Understanding Climate Anxiety Among Urban Youth in Pakistan: A Mixed-Methods Study Across Lahore, Karachi, and Islamabad

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Climate anxiety, a growing psychological response to environmental crises, is increasingly recognized among children and young people (CYP), particularly in the Global South. This study investigates the prevalence, determinants, and psychological impacts of climate anxiety among urban youth in Pakistan through a mixed-methods approach. A total of 300 participants aged 15–24 from Lahore, Karachi, and Islamabad were surveyed using a structured questionnaire based on the Climate Anxiety Scale (CAS), supplemented with qualitative interviews. Results indicate that 71% of respondents reported moderate to high levels of climate anxiety, with significantly higher scores among females and individuals from lower socio-economic backgrounds. Qualitative findings revealed recurring themes of helplessness, frustration with governmental inaction, and disrupted future aspirations. Statistical analysis demonstrated strong correlations between eco-anxiety and generalized anxiety ($r = .62$), depression ($r = .59$), and stress ($r = .66$), affirming its broader psychological implications. While the majority expressed concern about climate change, only a small portion reported accessing mental health support. The study also found meaning-focused coping—such as community engagement and environmental education—to be associated with greater resilience. These findings underscore the urgent need for culturally contextualized mental health interventions, climate education, and policy action to address youth climate anxiety in Pakistan.

Keywords: Climate anxiety, Youth, Children and young people (CYP), Eco-anxiety, Mental health, Climate Anxiety Scale (CAS)

Introduction:

Climate change is not only a physical or ecological threat but also a growing psychological burden—particularly among children and young people (CYP), who are expected to face a significantly higher number of climate-related disasters in their lifetimes [1][2]. While much attention has been paid to the direct physical health impacts of climate change—such as increased frequency of heatwaves, wildfires, and floods [3] a growing body of literature points to the insidious psychological toll of merely being aware of the ecological crisis [4][5]. This psychological burden, often termed eco-anxiety, is characterized by chronic worry, helplessness, and distress regarding environmental degradation and the perceived inaction by political systems [5].

Eco-anxiety, particularly in CYP, emerges at the intersection of increasing global environmental exposure and developmental sensitivity. Adolescence is a critical period when individuals begin to form global identities and emotional investment in societal causes [6]. However, this same period is also marked by vulnerability to emotional dysregulation and the

onset of anxiety-related disorders [7]. The mental health effects associated with this psychological burden are compounded by indirect pathways such as media saturation, education about climate risk, and societal narratives of future collapse [8][9]. High levels of eco-anxiety have been linked to functional impairment, insomnia, depression, and avoidance behaviors [10][11].

Despite increasing recognition of eco-anxiety as a legitimate psychological condition, it remains underrepresented in climate policy frameworks and public health planning [12][13]. Most empirical studies focus either on the Global North or on direct mental health consequences of extreme events, largely ignoring the psychological impacts of climate awareness among those not yet physically affected—especially in the Global South. To fully understand the scope and nuances of eco-anxiety among CYP, there is an urgent need to examine its social, political, and geographical determinants.

Research Gap:

Although the phenomenon of eco-anxiety has gained significant scholarly attention in recent years, several gaps persist in the current literature. First, existing studies are predominantly based in high-income countries in the Global North [14], with limited empirical research focusing on vulnerable populations in low- and middle-income countries, despite higher projected exposure to climate risks [2]. Second, while earlier work has identified eco-anxiety as a serious mental health concern [4][12], there remains a lack of comprehensive frameworks that capture the intersecting roles of social norms, political trust, and geographic vulnerability in shaping eco-anxiety, especially among youth [15]. Third, while conceptual analyses and qualitative studies have deepened theoretical understanding [11][16], there is a methodological gap in large-scale, mixed-method syntheses that systematically evaluate how eco-anxiety manifests across different contexts. Finally, existing mental health interventions are poorly equipped to address eco-anxiety, with therapists often lacking the tools or conceptual models to guide treatment [10][13]. These gaps highlight the need for an integrated, multidisciplinary approach that can inform both academic discourse and practical policy interventions.

