Research Article

Measuring Climate Change Anxiety in the Aftermath of the 2025 Maharashtra Wildfires: A Climate Change Anxiety Scale-Driven Analysis

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Abstract

The escalating frequency and severity of climate-related disasters underscore the urgent need to understand their psychological repercussions, particularly climate change anxiety (CCA). This study employed a quantitative cross-sectional design to investigate CCA prevalence, manifestations, and demographic correlates among residents (N=300) directly affected by the catastrophic 2025 Maharashtra wildfires, an event emblematic of India's growing climate vulnerability. Utilizing the validated 13-item Climate Change Anxiety Scale (CCAS), supplemented by wildfire-specific questions, the research assessed anxiety levels, concerns about future disasters, and expectations of institutional support. Descriptive statistics revealed high CCA prevalence, with 67.4% of participants reporting moderate-to-severe anxiety (CCAS mean scores ≥4). Furthermore, 70% expressed significant concern about future wildfires, and 82% explicitly expected government intervention during climate disasters. Reliability analysis confirmed exceptional internal consistency for the CCAS (Cronbach's $\alpha = 0.972$). Crucially, chi-square tests demonstrated no statistically significant associations between CCAS scores and demographic variables, age ($p=0.899$), gender ($p=0.509$), or urban-rural residency ($p=0.086$) indicating a uniform psychological impact transcending traditional sociodemographic vulnerabilities. This finding challenges assumptions of differential vulnerability and highlights climate disasters as universal psychological stressors. The results underscore CCA as a pervasive public mental health concern in post-disaster contexts within the Global South, necessitating integrated interventions. This study provides empirical evidence for mainstreaming mental health into climate adaptation policies at local, governmental, and global levels, advocating for culturally responsive support frameworks that address the immediate and anticipatory dimensions of ecological distress in wildfire-prone regions like Maharashtra.

Keywords: Climate Change; Anxiety; Eco-Anxiety; Maharashtra; Wildfires; Climate Anxiety Scale

1. Introduction

Since the 20th century, the extent of the environmental problems facing our planet has increased dramatically. These dangers are even more difficult to mitigate because of their global reach. Among these threats, "*Climate Change"* and *"Environmental Distress"* affect the earth's atmosphere and directly affect humankind. As climate change is linked to environment and is a major international environmental concern. With climate change taking center stage in any conversation regarding the existence and security of nation states, our concern for the planet Earth and the lives of its inhabitants has increased in recent years. The environmental underpinnings that support human survival are in danger due to the severity of climate change's consequences (Hulme, 2025). Within the next ten to fifteen years, all of humanity, individuals, groups, nations, regional actors, and international players must implement significant and feasible environmental planning initiatives. If they don't, the Earth's biosphere could be irrevocably damaged and collapse by the end of the twenty-first century. Climate change is no longer something we can worry about in the future; it is here and now (Mustafa, 2007).

Maharashtra's wildfires in 2025 made it clear that environmental disasters are growing in many parts of the world, especially in India. Communities worldwide will have to cope with an increasing frequency of extreme weather events, the spread of infectious disease agents, the loss of land in coastal areas, and numerous other climate change-related repercussions as the phenomenon intensifies. In addition to causing deaths, injuries, and financial losses, disasters have significant societal repercussions, which we will examine in this volume. One of the main causes of people falling into and remaining in poverty is disasters. They result in both immediate and long-term problems with mental and physical health. For both companies and homeowners, a disaster can be a major source of worry. Significant damage and disruption can result from disasters, leading to community disintegration and the loss of vital social support networks for survivors. Besides damaging nature and buildings, these fires also revealed a new problem: more people are anxious about climate change (Palinkas, 2024; Shukla, 2025).

Eco-anxiety covers the many feelings people have when they worry about the threats of environmental damage and climate change (Tierney, 2025). The first time the term "eco-anxiety" was used was to mean the constant fear of environmental problems. Eco-anxiety includes worries for future generations' well-being in addition to one's current survival. Some of the components

that contribute to a more comprehensive knowledge of eco-anxiety include personal experiences, media, and societal interpretations. Stressing both the drawbacks and advantages of eco-anxiety highlights how urgent it is to address personal suffering in the larger framework of climate action. Given the widespread prevalence of eco-anxiety, also known as climate distress, and the significant negative consequences it has on people functioning, it is imperative to investigate how it affects mental health. With more people becoming concerned about climate change and its effects on the environment, eco-anxiety is growing every day (Bhaskaran & Muralidharan, 2025). With time, it has come to cover different mental and emotional reactions to climate change such as grief, feeling helpless, and dreading one's existence.

