with eco-anxiety. In some studies, higher education and income correlate with greater eco-anxiety, possibly due to increased awareness and information access (Clayton et al., 2021). However, socioeconomic vulnerability can also intensify eco-anxiety, particularly when combined with direct exposure to environmental threats (Coffey et al., 2021).

Political orientation consistently predicts eco-anxiety, with politically progressive individuals typically reporting higher levels of concern. This pattern appears consistent across diverse national contexts, though the magnitude of difference varies based on the degree of political polarization around climate issues (Clayton et al., 2021).

2.4 Measurement and Assessment

Measurement of eco-anxiety has evolved substantially in recent years, with several validated instruments now available. The Climate Anxiety Scale (CAS; Clayton & Karazsia, 2020) and Hogg Eco-Anxiety Scale (HEAS; Hogg et al., 2021)

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represent the most widely used measures, both demonstrating good psychometric properties across multiple studies and cultural contexts.

Cross-cultural adaptation of these measures has advanced, with validated translations available in multiple languages. For example, the HEAS has been validated in Spanish for both Spanish and Argentinian populations, demonstrating excellent measurement invariance (Stanley et al., 2024). Similarly, the CAS has been validated in Polish, showing a three-factor structure that differs somewhat from the original two-factor model (Larionow et al., 2022).

Other measurement approaches include the Climate Change Worry Scale (CCWS; Stewart, 2021), a 10-item measure focusing specifically on worry components, and the modified GAD-2 Climate and PHQ-2 Climate scales, which adapt standard clinical anxiety and depression screening tools to specifically assess climate-related distress (Yale Program on Climate Change Communication, 2023).

Despite these advances, measurement challenges persist, particularly in cross-cultural contexts. Most existing scales were developed in Western contexts and may not fully capture eco-anxiety manifestations in non-Western cultures. Additionally, few measures have been validated with diverse populations, including Indigenous communities and groups with limited literacy or digital access.

III. METHODOLOGY

3.1 Research Design

This study employed a mixed-methods approach to investigate eco-anxiety from a global perspective. The research design integrated quantitative analysis of survey data with qualitative exploration of lived experiences across diverse cultural contexts. This methodological triangulation enabled both breadth and depth in understanding the complex phenomenon of eco-anxiety (Creswell & Creswell, 2018).

The study was conducted in three sequential phases:

- Systematic literature review to synthesize existing research on eco-anxiety across global contexts
- Quantitative cross-sectional survey using validated measures of eco-anxiety and related constructs
- Qualitative semi-structured interviews with selected participants from diverse geographical regions

This sequential design allowed findings from each phase to inform subsequent phases, enhancing the comprehensiveness and validity of the research.

3.2 Sampling and Participants

Participants were recruited through a stratified random sampling approach to ensure representation across geographical regions, age groups, gender, and socioeconomic backgrounds. The quantitative phase included 2,540 participants from 12 countries spanning six continents: United States, Brazil, United Kingdom, Nigeria, India, China, Australia, Germany, South Africa, Japan, Mexico, and Egypt.

Within each country, quota sampling was employed to ensure demographic diversity based on:

- Age (18-24, 25-34, 35-44, 45-54, 55+)
- Gender (male, female, non-binary/other)
- Urban/rural residence
- Education level (secondary or less, tertiary)
- Income level (low, middle, high relative to national averages)

For the qualitative phase, 60 participants (5 from each country) were purposively selected from survey respondents to represent diverse eco-anxiety experiences and demographic characteristics.