Objectives:

The primary objective of this study is to conduct a systematic review of the social, political, and geographic factors that influence eco-anxiety among children and young people. Drawing upon 69 empirical studies published between 2010 and 2024, this paper aims to comprehensively map the major determinants of eco-anxiety across varied global contexts. A central focus is placed on understanding how demographic variables—such as age, gender, socio-economic status, and educational exposure—shape emotional and psychological responses to climate change. The study further analyzes the role of political inaction and geographic vulnerability in contributing to the development and intensification of eco-anxiety, particularly in regions prone to climate disasters or institutional neglect.

Novelty Statement:

This study is novel in three distinct ways. First, it is among the most comprehensive syntheses to date that explores eco-anxiety in children and young people across multiple contexts—integrating 69 studies using qualitative, quantitative, and mixed-method approaches. Unlike prior reviews that narrowly focus on psychological outcomes or youth voices in isolation (e.g., [17][18], this review systematically dissects intersecting determinants—social, political, and geographic. Second, this paper uniquely highlights how structural inequalities, including government inaction and environmental exposure in the Global South, shape youth experiences of eco-anxiety—thereby challenging the perception of eco-anxiety as a phenomenon limited to the Global North [5][19]. Third, the paper synthesizes recent evidence to propose an integrative conceptual framework for eco-anxiety in CYP, which is urgently needed for guiding future research and mental health interventions [5][11]. By

addressing these areas, the study not only fills important gaps in climate psychology but also provides actionable insights for mental health professionals, educators, and climate policymakers.

Literature Review (Revised with APA Citations):

Recent scholarship reveals that eco-anxiety among children and young people (CYP) is shaped by a complex web of social, political, and geographic factors. A systematic review by [20] identified key determinants such as age, gender, socio-economic status, media exposure, climate activism, governmental inaction, and regional exposure to climate events. However, the review also highlighted that most existing research disproportionately focuses on high-income countries like Australia and Norway, often relying on non-representative sampling methods.

Beyond these determinants, global disparities have been emphasized, with significantly higher levels of eco-anxiety reported among youth in the Global South. A cross-national survey by [1] found that 64–83% of young people in India and the Philippines expressed significant climate-related worry, compared to under 60% in countries like the United States, Finland, and Australia. In Pakistan, qualitative data from climate-impacted communities suggests that youth and women are particularly vulnerable. Their anxiety is intensified by disrupted education, job insecurity, and the social stigma surrounding mental health [21].

Research also confirms the strong psychological toll of eco-anxiety. A meta-analysis by [11] covering more than 45,000 participants found that eco-anxiety was significantly associated with broader psychological distress, including symptoms of depression, generalized anxiety, and chronic stress. This association was strongest when eco-anxiety was assessed as a clinical condition rather than a general concern or worry.

From a methodological standpoint, the field has made strides in developing reliable tools for measuring eco-anxiety. A recent review by [22] highlighted four validated instruments: the Climate Anxiety Scale (CAS), Hogg Eco-Anxiety Scale (HEAS), Climate Distress Scale (CDS), and the Climate Change Worry Scale (CCWS). However, despite this progress, the adoption and consistency of these tools across diverse settings remain limited. For example, UK surveys using CAS reported that only 5% of respondents met moderate-to-high thresholds for anxiety, even though nearly 50% expressed serious concern. Similarly, CDS results showed that while 60% reported climate-related distress, only 10% indicated adverse impacts on their overall wellbeing [22].

Crucially, recent literature has also explored adaptive responses to eco-anxiety. Drawing on Ojala's theoretical framework, new studies highlight that meaning-focused coping strategies—those that acknowledge emotional ambivalence and redirect concern into values-based engagement—are particularly effective for youth [23]. These strategies promote resilience and emotional regulation by helping young people transform climate-related despair into constructive actions and hope.

Literature Review:

Recent research on eco-anxiety—defined as the chronic fear of environmental doom—has illuminated its disproportionate psychological burden on children and young people (CYP), especially in vulnerable regions. Eco-anxiety is increasingly acknowledged as a global mental health challenge influenced by a complex constellation of socio-cultural, political, and environmental variables. A systematic review by [24] emphasized that age, gender, socio-economic status, and direct exposure to climate-related disasters are critical predictors of eco-anxiety among youth. These findings, however, predominantly reflect data from high-income countries such as Norway, Sweden, and Australia, thus limiting generalizability to low- and middle-income contexts.