In 21st century, climate anxiety, a subtype of eco-anxiety, poses a serious risk to mental health. It affects mental health in three ways: directly through severe weather, indirectly through repercussions like starvation, and indirectly through the media. Young people are especially vulnerable; according to 47% of United States young adults, it affects their daily lives. Addressing the underlying causes of this pervasive mental health issue, education, the creation of more green spaces, biophilic design, responsible attitudes, a long-term vision from businesses and politicians, and systemic change is necessary to combat this issue. Young people must be protected, their anxieties must be acknowledged, and they must be included in decision-making (Lammel, 2025). Recent research has found that these anxieties affect people's mental health. Recently, a paper in Climatic Change showed that the Hogg Climate Anxiety Scale is useful and found four areas of climate anxiety: emotions, actions, persistent thoughts, and worries about personal contribution to climate change (Hogg et al., 2024). They prove that climate change anxiety can influence many areas of life and well-being for individuals (Henschel et al., 2025).

Since the negative effects of various environmental crises, like heat waves and floods, have already caused a great deal of harm globally, the phrase "climate crisis" has become widely used. Rising temperatures, conflicts, natural disasters, and resource scarcity can all have an impact on mental health, both directly and indirectly. The violation of planetary boundaries and climate change has a significant effect on young people. Even though climate change anxiety is found all over the world, the ways it appears and how intense it is can differ from one place to another (Shukla et al., 2022). The prospect of an epidemic of poor mental health outcomes has been brought up as we see more and more of the effects of climate change in our surroundings, and as the threat to the future

grows. This is particularly true for youth, whose lives will be most affected by climate change in the future (Fernando & Sciberras, 2025). A great deal of research globally has aimed to understand the psychological effects of climate change.

Studies point out that a great part of the population is affected by anxiety about climate change, especially young people. Therefore, it should come as no surprise that young people around the world have grave concerns about climate change, which may be exacerbated by their increased exposure to environmental crises and updates through social media and the news (Asbrand et al., 2025; Bhaskaran & Muralidharan, 2025; Clayton, 2021; Clayton et al., 2023; Crandon et al., 2022). However, few studies about this topic have been conducted in places such as India. The wildfires in Maharashtra in 2025 allow us to study the ways climate change anxiety appears in India. It is crucial to research climate change anxiety in order to develop culturally appropriate interventions because India is vulnerable to climate disasters, and its culture shapes people's emotions.

2. Literature Review

In India, forest fires are now recognized as a prevalent and devastating form of disturbance that endangers many people's lives as well as vital ecological functions. Climate change and human expansion of farms, construction of roads and buildings, and encroachment into forested regions are two factors contributing to the recent increase in the frequency and severity of forest fires. Understanding and mapping the areas of a city where fires are most likely to occur is essential for improving fire prevention efforts. In a large inquiry at Maharashtra's Chandoli National Park, GIS, RS, and AHP were used to assess the forest's vulnerability to fire. According to the study, areas with heavy road traffic, a lot of farmland, and neighboring communities had more flames, demonstrating that human actions significantly increase fire risk. This type of research influences decisions about local forest management and fire control (Lohar et al., 2020). That year, Maharashtra a wildfire record, with over a thousand large-scale fires reported in Gadchiroli, Thane, Pune, and Nagpur. These fires forced thousands of people to flee their homes, disrupted the local economy, and had a major impact on the environment. Various local residents in certain communities frequently experience increased stress, anxiety, and trauma. Because there has been little research on climate change fear in India, their concerns may be neglected, exacerbating their troubles.

It is preferable to utilize conventional measures to assess climate change concerns. Clayton and Karazsia (2020) developed the CCAS to assess climate change anxiety (Clayton & Karazsia, 2020). The CCAS scale, which consists of 13 items, assesses both the mental and practical implications of climate change concerns. Many people in German-speaking countries and other cultures have adopted the instrument (Wullenkord et al., 2021). However, insufficient studies have been conducted to determine if palliative care is viable in India. We can learn a lot about Maharashtra's climate change concerns by running and assessing the CCAS. To make the test more appropriate for Indians, the language is adjusted, the scale is tailored to Indian culture, and its validity and reliability are evaluated (Fekih-Romdhane et al., 2024; Wullenkord et al., 2021). This escalating frequency and severity of climate-related disasters, such as the 2025 Maharashtra wildfires, have intensified global attention on the psychological repercussions of climate change. Climate change anxiety (CCA) characterized by cognitive-emotional distress and functional impairments linked to environmental threats has emerged as a critical area of research. This review synthesizes recent peer-reviewed literature (2022-2025) on the measurement of CCA, with a focus on the Climate Change Anxiety Scale (CAS), and explores its applicability in post-wildfire contexts.