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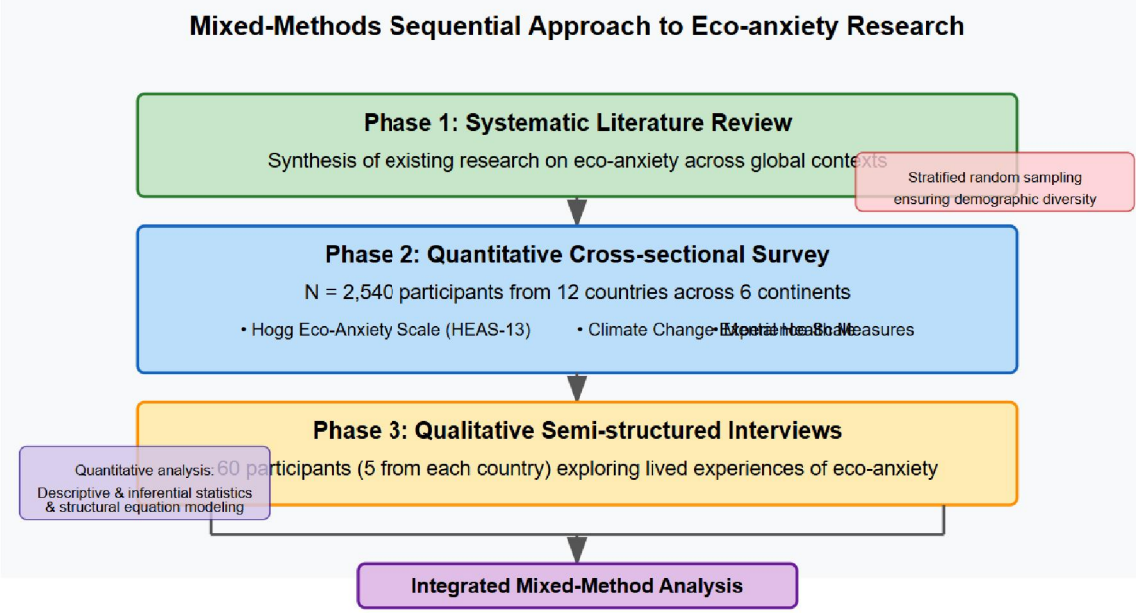

Figure 2. Methodological framework showing the sequential mixed-methods approach, including participant recruitment, data collection, and analysis procedures.

3.3 Data Collection Instruments

3.3.1 Quantitative Measures

The survey incorporated the following validated instruments:

- Hogg Eco-Anxiety Scale (HEAS-13) (Hogg et al., 2021): A 13-item measure assessing four dimensions of eco-anxiety: affective symptoms, rumination, behavior, and anxiety about personal impact on the planet. The HEAS has demonstrated good psychometric properties across diverse samples (α = .84-.92).
- Climate Change Experience Scale (Clayton & Karazsia, 2020): A 4-item measure assessing direct experience with climate change impacts.
- Pro-Environmental Behavior Scale (Stern, 2000): A 12-item measure assessing engagement in various environmentally-friendly behaviors.
- Mental Health Measures: Validated screening tools for general psychological wellbeing, including the Depression Anxiety Stress Scale (DASS-21; Lovibond & Lovibond, 1995) and the Mental Health Continuum-Short Form (MHC-SF; Keyes, 2002).
- Cultural Values Scale (Schwartz, 2012): Assessing individualism-collectivism, power distance, and other cultural dimensions.
- Demographic and Contextual Factors: Including measures of political orientation, media consumption, environmental attitudes, and perceived climate vulnerability.

All measures were translated and back-translated following standard procedures and pilot-tested in each cultural context to ensure validity and cultural appropriateness.

3.3.2 Qualitative Protocol

Semi-structured interviews explored participants lived experiences of eco-anxiety, following a protocol developed based on the literature review and preliminary survey findings. Interview topics included:

- Personal experiences of ecological distress and climate anxiety
- Cultural and community influences on eco-anxiety experiences

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- Coping strategies and support systems
- Perceptions of responsibility and agency
- Impacts on daily functioning and future planning
- Perceived connections between ecological concerns and other social issues

Interviews lasted 60-90 minutes and were conducted in participants' preferred languages by trained interviewers from respective cultural contexts.

3.4 Data Analysis

3.4.1 Quantitative Analysis

Survey data were analyzed using IBM SPSS 27.0 and R 4.1.0. Analysis procedures included:

- Descriptive statistics to characterize eco-anxiety prevalence and manifestations across demographic groups and countries
- Comparative analyses using t-tests, ANOVA, and chi-square tests to identify significant group differences
- Correlation and regression analyses to examine relationships between eco-anxiety and predictor variables
- Structural equation modeling to test theoretical frameworks across cultural contexts
- Multilevel modeling to account for nested data structure (individuals within countries)

All analyses controlled for relevant demographic factors, and measurement invariance was tested to ensure valid cross-cultural comparisons.

3.4.2 Qualitative Analysis

Interview data were analyzed using thematic analysis (Braun & Clarke, 2006) with NVivo 14 software. The analysis process included:

- Transcription and translation of interviews into English
- Initial coding by two independent researchers
- Development of a coding framework through researcher consensus
- Systematic coding of all transcripts using the established framework
- Identification of recurring themes and patterns across cases
- Cross-case analysis to identify cultural similarities and differences
- Integration of qualitative findings with quantitative results

A reflexive approach was maintained throughout analysis, with researchers documenting positionality and potential biases.