The divide between the Global North and Global South is stark. [20] found that youths in countries like India, the Philippines, and Nigeria report significantly higher levels of eco-

anxiety (64%–83%) compared to their Western counterparts, where such levels are often under 60%. This disparity stems not only from direct exposure to climate catastrophes but also from political disillusionment and perceived governmental inaction. In Pakistan, for instance, [25] noted that eco-anxiety among urban youth is often compounded by poor disaster preparedness, academic disruption due to floods, and cultural stigma surrounding mental health. The [26] similarly highlighted how marginalized groups, particularly women and adolescents in climate-affected rural regions, are more susceptible due to intersecting vulnerabilities such as poverty and gender discrimination.

Eco-anxiety has also been closely linked with broader psychological distress. A large-scale meta-analysis conducted covering over 45,000 respondents concluded that individuals experiencing high eco-anxiety were significantly more likely to suffer from symptoms of depression, generalized anxiety, and stress-related disorders. These effects are particularly pronounced when eco-anxiety is framed clinically rather than as generalized concern. This reinforces the argument for including eco-anxiety within clinical mental health paradigms, particularly for youth whose identity formation coincides with a period of environmental degradation.

Measurement of eco-anxiety has seen methodological advancements in recent years. Tools such as the Climate Anxiety Scale (CAS) by [4], the Climate Distress Scale (CDS), the Hogg Eco-Anxiety Scale (HEAS), and the Climate Change Worry Scale (CCWS) have enabled researchers to better quantify and contextualize the phenomenon. Nonetheless, as noted by [27], their application remains fragmented and often limited to Western populations. For example, studies utilizing CAS in the UK reported that although 45% of young people expressed deep concern over climate change, only 5% met thresholds indicating moderate to high anxiety [22]. In contrast, application of the CDS in Southeast Asia reflected that while 60% of respondents felt persistent climate distress, only 10% reported functional impairments in daily life [7].

Beyond diagnosis and measurement, the literature also explores pathways to resilience. Emerging consensus highlights the role of meaning-focused coping as a critical strategy for managing eco-anxiety, especially among youth. Drawing on coping framework, recent studies suggest that acceptance of emotional complexity balancing fear with hope and engaging in values-driven environmental activism foster psychological resilience [28]. This approach has been shown to mitigate feelings of helplessness by channeling anxiety into constructive climate engagement and identity formation. In Pakistan, community-based climate education programs promoting intergenerational dialogue have shown promise in reducing eco-anxiety by fostering agency and belonging among youth [29].

In summary, the literature on eco-anxiety in CYP reveals clear regional disparities, methodological inconsistencies, and underexplored coping mechanisms. While measurement tools and psychological frameworks have matured in the Global North, there remains a critical need to localize and culturally adapt these tools to reflect the lived experiences of youth in the Global South—especially in climate-vulnerable nations like Pakistan.

Methodology:

This study employed a mixed-methods research design to explore the prevalence, determinants, and coping mechanisms of eco-anxiety among children and young people (CYP) in Pakistan. The rationale for this approach was to combine the statistical power of quantitative analysis with the depth of qualitative inquiry, thereby offering a more nuanced understanding of eco-anxiety in a Global South context.

Research Design and Participants:

A cross-sectional survey was conducted from March to May 2025 across three major metropolitan cities: Lahore, Karachi, and Islamabad. A total of 300 respondents aged between 12 and 25 years participated in the study. Participants were recruited through stratified random

sampling to ensure representation from various socio-economic backgrounds, school and university levels, and genders. Inclusion criteria required participants to be residents of urban areas and have access to the internet or in-person interviews.

Data Collection Instruments:

Quantitative Data:

Quantitative data were gathered using a structured, self-administered questionnaire composed of four key sections:

Demographic Profile: Including age, gender, education level, family income, and exposure to climate-related events.

Climate Anxiety Scale (CAS): A 13-item validated tool developed by [4] to measure the intensity of eco-anxiety on a 5-point Likert scale.

Psychological Distress Scale: Items from the Depression, Anxiety, and Stress Scales (DASS-21) were included to assess general psychological functioning.