Climate change anxiety is defined as a psychological response to perceived environmental threats, marked by intrusive thoughts, sleep disturbances, and impaired daily functioning. While early studies conflated CCA with general anxiety, Clayton & Karazsia's (2020) 22-item CAS provided the first validated framework to disentangle CCA as a distinct construct (Clayton & Karazsia, 2020). Recent research underscores its multidimensional nature, distinguishing cognitive-emotional symptoms (e.g., rumination, fear) from functional impairments (e.g., disrupted work or social interactions). The CAS has since been adapted cross-culturally, with studies in Poland and France confirming its reliability but debating its factor structure. For instance, a Polish validation proposed a 3-factor model (intrusive symptoms, reflections, and functional impairment), while a French study favored a 2-factor structure (cognitive-emotional and functional domains) (Larionow et al., 2022; Mouguiama-Daouda et al., 2022). These discrepancies highlight the need for context-specific adaptations, particularly in regions like Maharashtra, where wildfire trauma may reshape CCA manifestations.

The CAS's psychometric robustness has been validated across diverse populations. A 2022 study in BMC Public Health demonstrated strong internal consistency for its subscales and identified key correlates, such as prior wildfire exposure and media consumption, which amplify anxiety levels (Eisenman & Galway, 2022). Similarly, another study linked CCA to proactive climate actions, challenging the notion of anxiety as purely debilitating. However, cross-cultural validations reveal challenges (Schwartz et al., 2023). For example, the French CAS validation (2022) found weaker associations between functional impairment and general anxiety, suggesting cultural nuances in symptom expression (Mouguiama-Daouda et al., 2022). Such findings underscore the importance of validating the CAS in disaster-prone regions like Maharashtra, where post-wildfire trauma may alter its psychometric properties.

Wildfires exacerbate CCA by combining immediate physical threats with long-term ecological uncertainty. The 2025 Maharashtra wildfires, akin to California's fire seasons, likely induced anticipatory stress, a phenomenon documented in a 2024 survey of high-risk Californians. A 2023 analysis noted that wildfire smoke exposure correlates with increased emergency visits for anxiety and PTSD symptoms persisting for years. These insights align with the CAS's emphasis on personal experience as a CCA driver, suggesting its utility in post-disaster tings (Isaac et al., 2023). The studies reported that demographic factors significantly influence CCA severity. Younger individuals and women report higher anxiety levels, possibly due to greater environmental engagement or societal vulnerability (Ojala et al., 2021). Marginalized communities, including low-income and Indigenous groups, face disproportionate risks due to limited adaptive resources, as seen in wildfire-prone regions of the U.S. and Canada (Dennin et al., 2025). In Maharashtra, socioeconomic disparities may similarly modulate CCA, necessitating intersectional analyses. Media exposure also plays a dual role: while raising awareness, excessive consumption of disaster-related content amplifies distress, as evidenced by a significant increase in functional impairment among high-media users (Myers & Wee, 2004).

Contrary to early assumptions, CCA often motivates adaptive behaviors. A study (2022) found that 16% of anxious individuals engaged in collective climate actions, such as advocacy or sustainable lifestyle changes, irrespective of political ideology (Bingley et al., 2022). This aligns with the CAS's behavioral engagement subscale, which correlates with environmental identity and guilt-driven proactivity. However, functional impairments such as work disruptions may off these

benefits, highlighting the need for targeted interventions. For instance, community-based preparedness programs, like emergency kit distribution, have reduced anxiety by enhancing perceived control (Tam et al., 2023).

Despite advances, critical gaps remain. First, most CAS validations derive from Western contexts, limiting applicability in South Asia. Second, the scale's factor structure remains contested, with studies advocating for 13-item short forms or culturally specific modifications. Third, longitudinal data on post-disaster CCA trajectories are scarce. Future research in Maharashtra should prioritize longitudinal designs to track anxiety evolution and test CAS adaptations that account for regional trauma and resilience factors. Thus, the study will evaluate the average CCAS score in the study population, their demographic differences (age, gender, and location and emotional response to wildfire-triggered environmental changes.

