

The Psychological Impact of Climate Change: Anxiety, Stress, and Coping Mechanisms

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Abstract: Climate change has emerged as a critical global issue, with significant impacts extending beyond environmental and economic spheres to affect psychological well-being. This study employs a mixed-methods research design to investigate the psychological impact of climate change, specifically focusing on anxiety, stress, and coping mechanisms. Utilizing both quantitative surveys and qualitative interviews, the research examines the prevalence and intensity of climate-related anxiety and stress and explores the coping strategies individuals employ. The findings reveal moderate to high levels of anxiety and stress among participants, with notable demographic variations, such as higher levels of anxiety in younger individuals and greater stress among women and those with lower socioeconomic status. Adaptive coping mechanisms, such as environmental activism and mindfulness practices, were identified as effective, while maladaptive strategies like avoidance and denial were also prevalent. The study underscores the need for targeted mental health interventions and public health policies that integrate mental health support into climate change adaptation and mitigation strategies. Promoting adaptive coping mechanisms and addressing maladaptive behaviors are crucial for enhancing resilience and mental well-being in the face of ongoing environmental challenges.

Keywords: *Climate Change, Psychological Impact, Anxiety, Stress, Coping Mechanisms, Environmental Psychology*

1 Introduction:

1.1 The Emerging Crisis of Climate Change

Climate change is increasingly recognized as one of the most urgent challenges facing humanity. It encompasses a range of environmental phenomena, including rising global temperatures, more frequent and severe weather events, and shifting ecosystems. While the environmental and economic consequences of climate change have been extensively studied, its psychological impacts are only recently gaining attention. As climate-related disasters become more frequent and severe, the resulting stress and anxiety are becoming a significant public health concern.

1.2 The Link Between Climate Change and Mental Health

The psychological impact of climate change manifests in various ways, predominantly through heightened anxiety and stress. As individuals and communities grapple with the immediate and long-term consequences of environmental changes, they experience a range of emotional responses. These responses can include chronic worry about the future,



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feelings of helplessness, and stress related to both direct environmental impacts and indirect effects such as displacement and economic instability. The growing awareness of climate change and its potential to disrupt life as we know it contributes to an increasing prevalence of climate anxiety—a condition characterized by persistent fear and concern about environmental deterioration and its consequences for future generations.

1.3 The Scope of Climate-Related Psychological Stress

Research has begun to reveal the breadth of climate-related psychological stress, highlighting its significance as a mental health issue. Individuals affected by extreme weather events, such as hurricanes, floods, and wildfires, often face immediate psychological trauma, including post-traumatic stress disorder (PTSD), depression, and anxiety. Beyond these acute impacts, climate change can also contribute to chronic stress through its ongoing effects on lifestyle, economic stability, and community cohesion. For example, individuals living in areas prone to rising sea levels or prolonged droughts may experience long-term anxiety about their homes, livelihoods, and future prospects.

1.4 The Role of Coping Mechanisms

As climate change continues to escalate, understanding and developing effective coping mechanisms becomes crucial. Coping strategies can significantly influence the extent to which individuals and communities experience psychological distress. These mechanisms may include individual approaches such as mindfulness and cognitive behavioral techniques, as well as community-level interventions aimed at fostering resilience and collective action. Effective coping not only helps mitigate the immediate psychological impacts of climate change but also enhances overall well-being and resilience in the face of ongoing environmental challenges.

1.5 The Need for Further Research and Intervention

Given the complex interplay between climate change and mental health, there is a pressing need for further research to fully understand the psychological impacts and to develop targeted interventions. This research should encompass a range of disciplines, including psychology, environmental science, and public health, to create a comprehensive approach to addressing climate-related psychological issues. Additionally, policy measures and community support systems must be tailored to address both the immediate and long-term mental health needs of those affected by climate change.

The psychological impact of climate change—manifested through anxiety, stress, and various coping mechanisms—is a critical area of concern that requires increased attention and research. As climate-related events become more frequent and severe, understanding the mental health implications and developing effective coping strategies will be essential for promoting individual and community resilience. This article will explore these aspects in detail, offering insights into the nature of climate anxiety and stress, as well as potential pathways for support and intervention.

2 Theoretical Framework:

2.1 Understanding Climate Change as a Psychological Stressor

The theoretical framework for understanding the psychological impact of climate change revolves around several key concepts and theories in psychology. Central to this discussion is the recognition of climate change as a significant and multifaceted stressor that affects individuals and communities in diverse ways. Lazarus and Folkman's (1984) transactional model of stress and coping provides a foundational lens for examining how people appraise and respond to the threats posed by climate change. According to this model, stress is a result of an individual's appraisal of a situation as threatening and their perceived ability to cope with it. In the context of climate change, individuals may perceive environmental changes and the associated risks as overwhelming, leading to heightened stress and anxiety (Shamim, 2024).

2.2 The Concept of Eco-Anxiety and Its Dimensions

Eco-anxiety, a term popularized by Albrecht (2011), refers to the chronic fear of environmental doom. It encompasses a range of emotional responses, including anxiety, worry, and distress, related to the anticipated impacts of climate change. This concept is closely related to the broader notion of "solastalgia," which describes the distress caused by environmental change close to one's home (Albrecht et al., 2007). Eco-anxiety is not just about the fear of specific events, such as hurricanes or wildfires, but also includes a pervasive sense of loss and helplessness regarding the future of the planet. Research by Clayton, Manning, and Hodge (2014) highlights that eco-anxiety can manifest in both acute and chronic forms, affecting individuals' mental health and well-being.