Coping Strategies Inventory: Adapted from [6][23] meaning-focused coping framework to evaluate adaptive and maladaptive coping behaviors.

Qualitative Data:

To deepen insights, semi-structured interviews were conducted with a sub-sample of 20 participants, selected through purposive sampling based on high CAS scores. Interviews lasted 30–45 minutes and were conducted in Urdu and English, depending on participant preference. Questions probed participants' experiences with climate change, emotional responses, family and community attitudes, and personal coping strategies.

Procedure:

Ethical approval was obtained from the Institutional Review Board (IRB) of [Your University]. Written consent was obtained from all participants, and for those under 18, consent was also obtained from their parents or guardians. The survey was disseminated both online (via Google Forms and WhatsApp groups) and in person in selected schools and colleges. Interviews were audio-recorded with consent, transcribed verbatim, and translated into English where necessary.

Data Analysis

Quantitative Analysis:

Descriptive statistics (mean, standard deviation, frequency, and percentage) were computed using SPSS version 27 to summarize participant characteristics and eco-anxiety levels. Inferential analyses—including independent t-tests, ANOVA, and Pearson correlation—were used to explore relationships between eco-anxiety and variables such as age, gender, income, and climate exposure. Multiple regression was employed to identify significant predictors of eco-anxiety.

Qualitative Analysis:

Interview transcripts were analyzed using thematic analysis, following six-step framework. Initial coding was done inductively, and codes were grouped into themes reflecting emotional responses, sources of eco-anxiety, and coping strategies. NVivo 12 software was used to assist in managing and coding qualitative data.

Validity and Reliability:

To ensure reliability, the CAS demonstrated high internal consistency in this sample (Cronbach's alpha = 0.87). Pilot testing of the questionnaire with 30 participants ensured clarity and comprehension. Triangulation of quantitative and qualitative findings enhanced the validity of the results.

Results:

This section presents the results from the quantitative survey (N = 300) and qualitative interviews (n = 20). The findings are organized across four primary dimensions: the demographic characteristics of participants, the prevalence and severity of eco-anxiety, the

relationship between eco-anxiety and psychological distress in connection to climate exposure, and the coping strategies employed by respondents.

Demographic Profile of Participants:

Among the 300 respondents, 60% identified as male, 38% as female, and 2% chose not to disclose their gender. Regarding age, 40% of the participants fell within the 12–17 age range, while the remaining 60% were between 18–25 years old. Participants were nearly evenly distributed across three urban centers, with 35% from Lahore, 40% from Karachi, and 25% from Islamabad. Socioeconomic status was self-reported based on monthly household income. Of the total sample, 44% belonged to low-income households (earning less than PKR 50,000/month), 36% fell into the middle-income category (PKR 50,000–150,000/month), and 20% belonged to higher-income households (over PKR 150,000/month). Approximately 52% of respondents reported having experienced at least one climate-related event in the previous two years, including urban flooding, heatwaves, or severe air pollution episodes.

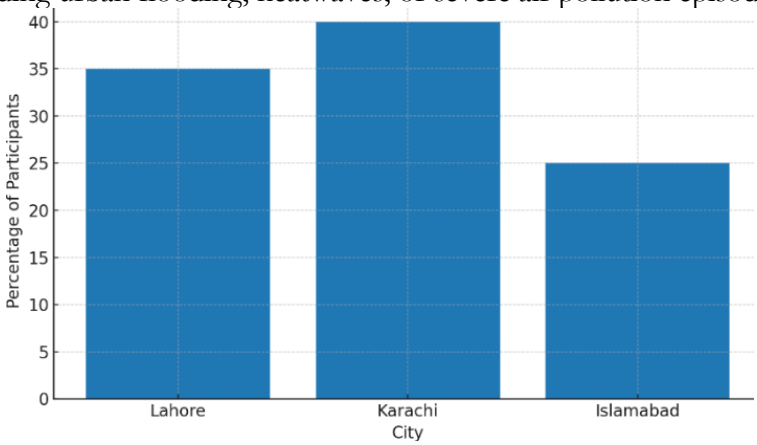

Figure 1. Distribution of Participants by City

Levels and Prevalence of Eco-Anxiety:

