Journal of Professional & Applied Psychology *Original Article*

Climate Change Induced Anxiety, Perceived Stress and Coping Strategies in Young Adults: Evidence from Pakistan

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Abstract

Climate change has generated growing concern about its psychological consequences. This study investigates climate change-induced anxiety (CCIA), perceived stress (PS), and coping strategies among young adults (18–30 years) in Lahore, Pakistan. Using validated instruments i.e., Climate Change Anxiety Scale (CCAS), Perceived Stress Questionnaire (PSQ), and Brief COPE, data was collected from 400 participants via convenience sampling. Anxiety about climate change has a strong positive correlation with adaptive coping, demonstrating that people employ useful coping mechanisms to address their concerns. Additionally, there is a slight positive correlation between climate change anxiety and brief and maladaptive coping, suggesting that some less beneficial strategies are also employed. All forms of coping, particularly maladaptive coping, are positively correlated with perceived stress. Gender differences were found in terms of coping strategies. Females reported to be using more emotion-focused strategies while males reported more substance-use coping. Findings are interpreted through Lazarus and Folkman's transactional model of stress and more recent theoretical models of climate anxiety, with emphasis on cultural and contextual moderators relevant to South Asia. Implications for theory, future research, and culturally sensitive interventions are discussed.

Keywords: Climate Change Anxiety, Coping Strategies, Perceived Stress, Young Adults

Received: 12 October 2025; Revised Received: 30 November 2025; Accepted: 02 December 2025

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Introduction

Research increasingly shows that climate change has broad psychological effects, with people worldwide experiencing grief, anger, and chronic worry described as eco-anxiety or CCIA. The CCIA involves persistent, future-focused worry about environmental decline and society's perceived inaction, ranging from mild to disabling distress (Clayton, 2020). International surveys confirm that climate-related grief and anger are widespread among youth and significantly affect their daily functioning and future plans (Hickman et al., 2021, Marty et al., 2025).

The mechanisms underlying CCIA are explained through stress and coping theory. According to Lazarus and Folkman, stress arises from how individuals appraise threats and judge their ability to cope; climate change is often viewed as global, uncontrollable, and personally meaningful, producing sustained stress. Newer models add existential and sociopolitical factors, showing that perceived agency, exposure, and cultural context shape emotional responses to climate anxiety (Crandon et al., 2024).

Most empirical work on climate anxiety originated in Global North. Meta-analyses and systematic reviews report moderate

associations between eco-anxiety and psychological distress and show that higher anxiety sometimes predicts pro-environmental action depending on self-efficacy and supportive contexts (Cosh et al., 2024; Kühner et al., 2025). Nonetheless, evidence from the Global South remains limited, despite clear indications that climate change impacts are disproportionately felt in these regions

Pakistan's multiple climate disasters most recently severe monsoon floods and glacial lake outbursts have heightened public awareness of climate vulnerability and brought the psychosocial costs into sharper relief. These contextual facts argue for region-specific empirical work that attends to local vulnerabilities, cultural coping norms, and institutional responses (Borenstein, 2022).

Climate anxiety straddles clinical, social, and political domains. Some scholars caution against pathologizing reasonable concern about an existential threat, while others emphasize that sustained, impairing worry warrants clinical attention. Operationally, researchers have developed validated measures such as the CCAS to capture both cognitive-emotional distress and functional impairment (Clayton & Karazsia, 2020).

Lazarus and Folkman's transactional model remains a central heuristic: an individual's primary appraisal (how threatening is the event) and secondary appraisal (what can I do) shape stress outcomes and coping choices. Coping strategies are often classified as problem-focused, emotion-focused, or meaning-focused; adaptive coping tends to buffer distress when matched to the controllability of the stressor, whereas mismatch can exacerbate distress (Biggs et al., 2017).

International evidence demonstrates that CCA correlates with general psychological distress and can both motivate and inhibit pro-environmental behavior. Large-scale surveys (Hickman et al., 2021) and meta-analytic syntheses (Gago, 2024; Kühner et al., 2025) report moderate correlations between climate anxiety and mental health outcomes. For instance, meta-analytic work suggests mean effects in the range of $r \approx .30$ for associations with depression/anxiety symptoms, though heterogeneity is substantial across studies.

Coping research specific to climate anxiety shows diverse patterns. University samples have revealed that high climate anxiety can lead to both increased planning and to paralytic avoidance, depending on perceived efficacy and social support (Daeninck et al., 2023). Meaning-focused coping drawing purpose, values, or community engagement from environmental concern has been identified as a crucial adaptive pathway that links distress to action rather than paralysis.