2.1. Research Questions

RQ1: What proportion of individuals directly affected by the 2025 Maharashtra wildfires report higher levels of CCA?
RQ2: How concerned are residents about future wildfires, and how does this concern relate to self-reported anxiety?
RQ3: To what extent do residents expect government support during climate disasters, and how is this linked to their reported anxiety?

2.2. Research Hypothesis

H1: There is no statistically significant difference in CCAS based on gender among wildfire-affected individuals in Maharashtra.
H2: There is no statistically significant difference in CCAS based on the living area (urban/rural).
H3: There is no statistically significant difference in CCAS across age groups.

3. Methodology

3.1. Study Design

The study utilized the survey questionnaire to assess the climate change anxiety among the people of Maharashtra, India after the event of large wildfire in 2025. By integrating quantitative

assessments and using standardized scale, the research aimed to capture both measurable proportions, any demographic difference and emotional response of participants.

3.2. Population and Sampling

The sample size comprised of residents (aged 18 and above) living in districts of Maharashtra impacted by the 2025 wildfires. A total of 300 residents participated in the study, representing a mix of rural and urban regions.

3.3. Study Instrument and Data Collection

For evaluating study's outcome CCAS was used (Clayton & Karazsia, 2020). This scale consists of 13 self-report items rated on a 5-point Likert scale (ranging from 1 = strongly disagree to 5 = strongly agree). The survey was generated via Google Form and included three sections namely demographic variables for evaluating demographic differences, CCAS items for evaluating the average CCAS score in the study population, and wildfire-specific items for evaluating residents' emotional response to wildfire-triggered environmental changes.

3.4. Data Analysis

The collected data were coded in Microsoft Excel 2013 and evaluated into SPSS version 25. The analysis was divided into three sections.

a. Descriptive statistics for frequency distributions of demographic variables, CCAS mean score and for wildfire-specific additional questions (AQ).
b. Reliability analysis via Cronbach's alpha and factor loadings to evaluate internal consistency of the CCAS items and mean.
c. Inferential statistics to apply chi-square tests of association to explore the relationships between CCAS score groupings and demographics (age, gender and location). These were applied to test the hypothesis that whether demographic factors significantly influenced anxiety levels of residents of Maharashtra.

3.5. Ethical Consent

The research gathered informed consent from each participant. Anonymity and confidentiality were maintained while collecting the data for the research. Participants were informed about the psychological nature of the questions. Participants were informed that their responses will be used for academic purposes.

4. Results

Results are divided into three sections namely descriptive analysis, reliability analysis and inferential analysis.

4.1. Descriptive statistics

Descriptive statistics were used to characterize the residents' demographics, including age, gender, living area, district, education and occupation. The findings revealed in are mentioned in **Table 1**.

Table 1. Demographics Characteristics of Residents of Maharashtra who participated in the Study.

Demographics	Groups	Frequency (n)	Percentage (%)
Age	18-25	28	9.3
	26-35	138	46.0
	36-45	103	34.3
	46-60	31	10.3
Gender	Male	210	70.0
	Female	90	30.0
Living Area	Urban	160	53.3
	Rural	140	46.7
	Urban	160	53.3
District	Nagpur	62	20.7
	Gadchiroli	39	13.0
	Chandrapur	49	16.3
	Thane	41	13.7
	Pune	63	21.0
	Nashik	21	7.0
	Kolhpur	25	8.3
Education	No formal Education	114	38.0
	Primary	19	6.3
	Secondary	55	18.3
	Graduation	74	24.7
	Post-Graduation	38	12.7
Occupation	Student	56	18.7
	Agri/farmer	90	30.0
	Govt. service	72	24.0
	Private	48	16.0
	Unemployed	34	11.3

The descriptive results of **Table 2** revealed the frequencies and percentages of CCAS Mean and AQs. CCAS Mean score revealed that the residents who strongly agreed (50), agreed (152) and neutral (22) a total of 224 out of 300 residents reported having anxiety at wildfire at Maharashtra. *AQ1* results revealed that 186 out of 300 report being affected due to it. The results of *AQ2,* 209 out of 300 expressed concern about future wildfires at Maharashtra. *AQ3* results revealed that 246 out of 300 participants are awaiting government help.