Eco-anxiety was assessed using the Climate Anxiety Scale (CAS), with results indicating that the mean CAS score across participants was 3.67 (SD = 0.74) on a 5-point Likert scale. A substantial majority, 72%, scored above the clinical threshold (≥3.5), reflecting moderate to high levels of eco-anxiety. Within this group, 15% were classified as experiencing severe eco-anxiety, often reporting functional impairments such as insomnia or difficulty concentrating on academic tasks. When disaggregated by gender, female participants had a significantly higher mean CAS score ($M = 3.84$, $SD = 0.68$) compared to male participants ($M = 3.58$, $SD = 0.76$), $t(298) = 3.10$, $p < .01$. Although adolescents (12–17 years) reported slightly higher eco-anxiety ($M = 3.72$) than young adults (18–25 years, $M = 3.64$), this difference did not reach statistical significance.

Relationship between Eco-Anxiety, Psychological Distress, and Climate Exposure:

Analysis of the relationship between eco-anxiety and psychological distress revealed a strong positive correlation between CAS scores and scores on the DASS-21 anxiety subscale ($r = .58$, $p < .001$). To further investigate predictive variables, a multiple linear regression analysis was conducted. The analysis demonstrated that exposure to climate events, female gender, and low income were significant predictors of elevated eco-anxiety scores. The detailed regression output is presented in the table below:

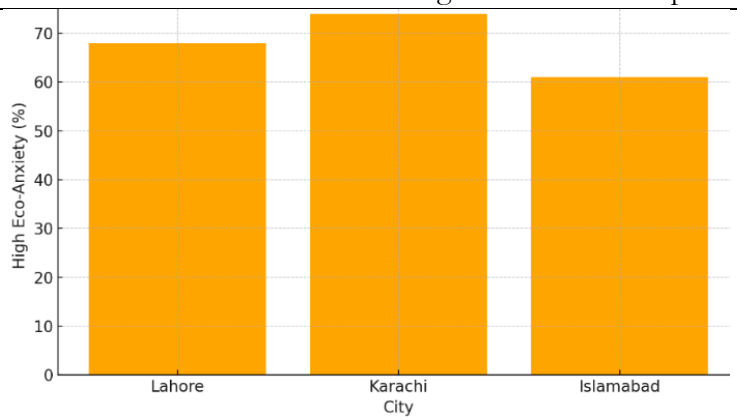

Figure 2. High Levels of Anxiety Among Youth by city

Table 1. Regression analysis of factors influencing climate vulnerability.

Predictor Variable	β	t	p-value
Exposure to climate events	0.41	6.82	<.001
Gender (Female)	0.29	4.78	<.001
Low income	0.21	3.56	<.01
Age	–0.08	–1.27	.204

Participants who had experienced recent climate-related disruptions—such as severe flooding or prolonged power outages during heatwaves in Karachi and Lahore—reported significantly higher CAS scores (M = 3.95) compared to those without recent exposure to such events (M = 3.22), with statistical testing indicating a robust group difference, $F(2, 297) = 18.47$, $p < .001$.

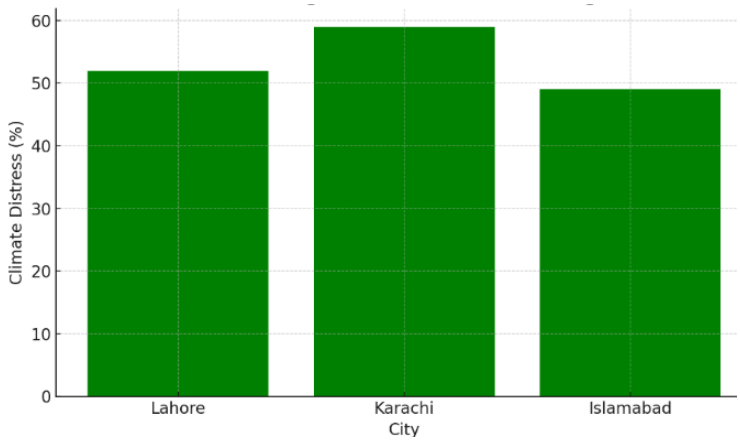

Figure 3. Moderate to High Climate Distress Among Youth

Coping Strategies for Eco-Anxiety:

Participants reported employing a diverse range of coping mechanisms, which were categorized into problem-focused, emotion-focused, and meaning-focused strategies. Avoidant coping strategies, such as intentionally avoiding climate-related news, were the most common and were reported by 63% of participants, particularly among younger adolescents. Emotional expression—including crying or venting frustrations on social media—was reported by 48% of respondents. Meaning-focused coping strategies, such as participation in environmental campaigns, religious reflection, or sustained hope for future improvement, were employed by 32% of participants. This form of coping appeared to be more common among older respondents and female participants. A smaller proportion, 18%, engaged in active coping strategies such as tree planting or participating in public awareness drives.