Collectivist societies may shape coping repertoires favoring communal problem solving and family support. However, resource constraints and institutional failures can push individuals toward avoidance or fatalism. Recent work in the Global South indicates that exposure to climate disasters, socioeconomic precarity, and limited mental health infrastructure can intensify maladaptive responses (Meo et al., 2025).

In 2025, Akhtar conducted a mixed-methods study titled *"Understanding Climate Anxiety Among Urban Youth in Pakistan"* in Lahore, Karachi, and Islamabad to examine the prevalence, drivers, and coping strategies of climate anxiety among university students and young professionals. Surveys using standardized eco-anxiety and perceived stress scales were combined with in-depth interviews exploring lived experiences, views on governmental response, and coping (Akhtar, 2025).

Zareen et al. (2024) conducted a study on the topic on "Cross-sectional study of flooding and psychological outcomes in young adults (Pakistan)" the objective of the study was to

assess cognitive, emotional, and functional impairment among flood-affected young adults; examined socio demographic predictors of poorer mental-health outcomes. It was a cross-sectional survey of ~350 young adults in flood-affected areas; instruments measured perceived stress, depression, and coping strategies. Demographic and exposure variables were included as predictors. The results indicate that high rates of stress and emotional impairment among respondents; female gender, lower socioeconomic status, and direct property loss predicted worse outcomes. Moreover, coping strategies skewed toward problem-focused action where resources permitted, but religious and meaning-focused coping remained widespread where material resources were low (Zareen et al., 2024).

Recent news also document that Pakistan's monsoon floods and extreme events have been intensified by climate change, increasing both exposure and the population-level risk of climate anxiety and stress — especially among youth who face disrupted education, displacement, and uncertain livelihoods. These events magnify the need for mental-health and coping resources in Pakistan (Dar et al., 2025).

Hypotheses

- Anxiety surrounding climate change will be negatively correlated with adaptive coping and positively correlated with perceived stress and maladaptive coping among young adults in Pakistan.
- There will be important gender differences in use of coping mechanisms to manage climate change anxiety whereby females will be more likely to report use of emotion-focused coping strategies and use of more planning coping strategies, while males will be more likely to report use of substance-use coping strategies.

Method

Research Design and Sampling

A cross-sectional correlational design was used. Sample size was determined using g power formula. Participants (*N*=400) were young adults aged 18–30 recruited from Lahore through convenience sampling across university campuses, community centers, and public spaces. The target sample size was chosen to provide adequate statistical power for correlational and group-comparison analyses.

Measures

Climate Change Anxiety Scale (CCAS; Clayton & Karazsia, 2020)

The CCAS measures cognitive-emotional and functional impairment related to climate anxiety. The measure demonstrates strong psychometric properties with Cronbach alpha = .89 (Clayton & Karazsia, 2020). Reliability of the scale for the current study was .92.

The Perceived Stress Questionnaire (PSQ)

The Perceived Stress Questionnaire (PSQ) captures subjective stress appraisal over recent months and has been validated across cultures. It has high internal consistency originally e.g., Cronbach Alpha, .80) (Levenstein et al., 1993). Reliability of the scale for the current study was estimated as .84.

Brief COPE Inventory (Carver, 1997)

A 28-item inventory measuring 14 coping strategies; subscales were aggregated into adaptive and maladaptive indices consistent with prior literature. The Brief COPE has demonstrated good internal consistency in the original subscales (average Cronbach's alpha = .72 across subscales. Reliability for the current study was estimated as .82. Reliability of all the measures used in the current study was in the high range (.82 to .92).

Procedure and Ethical Considerations

Ethical approval was first obtained from the Department of Psychology's review board and then the research proposal was then

examined by Institutional Review Board (IRB). The research topic was approved by IRB before the research was carried out. Participants were provided with written informed consent which they were to sign. Data was collected via self-reported questionnaires (details are given above in Method section). Items were read aloud when participants requested clarification. Confidentiality and voluntary participation were maintained.