Table 2. Descriptive Statistics CCAS Mean and Wildfire-Specific Additional Questions.

Items	Responses	Frequency (n)	Percentages (%)
CCAS Mean Scores	Strongly Disagree	27	9.0
	Disagree	49	16.3
	Neutral	22	7.3
	Agree	152	50.7
	Strongly Agree	50	16.7
AQ1	Yes	186	62.0
	No	114	38.0
AQ2	Not at all concerned	3	1.0
	Slightly concerned	18	6.0
	Moderately concerned	70	23.3
	Very concerned	123	41.0
	Extremely concerned	86	28.7
AQ3	Yes	246	82.0
	No	54	18.0

4.2. Reliability statistics

Data reliability was evaluated for the CCAS variables to evaluate the outcomes of the study. The internal consistency of the variables were evaluated via Cronbach's Alpha, as shown in **Table 3**. Cronbach's alpha was greater than 0.7 indicating the internal consistency of the data, which is excellent for further analysis.

Table 3. Internal Consistency of CCAS Variables via Cronbach's Alpha.

Cronbach's Alpha	N of Items
0.972	14

Further reliability of each item of the scale was evaluated via factor loadings shown in **Table 4** revealed that all items of CCAS exhibited values greater than 0.5, with most values approximating the standardized value of 1.0. This indicated the suitability of each item of CCAS for further inferential analysis, emphasizing the robustness of the results.

Table 4. Factor Loadings of each CCAS item via Extraction Method.

CCAS	Extraction
CCAS1	0.932
CCAS2	0.802
CCAS3	0.858
CCAS4	0.928
CCAS5	0.907
CCAS6	0.888
CCAS7	0.865
CCAS8	0.968
CCAS9	0.922
CCAS10	0.964
CCAS11	0.831
CCAS12	0.855
CCAS13	0.539
CCAS Mean	0.922

Extraction Method: Principal Component Analysis.

4.3. Inferential Statistics

The outcomes of **Table 5** reveled association between demographic variable and CCAS mean scores of the participants of the study. Age * CCAS Mean (P = 0.899) revealed that age does not significantly influence anxiety levels of the residents affected by Maharashtra wildfire thus. It also indicated that there is no significant association between Gender * CCAS Mean (P = 0.59). The outcomes also assessed the association of living area (rural or urban) with CCAS Mean (*P = 0.085)* (close to significance), suggesting a trend but not a confirmed significant effect of living area as well.

Table 5. Variables Indicating the Association of Demographic Variables on Residents of Maharashtra Wildfires.

Variables	Value	df	Asymp. Sig. (2-sided)
Age * CCAS Mean	6.328	12	0.899
Gender * CCAS Mean	3.298	4	0.509
Living Area * CCAS Mean	8.145	4	0.086

The significance level is $P \leq 0.05$

5. Discussion

The findings of this study underscore the profound psychological impact of the 2025 Maharashtra wildfires on affected residents, aligning with emerging global and national research on climate change-induced mental health challenges. The outcomes of the study revealed several significant information for the academic literature. **Table 2** suggest residents' shows higher anxiety (~62%) due to such climate hazard happened at Maharashtra wildfire in India answering *RQ1 by* AQ1. The results reported heightened climate change anxiety (CCA) following the wildfires is consistent with the published literature as well. A recent survey by the Yale Program on Climate Change Communication and CVoter found that in India, extreme weather events are growing more common and severe as the temperature warms. Extreme heat waves, floods, water shortages, and erratic monsoon patterns have all recently affected Indians. In addition to destroying lives and livelihoods, these occurrences influence public perceptions of extreme weather and climate change. The work revealed that vast majority are concerned that their local area may be harmed by extreme weather or its effects. It was discovered that many Indians are extremely concerned about the frequent occurrence of catastrophic weather events and their effects. For many Indians, risks associated with the climate and weather are not hypothetical issues; rather, they are a part of daily life.

Furthermore, concerns regarding local effects are common and closely reflect people own experiences with these occurrences (Majumder et al., 2023; Marija Verner, 2025). AQ2 results revealed that (~70%) expressed concern about future wildfires, indicating strong psychological impact answering *RQ2*. AQ3 results revealed that (~82%) are residents are awaiting government help, possibly due to high anxiety and perceived vulnerability answering *RQ3*. The results of **Table 5** reveled that demographic variables have no significant effect on CCAS Mean scores in 2025 Maharashtra Wildfires by accepting H_1, H_2 and H_3 confirming that everyone equally and they have no association with age, gender and living of the place.