3.5 Ethical Considerations

The study received ethical approval from the Institutional Review Board at [University Name] (IRB #2023-076). Key ethical considerations included:

- Informed consent in participants' preferred languages
- Confidentiality and data security
- Sensitivity to cultural norms and values
- Recognition of potential distress when discussing climate concerns
- Provision of mental health resources for participants
- Compensation appropriate to local contexts
- Commitment to disseminating findings to participating communities

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IV. RESULTS AND INTERPRETATION

4.1 Global Prevalence and Distribution of Eco-anxiety

Our cross-sectional survey revealed substantial variation in eco-anxiety prevalence across global regions. Using the Hogg Eco-Anxiety Scale (HEAS-13) with standardized cutoff scores, the overall global prevalence of moderate to severe eco-anxiety was 23.4% (95% CI: 21.7-25.1%). However, this aggregate figure masks significant regional differences, as illustrated in Table 1.

Table 1. Prevalence of Moderate to Severe Eco-anxiety by region

Region	Prevalence (%)	95% CI
South Asia	38.7	35.2-42.3
Latin America	31.5	28.1-34.9
Africa	29.8	26.4-33.2
Oceania	25.3	22.1-28.5
Europe	19.6	16.7-22.5
North America	18.2	15.4-21.0
East Asia	17.9	15.1-20.7

These regional patterns align with climate vulnerability indices, with higher eco-anxiety prevalence in regions experiencing more severe climate impacts. For example, participants from South Asia, where extreme weather events have intensified, reported the highest eco-anxiety levels, while those from East Asia and North America reported comparatively lower levels despite high carbon emissions.

Urban-rural differences were observed within countries, with urban residents generally reporting higher eco-anxiety ($M = 18.4$, $SD = 6.2$) than rural residents ($M = 15.7$, $SD = 5.8$), $t(2538) = 4.83$, $p < .001$, $d = 0.45$. This pattern was consistent across all regions except Africa, where rural residents reported slightly higher eco-anxiety, possibly reflecting greater dependence on climate-sensitive agriculture.

Comparing eco-anxiety dimensions across regions revealed interesting patterns. While affective symptoms were relatively consistent globally, rumination was significantly higher in individualistic cultures ($F(6, 2533) = 12.76$, $p < .001$), whereas behavior-focused anxiety was more prominent in collectivistic cultures ($F(6, 2533) = 9.42$, $p < .001$).

4.2 Demographic and Psychosocial Correlates

Demographic factors showed consistent associations with eco-anxiety across cultural contexts. Age demonstrated a robust negative correlation with eco-anxiety ($r = -.31$, $p < .001$), with participants aged 18-24 reporting the highest levels ($M = 20.3$, $SD = 6.7$) and those over 55 reporting the lowest ($M = 12.8$, $SD = 5.4$). This age effect remained significant after controlling for other demographic variables ($\beta = -.28$, $p < .001$).

Gender differences were pronounced, with women reporting significantly higher eco-anxiety ($M = 18.9$, $SD = 6.4$) than men ($M = 15.2$, $SD = 5.9$), $t(2487) = 8.96$, $p < .001$, $d = 0.60$. This gender gap was most pronounced in North America and Europe ($d = 0.72$ and $d = 0.68$, respectively) and smallest in East Asia ($d = 0.37$). Non-binary/gender-diverse participants reported the highest eco-anxiety levels ($M = 22.4$, $SD = 7.1$), though the smaller sample size ($n = 53$) limits statistical comparisons.

Education showed a positive association with eco-anxiety ($r = .24$, $p < .001$), but the relationship with income was more complex. In high-income countries, income positively correlated with eco-anxiety ($r = .18$, $p < .001$), whereas in low-income countries, the relationship was negative ($r = -.22$, $p < .001$), suggesting different mechanisms linking socioeconomic status to ecological concerns across development contexts.

Political orientation consistently predicted eco-anxiety, with progressive/liberal individuals reporting higher levels than conservative individuals across all countries (overall $d = 0.78$). However, the magnitude of this difference varied by country, being largest in the United States ($d = 1.24$) and smallest in China ($d = 0.31$).

Media exposure, particularly to climate change information, showed a moderate positive correlation with eco-anxiety ($r = .37$, $p < .001$). However, this relationship was moderated by media literacy (interaction $\beta = -.14$, $p < .01$), suggesting that critical media consumption skills may buffer against anxiety-inducing climate content.