Results

Results were estimated using descriptive and inferential statistics. Mean and standard deviation to describe the statistics of age and income of the sample (Table 1). All the samples were university students (*N*= 400). As three of the participants did not identify themselves as either man or a woman, their responses for gender are not included. Therefore, the participants were divided into gender (male/female) based on the clear responses of 397 participants on the demographic characteristic. The sample included all levels of students ranging from secondary to Master/M.Phil. Internal Consistency was carried out for all scales used in the current study and demonstrated acceptable to excellent internal consistency: CCAS α = .92, Brief COPE adaptive α = .82 (aggregate), PSQ α = .84. Descriptive statistics indicated moderate to high levels of climate anxiety and stress. Mean scores were as follows: CCAS *M* = 30.65 (*SD* = 12.80).

Table 1

Descriptive Statistics (N=400)

Variables	***M***	***SD* (in year)**	**Range (in Rupees)**
Age	23	3.37	18 – 30
Family Income	132,625	44,608	<50000 – >15000

Table 2

Correlations, Means and Standard Deviations of Study Variables (N=400)

Variable	***M***	***SD***	**1**	**2**	**3**	**4**	**5**
Climate Change Anxiety	33.12	6.45	—	.11*	.33**	.33**	.95**
Perceived Stress	41.86	7.03	—	—	.38**	.37**	.26**
Brief Copying Strategy	69.17	10.99	—	—	—	.99**	.32**
Maladaptive Coping	38.21	8.17	—	—	—	—	.32**
Adaptive Coping	52.43	9.22	—	—	—	—	—

*Note: *p <.05, **p <.01, ***p<.001, M= Mean, SD = Standard Deviation*

The primary inferential results are reported below using full sample (*N* = 400). Pearson correlations revealed significant relationships among CCA, PS, and COPE Inventory (see Table 4.2). The CCA correlated strongly with PS (r = .54, *p* < .01). It was positively correlated with maladaptive coping (r = .42, *p* < .01). However, scores of adaptive coping subscale were negatively correlated (though modestly) with both CCA and PS (r = –.20 and –.18 respectively). This suggests that those individuals who use more adaptive strategies reported somewhat lower distress compared to those who use

maladaptive coping strategies. The table below shows association of CCA, PS and Coping Strategies (adaptive and maladaptive). Table 2 revealed various statistically significant relationships, such as CCA and Perceived Stress showed a strong and positive correlation that suggested higher anxiety is associated with higher perceived stress. While maladaptive Coping is positively correlated with CCA which means people who experience more anxiety tend to use more maladaptive coping strategies. Furthermore, perceived Stress is positively correlated with Maladaptive Coping, while Adaptive Coping has a weak, but statistically significant, negative correlation with CCA. The result revealed that individuals employing more adaptive coping strategies tend to report slightly lower levels of climate change anxiety. The correlation table reveals that CCA is strongly associated with Adaptive Coping (r = .95, p < .01) and moderately with Maladaptive and Brief Coping (r = .33, p < .01), indicating that anxious individuals engage in a range of coping strategies. Perceived Stress shows mo derate positive correlations with all coping types, especially Maladaptive Coping (r = .37, p < .01). The near-perfect correlation between Brief and Maladaptive Coping (r = .99, p < .01) suggests possible overlap. Overall, higher anxiety and stress are linked to increased use of both adaptive and maladaptive coping mechanisms.

Table 3

Gender Differences in Coping Strategies (N=400)

Coping Strategies	Male *M* (*SD*)	Female *M (SD)*	df	*t*	*p*	Cohen's d
Problem-focused	25.14 (5.33)	25.89 (5.21)	395	1.28	.20	0.13
Emotion-focused	23.94 (5.71)	26.81 (5.44)	395	4.23	<.001	0.44
Substance use	3.34 (1.89)	2.53 (1.24)	395	3.35	<.001	0.35
Planning	5.25 (1.59)	5.75 (1.44)	395	-2.05	.042	-0.21

*Note: *p <.05, **p <.01, ***p<.001*

Independent samples t-tests compared male and female participants on key coping indices and selected Brief COPE subscales (Table 3). Females reported higher mean scores on emotion-focused coping (M= 26.81, SD = 5.44) compared to males (M = 23.94, SD = 5.71), t (398) = 4.23, p = .001, Cohen's d ≈ 0.44, indicating a medium effect. Males reported higher mean substance-use coping (M= 3.34, SD = 1.89) compared to females (M= 2.53, SD =1.24), t (168) = 3.35, p = .001, Cohen's d ≈ 0.35.

Discussion

This study investigated the relationship between climate change-induced anxiety, perceived stress, and coping strategies in young adults in Pakistan. Sample consisted of university students, with a mean age of 23 years, a demographic often susceptible to climate-related psychological distress (Clayton, 2020). Reliability estimates for all scales demonstrated strong internal consistency, thereby reinforcing the robustness of the findings.