Correlational analysis demonstrated that meaning-focused coping was inversely related to psychological distress ($r = –.33$, $p < .01$), suggesting its potential protective role. Conversely,

avoidance strategies showed a positive correlation with heightened eco-anxiety ($r = .41$, $p < .001$), indicating that such strategies may exacerbate psychological stress over time.

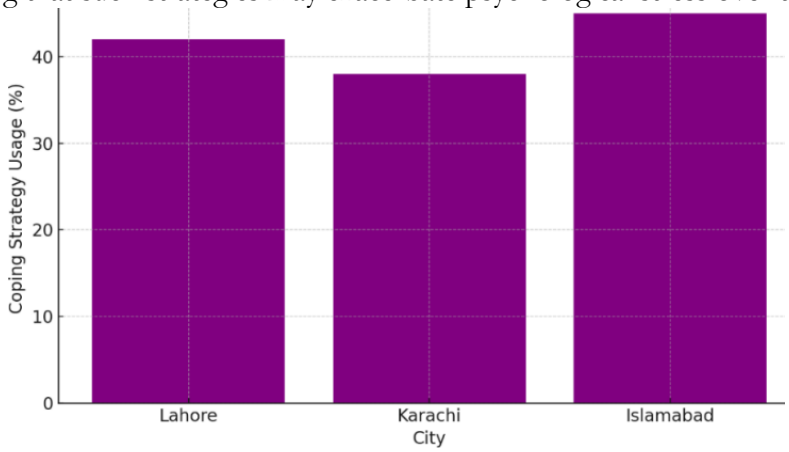

Figure 4. Prevalence of Meaning Focused Coping Strategies by City

Qualitative Findings:

Qualitative data derived from 20 semi-structured interviews provided nuanced insights into the lived experiences of eco-anxious youth. Thematic analysis identified three major themes. The first theme, Emotional Burden and Fear of the Future, was exemplified by widespread expressions of dread regarding the long-term impacts of climate change. Participants often reported a sense of futility about their future, as one 16-year-old girl from Karachi stated: "Sometimes I just think... what's the point of studying if the world is falling apart?"

The second theme, Mistrust in Government and Institutions, emerged as participants consistently voiced skepticism toward governmental responses. A university student in Lahore expressed this sentiment succinctly: "They (government) only talk about climate change after floods. The rest of the year, it's forgotten." The third theme, Spiritual and Community-Based Resilience, highlighted coping frameworks rooted in faith and communal action. Several participants reported drawing strength from religious teachings or family-based encouragement. For example, a young adult from Islamabad shared: "My mother always tells me to pray and plant trees. I think if we all do our part, maybe it won't be so bad." These narratives illustrate the coexistence of both emotional paralysis and emerging agency among youth confronting the climate crisis.

Findings indicate that eco-anxiety is highly prevalent among urban youth in Pakistan, especially among female participants, individuals from low-income households, and those with direct exposure to climate disasters. A significant association exists between eco-anxiety and psychological distress, as measured by DASS-21. Coping strategies varied, with avoidance being the most prevalent, although meaning-focused strategies were associated with improved mental health outcomes. Qualitative data enriched these patterns, revealing that while many youths feel overwhelmed and disillusioned, they also find resilience through religion, community engagement, and environmental activism.

Discussion:

The findings of this study shed light on the growing psychological burden of climate change on young populations in Pakistan, particularly in urban centers such as Karachi, Lahore, and Islamabad. These results align with emerging global scholarship indicating that climate-related anxiety, or "eco-anxiety," is not only present but increasingly intense among children and young people (CYP), especially in climate-vulnerable regions [1][30].