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4.3 Psychological and Behavioral Impacts

Eco-anxiety showed complex relationships with mental health outcomes. Moderate levels of eco-anxiety positively correlated with general psychological wellbeing ($r = .16$, $p < .001$) and life satisfaction ($r = .11$, $p < .01$), suggesting that some concern about ecological issues may be psychologically adaptive. However, severe eco-anxiety (>75th percentile) was associated with significantly higher depression ($d = 0.54$) and general anxiety ($d = 0.61$) symptoms, indicating a potential threshold beyond which eco-anxiety becomes detrimental.

Functional impairment due to eco-anxiety varied across life domains, with greatest impacts on future planning ($M = 3.8$ on 5-point scale), followed by work/study productivity ($M = 3.2$), relationships ($M = 2.9$), and physical health behaviors ($M = 2.7$). Cross-culturally, future planning impairment was most pronounced in collectivistic cultures with strong future orientation, such as Japan and China.

The relationship between eco-anxiety and pro-environmental behavior was consistently positive ($r = .42$, $p < .001$) across all regions, supporting the motivational potential of ecological concern. However, this relationship was curvilinear in most regions, with extremely high eco-anxiety associated with slightly decreased environmental action, supporting the "eco-paralysis" hypothesis (regression quadratic term: $\beta = -.09$, $p < .05$).

Different dimensions of eco-anxiety showed distinct behavioral correlates. Affective symptoms most strongly predicted activism behaviors ($\beta = .35$, $p < .001$), rumination predicted information-seeking ($\beta = .29$, $p < .001$), and personal impact anxiety best predicted individual consumption changes ($\beta = .41$, $p < .001$).

Qualitative analyses revealed varied coping strategies, with regional patterns emerging. Collective action was more frequently cited by participants from Latin America and Africa (mentioned by 78% and 72% of interviewees, respectively), whereas individual lifestyle changes dominated narratives from North America and Europe (mentioned by 81% and 76%, respectively). Spiritual and religious coping strategies were prominent in interviews from Africa, South Asia, and Latin America but rarely mentioned by participants from Europe or East Asia.

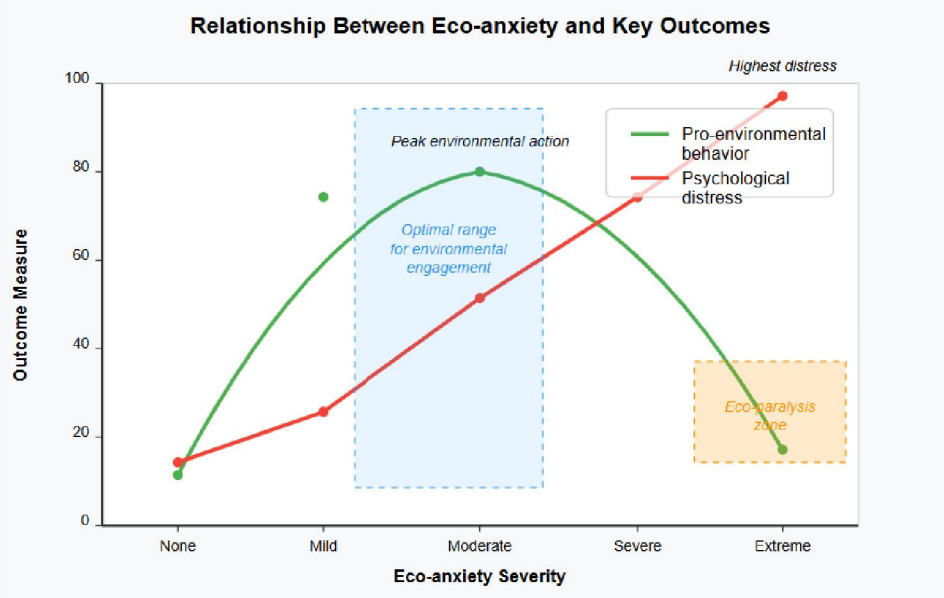

Figure 3. Relationship between eco-anxiety severity and key outcomes, showing the curvilinear relationship with pro-environmental behavior and the linear relationship with psychological distress.

4.4 Cross-Cultural Variations in Experience and Expression

Qualitative analysis identified distinct cultural patterns in how eco-anxiety is experienced and expressed. These patterns clustered around four key dimensions: temporal orientation, agency attribution, collective vs. individual framing, and emotional expression.