A large proportion of respondents, approximately 70%, expressed concern about future wildfires. 82 percent of these teachers believe that such an initiative would require official institutional support. It is consistent with research findings that people who are constantly exposed to climate-related occurrences feel more insecure and helpless. The importance of public institutions in lowering psychological diseases is demonstrated by how strongly people want the government to intervene with climate change adaptation and disaster preparedness (Mahajan, 2025; Shukla, 2025).

5.1. Demographic Factors and Uniform Psychological Impact

Demographic identities (age, gender, and region) had no effect on CCA ratings, suggesting that disasters affect everyone's psychological state equally. This is consistent with findings from four developed countries, which found that people experienced comparable anxiety boosts from climate events regardless of social or demographic differences, demonstrating that ecological crises are equal sources of stress that temporarily equalize population differences (Tam et al., 2023).

5.2. Implications for Mental Health Interventions

The scale's internal consistency ($\alpha = 0.972$) indicates its reliability in assessing people's reactions to ecological distress. Because there is so much fear, particularly among certain groups, people should get community assistance, protection protocols, and targeted public health information to help manage the mental health impacts of climate change and aid in community adaptation (Ansari & Kar, 2024; Grant & Runkle, 2022; Palinkas, 2024; To et al., 2021).

According to a variety of research, the wildfires of 2025 in Maharashtra increased many impacted people's fear about climate change and fueled their need for greater government support. The findings underline the critical need for coordinated, multi-faceted systems that drive climate adaptation and cultural mental health treatment. Using these approaches is essential for protecting a community against the effects of frequent climate change (Grant & Runkle, 2022; Heanoy & Brown, 2024; To et al., 2021).

6. Recommendations and Policy Changes

The 2025 Maharashtra wildfires have illuminated the profound and multifaceted mental health burden imposed by climate change, particularly the emerging challenge of climate change anxiety (CCA). This disaster has demonstrated that CCA manifests across demographic spectra, demanding urgent, coordinated responses that integrate psychological support with climate adaptation and mitigation strategies. The findings reveal that 67.4% of affected residents reported moderate to severe anxiety, with 82% expressing explicit expectations for government intervention in future climate disasters, underscoring a critical public health imperative. This necessitates a paradigm shift from reactive disaster management to proactive, resilience-building frameworks that address both the physical and psychological dimensions of climate impacts. Drawing on empirical evidence from this study and broader scholarly literature, the following recommendations outline a comprehensive roadmap for local populations, governmental entities

at state and national levels, and global organizations to mitigate CCA and foster community resilience in wildfire-prone regions.

6.1. For Local Populations

Communities must develop culturally resonant coping mechanisms and social support infrastructures to process eco-anxiety and trauma. Given the high prevalence of persistent subclinical symptoms, such as sleep disturbances, rumination, and functional impairments—observed post-wildfire, community-led initiatives like Climate Cafés should be established. These facilitated spaces, modeled on programs in Nevada and Australia, provide informal settings for residents to share distress, validate experiences, and reduce isolation without pressure toward immediate action (Kay, 2024; Palinkas, 2024). Such peer-support networks are particularly vital in rural districts like Gadchiroli and Chandrapur, where mental health resources are scarce.

Local NGOs and community health workers should be trained in low-intensity psychological interventions (e.g., Problem Management Plus or Skills for Psychological Recovery) to identify and support individuals with emerging CCA before it escalates into severe disorders (Cianconi et al., 2020; Palinkas, 2024). These evidence-based approaches, deliverable by non-specialists, are cost-effective and scalable in resource-constrained settings. Furthermore, integrating traditional knowledge systems, such as Indigenous practices of ecological stewardship and non-timber forest product management can restore a sense of agency and cultural continuity disrupted by wildfires. Communities should also prioritize collective preparedness actions, such as participatory fire-risk mapping and community drills, which enhance perceived control and reduce anticipatory trauma. Initiatives like Fire Adapted Communities in Nevada, which educate residents on home hardening, evacuation planning, and ecological restoration, demonstrate how practical engagement alleviates helplessness (Kay, 2024; Murphy, 2023; Nelson, 2022). Fostering youth-led environmental clubs

and resilience committees can channel climate anxiety into adaptive actions, leveraging the finding that proactive behaviors reduce functional impairment.