In alignment with international studies, participants indicated moderate to high levels of climate anxiety and perceived stress. The correlation between Climate Change Anxiety (CCA) and perceived stress was significant and positive, suggesting that individuals with greater climate-related concerns tend to report higher levels of stress. This is

consistent with earlier research indicating that climate anxiety is connected to broader psychological distress (Hickman et al., 2021).

Coping patterns indicated significant psychological trends. Maladaptive coping strategies exhibited notable positive correlations with both CCA and perceived stress, indicating that individuals facing heightened distress may depend on avoidance-oriented behaviors, in line with previous research on stress-coping dynamics (Biggs et al., 2017). Conversely, adaptive coping strategies exhibited weak yet statistically significant negative correlations with both CCA and perceived stress, suggesting that constructive coping offers a degree of protection. The findings highlight the significance of resilience-building and adaptive behavioral responses in alleviating climate-related distress.

The significant correlation between adaptive coping and climate anxiety suggests potential conceptual or measurement overlap, necessitating further methodological examination. Similarly, association between maladaptive coping and the Brief COPE subscale suggests redundancy in item content that future studies should address.

Gender differences also emerged. Female participants reported significantly higher use of emotion-focused coping, whereas males reported higher substance-use coping. These patterns echo established gendered coping tendencies, with women often engaging more in emotional processing and seeking social support (Closson et al., 2022; Matud, 2004; Tarmes et al, 2002) and men more in avoidant or externalizing behaviors (Goren et al, 2025; Matud, 2004; Nolen-Hoeksema, 2001; Pinho, 2025). These results suggest that gender-responsive mental-health interventions may be beneficial when addressing climate-related stress.

Overall, the results show that increased use of both adaptive and maladaptive coping mechanisms is associated with higher levels of climate anxiety and stress, indicating that young adults are actively trying to manage their distress but may not always be successful in doing so (Aldao et al., 2010; Goren et al., 2025). Strengthening young people's coping skills through evidence-based psychological and educational interventions may be crucial given Pakistan's increased susceptibility to climate change (Haase & Hudson, 2024; Oyserman, 2017; Soomro et al., 2024). While climate anxiety and stress appear strongly correlated, the direction of influence cannot be established from this data alone (VanderWeel et al., 2016).

Limitations and Future Directions

This study offers insightful information about young adults in Pakistan's coping mechanisms, stress, and anxiety related to climate change. It has some limitations; hence the results should be interpreted with caution. First, the sample was only limited to university students, restricting the generalizability of the results. Second, all information was gathered using self-report measures, which may introduce subjectivity, social desirability bias, and recall bias in respondents' item interpretations.

Future studies should recruit more diverse samples that include people from different socioeconomic, regional, and occupational backgrounds as well as non-student populations. Longitudinal designs would recommend to see if stress and anxiety related to climate change persists over time and whether specific coping mechanisms mitigate or exacerbate psychological distress. Further, indigenous scales should be developed. Furthermore, qualitative research methods like focus groups and interviews could help us better understand how young adults perceive the risks posed by climate change and select coping mechanisms.

Conclusion

The results of this study demonstrate the psychological effects of climate change on Pakistani young adults. Strong correlations were found between participants' reported levels of perceived stress and climate anxiety, which ranged from moderate to high. Participants used both adaptive and maladaptive coping strategies were reportedly used. There were also clear gender differences in coping, highlighting the need for responsive and nuanced mental health care. Overall, the findings highlight the significance of addressing psychological issues associated with climate change through preventive education, easily accessible mental health resources, and coping mechanisms that support efficient and adaptive coping. Supporting young people's emotional resilience is crucial for both their wellbeing and the development of a psychologically prepared society as climate threats grow both internationally and in Pakistan.

Ethics Statement

All the ethical standards of APA were met. Informed consent was taken in written form from all the respondents to participate in this study.

Contribution of Authors

Soban Tayyab: Conceptualization, Investigation, Methodology, Data Curation, Formal Analysis, Writing – Original Draft,
Shaista Jabeen: Methodology, Writing - Reviewing & Editing, Supervision

Conflict of Interest

There is no conflict of interest declared by the authors.

Source of Funding

The authors declared no source of funding.

Data Availability Statement

The datasets of the current study are not available publicly due to ethical reasons but are available from the corresponding author [S.J.] upon the reasonable request.

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