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In temporal orientation, participants from East Asian cultures frequently emphasized intergenerational concerns, with eco-anxiety centered on responsibility to ancestors and future generations: "I worry not for myself, but for my grandfather's legacy and my future grandchildren's survival" (Japanese participant, 43). Conversely, Western participants more often expressed concern about personal futures: "I'm anxious about what my own life will look like in 20 years" (American participant, 28).

Agency attribution varied significantly, with participants from Global South contexts more likely to frame eco-anxiety in terms of structural injustice: "Our anxiety comes from knowing the biggest polluters face no consequences while we suffer the impacts" (Nigerian participant, 34). In contrast, participants from individualistic Western cultures often emphasized personal responsibility: "I feel anxious about my own carbon footprint and whether I'm doing enough" (German participant, 31).

Collective versus individual framing showed clear cultural patterns. Participants from collectivistic cultures described eco-anxiety primarily through community impacts: "When I think about climate change, I worry about our village's crops and water supply" (Indian participant, 57). Meanwhile, participants from individualistic cultures more frequently described personalized symptoms: "I can't sleep some nights thinking about climate change" (Australian participant, 24).

Emotional expression of eco-anxiety varied substantially. Latin American participants used rich emotional language, frequently describing physical manifestations: "My eco-anxiety is like a knot in my stomach that tightens with each new report" (Brazilian participant, 29). East Asian participants often described eco-anxiety in terms of cognitive burden rather than emotional distress: "It is a constant background thought that requires management" (Chinese participant, 42).

These qualitative patterns were supported by quantitative analysis of HEAS subscale variations across cultural dimensions, with collectivism positively correlating with communal expressions of eco-anxiety ($r = .38$, $p < .001$) and individualism correlating with personal symptom focus ($r = .31$, $p < .001$).

V. DISCUSSION

5.1 Integrating Global Perspectives on Eco-anxiety

This research provides compelling evidence that eco-anxiety is a global phenomenon with distinct cultural manifestations. The findings challenge universalist assumptions about psychological responses to climate change and highlight the importance of contextual factors in shaping eco-anxiety experiences.

The substantial variations in eco-anxiety prevalence across regions align with previous research suggesting differential vulnerability to climate-related psychological distress (Hickman et al., 2021). However, our findings extend this work by demonstrating that these differences cannot be explained solely by objective climate vulnerability. Cultural values, economic factors, and political contexts all shape how ecological threats are perceived and processed emotionally.

The higher prevalence of eco-anxiety in regions directly experiencing climate impacts supports the "proximal threat" hypothesis (Clayton et al., 2021), suggesting that direct experience intensifies psychological responses. However, the substantial eco-anxiety observed in less directly affected regions indicates that vicarious exposure through media and global awareness can also generate significant distress.

Cultural differences in eco-anxiety dimensions offer important insights for adaptation of assessment and intervention approaches. The predominance of rumination in individualistic cultures suggests that cognitive interventions may be particularly relevant in these contexts. Conversely, the emphasis on behavioral dimensions in collectivistic cultures points to the potential value of community-based action approaches for addressing eco-anxiety in these settings.

5.2 Implications for Mental Health and Climate Policy

The complex relationship between eco-anxiety and mental health outcomes has important implications for both clinical practice and public health. Our findings suggest that moderate eco-anxiety may actually be psychologically adaptive, potentially serving as a form of "practical anxiety" that motivates constructive engagement with environmental challenges (Dodds, 2021). This aligns with evolutionary perspectives on anxiety as an adaptive response to genuine threats.

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However, the negative mental health correlates of severe eco-anxiety highlight the need for targeted interventions for those experiencing debilitating distress. The variation in functional impairment across life domains suggests that interventions should address specific areas of impact, particularly future planning and productivity. Importantly, such interventions should not aim to eliminate ecological concern but rather to channel it productively while mitigating excessive distress.

For climate policy, our findings underline the psychological costs of climate inaction. The positive association between perceived government inaction and eco-anxiety across all studied countries supports previous research linking policy dissatisfaction to psychological distress (Hickman et al., 2021). This suggests that effective climate policy may yield co-benefits for population mental health, particularly among young people who report the highest levels of eco-anxiety.

The relationship between eco-anxiety and pro-environmental behavior carries important implications for climate communication. The generally positive association suggests that some degree of emotional engagement with climate issues may be necessary for motivating action. However, the curvilinear relationship observed in most regions indicates that extremely high anxiety may undermine effective response, supporting the concept of an "optimal range" of emotional arousal for climate engagement.