6.2. For Governmental Policies (State and National Level)

Policy interventions must bridge climate action and mental health governance, ensuring CCA is mainstreamed into disaster risk reduction, public health, and environmental strategies. At the state level, Maharashtra should expand its State Action Plan on Climate Change (SAPCC) to include dedicated mental health pillars, informed by the high prevalence of CCA revealed in this study. This requires integrating mental health surveillance into existing climate vulnerability assessments, utilizing the validated Climate Change Anxiety Scale (CCAS) to map subclinical symptoms in high-risk districts (Grant & Runkle, 2022; Morris et al., 2025). The state's Mazi Vasundhara Abhiyan offers a strategic framework for such integration; its community-engagement model should be adapted to include mental health literacy campaigns and resilience training in its "five elements" competitions (Ghorpade, 2025).

Healthcare systems must be strengthened to address CCA's somatic and psychological squeal. Primary health centers in wildfire-affected regions should screen for respiratory and cardiovascular conditions linked to PM2.5 exposure, a known correlate of depression and anxiety, while concurrently assessing psychological distress (Grant & Runkle, 2022; Silverstone, 2022). Task-shifting approaches, where community health workers deliver brief cognitive-behavioral interventions for adjustment difficulties, can extend reach where specialists are unavailable. The state should also establish a Wildfire Mental Health Response Unit to coordinate crisis counseling, long-term trauma care, and economic support for displaced populations, addressing the ongoing stressors (e.g., unemployment, housing insecurity) that exacerbate CCA (Baudon & Jachens, 2021; Palinkas, 2024). Crucially, social protection programs must target vulnerable groups, women,

smallholder farmers, and tribal communities, who face compounded risks despite the demographic uniformity of CCA prevalence. For instance, expanding the Just Transition Roadmap to include mental health safeguards for workers transitioning from fossil fuels would prevent socioeconomic dislocation from amplifying ecological grief (Ghorpade, 2025).

Urban planning policies must prioritize green infrastructure to counter the "green island effect," as access to restorative natural spaces buffers eco-anxiety. Lastly, education reforms embedding climate-emotion literacy into school curricula can normalize distress and build coping skills early, drawing from models like Australia's Support for Students Exposed to Trauma (Palinkas, 2024; Verlie, 2022).

6.3. For Global Organizations

International bodies must catalyze knowledge exchange, financing, and transnational research to address CCA as a planetary health crisis. Funding agencies like the Green Climate Fund (GCF) and World Bank should prioritize grants for integrated adaptation-mental health programs, particularly in low- and middle-income countries (LMICs) where research and resources are sparse. Maharashtra's success in securing $270 million from the GCF for watershed management demonstrates the potential for scaling such initiatives to include mental health components, such as training community workers in CCA interventions during ecological restoration projects (Ghorpade, 2025). Global consortia, such as the Lancet–MHI Commission on Climate Change and Mental Health, must establish standardized CCA metrics, building on the CCAS's three-factor structure (Functional Impairment, Intrusive Symptoms, and Reflections), to enable cross-cultural comparisons and intervention benchmarking (Morris et al., 2025). This requires funding longitudinal studies to track CCA trajectories post-disaster, especially in regions like South Asia, where validated data is lacking.

The World Health Organization should formally recognize CCA and solastalgia as health outcomes in the International Classification of Diseases, facilitating policy recognition and resource allocation. Furthermore, technology transfer initiatives are needed to democratize access to digital mental health tools. Supporting LMICs in developing culturally adapted mHealth apps offering CBT modules for eco-anxiety or real-time air quality alerts can bridge service gaps exacerbated by wildfires. Moreover, the global knowledge platforms should curate best practices for community resilience, such as India's Decentralized Renewable Energy systems, which reduce climate vulnerability while creating jobs. International partnerships can amplify programs like Mazi Vasundhara Abhiyan through twinning arrangements with similar initiatives (e.g., California's wildfire resilience networks), fostering cross-continental learning (Ghorpade, 2025; Palinkas, 2024).

6.4. Integrated Implementation Framework

Translating these recommendations into action demands multi-scalar coordination. Locally, Community Resilience Hubs, co-locating health services, evacuation resources, and counseling could serve as one-stop centers during and after wildfires. At state and national levels, "climate budgets" should earmark funds for mental health, with Maharashtra increasing its allocation from 12% to 50% by 2030 as planned. Globally, a Climate Mental Health Observatory under the IPCC could synthesize evidence and disseminate protocols. Critically, policies must be evaluated through dual lenses: reducing carbon emissions while safeguarding mental wellbeing. For instance, reforestation projects using bamboo (a high-carbon-sink species) should engage communities psychologically affected by wildfires, turning restoration into therapeutic practice (Ghorpade, 2025).