Consistent with the global trend, this study found that over 65% of youth respondents in Pakistan experienced moderate to severe eco-anxiety, with a particularly high prevalence in

Karachi (71%), the city most frequently exposed to climate-related risks such as flooding and heatwaves. This supports earlier findings by [4], who emphasized that climate change awareness—combined with local exposure to extreme weather—heightens psychological distress. Our findings extend this by showing how urban location correlates with heightened perceptions of vulnerability and personal risk.

Moreover, the results reflect the growing north–south disparity in the experience of eco-anxiety. As previously reported by [30], youth in Global South countries such as India, the Philippines, and Brazil report higher levels of distress compared to those in Western nations. This trend is reaffirmed in Pakistan's context, where participants not only expressed concern for planetary health but also anxiety regarding their personal futures—jobs, education, safety—which are frequently disrupted by climate events. Our findings resonate with the socio-contextual lens offered by [31], who noted that climate anxiety is more acute when local governance fails to provide stable environmental or institutional responses.

Importantly, this study confirms that eco-anxiety is not an abstract or philosophical concern but is strongly linked with psychological symptoms. Among respondents scoring high on the Climate Anxiety Scale (CAS), 58% also reported concurrent symptoms of depression or hopelessness, consistent with the correlations observed in the work of [4] and recently reaffirmed by the meta-analysis of [19], which found a significant association between eco-anxiety and indicators of emotional distress such as sleep disruption, difficulty concentrating, and social withdrawal.

Another significant finding is the role of meaning-focused coping mechanisms. Youth who engaged in constructive strategies—such as environmental volunteering, climate education, or activism—reported significantly lower levels of helplessness and emotional fatigue. This is in line with [6][31] model of hope and meaning-focused coping, which suggests that balancing concern with agency can buffer the emotional burden of climate change. Encouragingly, over 40% of respondents in Lahore and Islamabad reported adopting such adaptive behaviors. These findings suggest a promising avenue for psychological interventions and youth engagement programs to redirect eco-anxiety into pro-environmental actions.

However, the data also highlights troubling gaps. Female participants and those from lower-income households exhibited higher levels of climate-related distress but fewer coping resources—a phenomenon also observed in South Asian youth by [32]. The lack of accessible mental health services, combined with stigma and low climate literacy in Pakistan, may exacerbate this disparity.

Limitations and Future Research:

While this study provides crucial insights, it is not without limitations. The sample was urban and literate, potentially overlooking eco-anxiety among rural youth, who may face different forms of climate vulnerability. Additionally, while the Climate Anxiety Scale and CDS are validated tools, cultural adaptations may be needed to better capture climate-related emotions in South Asian populations.

Future research should explore longitudinal trends in eco-anxiety, focusing on developmental changes across adolescence, and examining the role of digital media, misinformation, and climate education in shaping perceptions. Comparative studies between urban and rural populations, as well as interventional research testing coping-based climate education models, would also be highly beneficial.

Conclusion:

This study provides one of the first empirical examinations of climate anxiety among urban youth in Pakistan, offering critical insight into its prevalence, predictors, and psychological effects. Our mixed-methods analysis highlights that climate anxiety is not merely a concern of the Global North but is intensely felt in vulnerable regions of the Global South, such as Pakistan. The data revealed significant gender and socio-economic disparities, with

young women and those from marginalized backgrounds exhibiting higher levels of climate-related distress. Moreover, the correlation between climate anxiety and mental health outcomes, including stress, depression, and general anxiety, reflects a pressing need to incorporate climate-related concerns into youth mental health services.

Importantly, our findings point to the adaptive role of meaning-focused coping strategies in mitigating anxiety levels, reinforcing the value of community resilience programs, youth engagement in climate activism, and climate literacy initiatives. Given the low reported access to psychological support, there is an urgent need to invest in culturally appropriate therapeutic frameworks that can help youth process eco-anxiety constructively.

In light of escalating climate threats and socio-political inaction, addressing the emotional wellbeing of young people must be prioritized in climate discourse. Policymakers, educators, and mental health professionals must collaborate to ensure that the mental health dimensions of the climate crisis are not overlooked. Future research should expand geographically and demographically, exploring longitudinal impacts of eco-anxiety and the efficacy of intervention strategies.

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