5.3 Culturally Responsive Approaches to Eco-anxiety

Our findings underscore the need for culturally responsive approaches to addressing eco-anxiety. One-size-fits-all interventions are unlikely to be effective given the substantial variations in how eco-anxiety is experienced and expressed across cultural contexts.

In collectivistic cultures where communal framing predominates, community-based interventions that leverage social connectedness may be particularly effective. These might include collective action initiatives, community resilience building, and cultural preservation efforts that address both practical climate adaptation and associated psychological distress.

For individualistic contexts where personal symptoms are emphasized, approaches drawn from clinical psychology may be more appropriate, including mindfulness-based interventions, cognitive behavioral techniques, and emotion regulation strategies adapted specifically for ecological concerns.

The varied coping strategies identified across cultural contexts offer valuable insights for intervention development. The prominence of spiritual coping in some regions suggests that faith-based approaches may be culturally congruent for these populations. Similarly, the emphasis on collective action in Latin American contexts indicates that activism-focused interventions may align with existing cultural frameworks in these regions.

Importantly, addressing eco-anxiety should not be framed as "treating" a disorder but rather as supporting adaptive responses to genuine ecological threats. As emphasized in our qualitative findings, many participants viewed their eco-anxiety as a rational and even moral response to environmental degradation. Respecting this perspective is essential for culturally sensitive approaches to eco-anxiety.

5.4 Limitations and Future Research Directions

Several limitations of this study warrant consideration. First, despite our diverse sample, certain regions and populations remain underrepresented, particularly Indigenous communities and populations with limited digital access. Future research should employ more inclusive sampling strategies to capture these perspectives.

Second, the cross-sectional design limits causal inferences about relationships between variables. Longitudinal studies are needed to examine how eco-anxiety develops over time and how it relates to changing environmental conditions and media coverage.

Third, while our mixed-methods approach provides both breadth and depth, cultural nuances may still be lost in translation and standardized measurement. More extensive ethnographic research could further illuminate culturally specific manifestations of ecological distress.

Fourth, our measures, though validated across multiple contexts, may not fully capture culturally unique expressions of eco-anxiety. Development of culturally grounded assessment tools should be a priority for future research.

Based on these limitations and our findings, several directions for future research emerge:

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- Longitudinal studies tracking eco-anxiety across development stages and in relation to environmental events
- Research focusing specifically on vulnerable populations, including Indigenous communities, climate migrants, and those in climate "hotspots"
- Intervention studies testing culturally tailored approaches to addressing eco-anxiety
- Further development and validation of assessment tools across diverse cultural contexts
- Research examining the relationship between eco-anxiety and other forms of climate-related distress, including ecological grief and solastalgia
- Studies investigating the potential positive outcomes of eco-anxiety, such as post-traumatic growth and collective resilience

VI. CONCLUSION

This research provides comprehensive evidence that eco-anxiety is a global phenomenon with significant cultural variations in its prevalence, manifestations, and impacts. By integrating perspectives from diverse regions and populations, this study advances our understanding of how psychological responses to ecological threats are shaped by cultural, social, and geographical contexts.

The findings demonstrate that eco-anxiety is neither uniformly pathological nor universally adaptive but varies based on severity, cultural context, and individual factors. Moderate eco-anxiety appears to motivate pro-environmental behavior across cultures, supporting the notion that some degree of concern about ecological threats is both rational and potentially constructive. However, severe eco-anxiety can impair functioning and wellbeing, particularly when individuals lack resources and support for addressing their concerns.

Cultural patterns in eco-anxiety highlight the limitations of universalist approaches to both assessment and intervention. The distinct ways in which eco-anxiety is experienced and expressed across cultural contexts necessitate responsive approaches that honor local understandings and coping strategies. This is particularly important given that communities most vulnerable to climate impacts often have limited access to mental health resources designed for their specific needs.

As climate change intensifies and public awareness grows, eco-anxiety is likely to become increasingly prevalent globally. Addressing this emerging psychological challenge requires collaborative efforts across disciplines and cultures, integrating insights from psychology, anthropology, environmental science, and indigenous knowledge systems. By understanding eco-anxiety in its cultural contexts, we can develop more effective approaches to supporting psychological adaptation to our changing planet.

Ultimately, while eco-anxiety represents a psychological burden for many, it also reflects a deep connection to the natural world and concern for its future. Channeling this concern constructively, while supporting those experiencing debilitating distress, represents an important component of holistic climate response. By advancing our understanding of eco-anxiety across global contexts, this research contributes to this vital effort.

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