The Maharashtra wildfires have irrevocably shown that climate change anxiety is not a future concern but a present crisis requiring immediate, evidence-based responses. By centering mental health in climate adaptation, empowering communities through participatory action, and mobilizing global resources for frontline regions, stakeholders can transform anxiety into agency. The window for action is narrowing, but as this study demonstrates, collective resolve can forge pathways toward resilience in an era of ecological uncertainty.

7. Conclusion

The 2025 Maharashtra wildfires served as a stark, localized manifestation of the global climate crisis, offering critical insights into the pervasive psychological toll of environmental degradation. This study, employing the validated Climate Change Anxiety Scale, empirically documented the high prevalence of climate change anxiety among affected residents, with 67.4% reporting moderate to severe symptoms. Crucially, the findings revealed that this psychological burden was remarkably uniform across demographic lines, age, gender, and urban-rural residency, demonstrating that the existential threat posed by climate disasters transcends traditional sociodemographic vulnerabilities to inflict widespread psychological distress. The profound sense of apprehension regarding future wildfire events, coupled with the overwhelming expectation (82%) for government intervention, underscores a collective experience of vulnerability and a demand for institutional responsibility in the face of escalating climate risks. These results confirm that climate change is not merely an environmental or economic challenge but a significant public mental health emergency, characterized by feelings of helplessness, anticipatory trauma, and a deep-seated need for security and support.

The study significantly contributes to the nascent field of climate psychology within the Global South, particularly India, and a region acutely vulnerable to climate impacts yet underrepresented

in CCA research. By validating the applicability of the CCAS in this distinct cultural and disaster context, the research provides a crucial methodological foundation for future investigations across similar settings. The absence of demographic patterning in CCA severity challenges assumptions about differential vulnerability based on traditional markers within disaster-affected populations, suggesting instead that the sheer magnitude and visibility of climate catastrophes like the Maharashtra wildfires generate a near-universal psychological response. This uniformity, however, does not negate the need for targeted support; it emphasizes that mental health interventions and climate adaptation strategies must be universally accessible and embedded within community and governmental responses. Ultimately, the 2025 wildfires highlight the inextricable link between planetary health and human psychological well-being. Addressing CCA is not merely about alleviating individual suffering but is fundamental to fostering the collective resilience, agency, and proactive engagement required for communities to adapt to and mitigate the unfolding climate crisis. Ignoring this dimension risks undermining broader climate action efforts by leaving populations paralyzed by distress rather than empowered to enact change.

8. Future Perspective

Future research must build upon this foundational study to deepen understanding of CCA's long term trajectory and culturally specific expressions in India and comparable regions. Longitudinal studies tracking the evolution of anxiety symptoms in wildfire-affected communities over years are essential to distinguish transient distress from chronic, debilitating conditions and identify critical intervention windows. Further psychometric refinement and cultural adaptation of the CCAS are warranted, potentially exploring indigenous constructs of ecological distress and coping mechanisms to develop more nuanced, contextually relevant assessment tools and interventions. Research should also investigate the complex interplay between CCA, media consumption patterns

(especially local and social media), perceived self-efficacy, and engagement in both individual and collective climate actions to understand how anxiety can be transformed into sustained adaptive behavior.

Practically, the integration of mental health support within climate disaster preparedness and response frameworks is paramount. Developing and evaluating scalable, community-based interventions, such as training frontline health workers in CCA recognition and basic support, establishing peer-support networks like Climate Cafés, and embedding climate-emotion literacy into school curricula and public health campaigns represent critical next steps (Grant & Runkle, 2022; Heanoy & Brown, 2024). Furthermore, rigorous assessment of policy interventions, such as the impact of enhanced social safety nets, improved early warning systems coupled with psychosocial support, and community-led ecological restoration projects, on mitigating CCA is vital to inform evidence-based governance. The path forward necessitates transdisciplinary collaboration, bridging climate science, psychology, and public health, policy, and community knowledge to build societies resilient not only physically but also psychologically to the accelerating challenges of a warming world. Understanding and addressing CCA is pivotal for enabling effective, just, and sustained climate action.

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Conflict of Interest

The author(s) have no conflict of interest to declare.

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