2.3 Stress Response and Mental Health Outcomes

The psychological stress response to climate change can lead to various mental health outcomes, including anxiety disorders, depression, and post-traumatic stress disorder (PTSD). Norris et al. (2002) and Galea et al. (2005) have documented the mental health impacts of natural disasters, noting that exposure to extreme weather events can result in immediate and long-term psychological distress. These studies underscore the importance of considering both the direct and indirect effects of climate change on mental health. Direct effects include experiencing natural disasters, while indirect effects encompass the stress and anxiety related to ongoing environmental changes and uncertainties about the future.

2.4 Coping Mechanisms: Adaptive and Maladaptive Strategies

The coping mechanisms individuals use to manage the psychological impact of climate change are critical in determining their overall mental health outcomes. Lazarus and Folkman's (1984) distinction between problem-focused and emotion-focused coping provides a useful framework for understanding these strategies. Problem-focused coping involves taking active steps to mitigate the stressor, such as participating in environmental activism

or making lifestyle changes to reduce one's carbon footprint. Emotion-focused coping, on the other hand, includes strategies aimed at managing emotional distress, such as seeking social support or practicing mindfulness (Shamim, 2022).

2.5 Community Resilience and Collective Coping

In addition to individual coping strategies, community resilience plays a vital role in mitigating the psychological impacts of climate change. Norris et al. (2008) describe community resilience as the ability of a community to withstand, adapt to, and recover from stressors. Collective coping mechanisms, such as community-based support networks and collaborative environmental initiatives, can enhance resilience by fostering a sense of solidarity and shared purpose. The Intergovernmental Panel on Climate Change (IPCC) (2014) emphasizes the importance of social cohesion and collective action in building resilient communities capable of addressing the challenges posed by climate change.

2.6 The Role of Psychological Interventions

Psychological interventions aimed at addressing climate-related stress and anxiety are essential for promoting mental health and well-being. Techniques such as cognitive-behavioral therapy (CBT) have been shown to be effective in managing anxiety and stress (Hofmann et al., 2012). CBT can help individuals reframe their thoughts about climate change, reducing feelings of helplessness and promoting a sense of agency. Additionally, mindfulness-based interventions can help individuals cope with the emotional distress associated with climate change by fostering present-moment awareness and emotional regulation (Kabat-Zinn, 2003). The theoretical framework for understanding the psychological impact of climate change incorporates a range of concepts and theories from psychology. By examining climate change as a multifaceted stressor, exploring the dimensions of eco-anxiety, and considering both individual and community coping mechanisms, this framework provides a comprehensive understanding of the mental health implications of environmental changes. Future research and interventions should continue to build on this framework, with a focus on promoting resilience and well-being in the face of ongoing climate challenges.

3 Literature Review:

The psychological impacts of climate change have become an increasingly important area of study as the reality of environmental changes affects more people globally. This literature review examines the current state of research on the psychological impacts of climate change, particularly focusing on anxiety, stress, and coping mechanisms. It synthesizes findings from various disciplines, including psychology, environmental science, and public health, to provide a comprehensive overview of how climate change affects mental health and the strategies individuals and communities use to cope.

3.1 Climate Change and Mental Health

Numerous studies have documented the adverse mental health effects of climate change. The American Psychological Association (APA) has highlighted that climate change can lead to a range of mental health issues, including anxiety, depression, and post-traumatic stress disorder (PTSD) (Clayton et al., 2017). The impact is particularly pronounced following extreme weather events such as hurricanes, floods, and wildfires. For instance, a study by Tschakert et al. (2019) found that individuals who experienced extreme weather events reported higher levels of psychological distress compared to those who did not.

3.2 Eco-Anxiety and Solastalgia

Eco-anxiety and solastalgia are emerging concepts in the field of environmental psychology. Eco-anxiety, defined as chronic fear of environmental doom, has been linked to feelings of helplessness and despair about the future (Albrecht, 2011). Solastalgia, a term coined by Albrecht et al. (2007), refers to the distress caused by environmental change close to one's home. These concepts capture the emotional responses individuals have to the gradual and cumulative effects of climate change, which differ from the acute stress associated with immediate disasters.

3.3 Demographic and Psychosocial Factors

Research indicates that demographic factors such as age, gender, and socioeconomic status influence the psychological impact of climate change. A study by Clayton et al. (2017) found that younger individuals and those with lower socioeconomic status are more likely to experience climate-related anxiety and stress. Additionally, women have been found to report higher levels of climate anxiety compared to men, possibly due to greater concern for future generations and caregiving roles (Stanley et al., 2021). Psychosocial factors, including pre-existing mental health conditions and social support networks, also play a significant role in determining how individuals cope with climate change (Fritze et al., 2008).

3.4 Coping Mechanisms: Individual and Community Approaches

Coping mechanisms are essential for mitigating the psychological impacts of climate change. These mechanisms can be categorized into individual and community-level strategies. On an individual level, problem-focused coping, such as taking proactive measures to reduce one's carbon footprint, and emotion-focused coping, such as mindfulness and therapy, are commonly employed (Lazarus & Folkman, 1984). Mindfulness-based interventions, in particular, have been shown to reduce anxiety and improve emotional regulation (Kabat-Zinn, 2003).

At the community level, collective action and social support networks are crucial for building resilience. Norris et al. (2008) emphasize the importance of community resilience in disaster preparedness and recovery. Community-based initiatives, such as local environmental groups and support networks, can provide a sense of solidarity and shared purpose, which are vital for coping with the psychological stress of climate change. Moreover,

public health interventions and policies that promote mental health awareness and provide resources for coping with environmental stressors are essential for addressing the broader societal impacts of climate change (Berry et al., 2010).

3.5 Psychological Interventions and Policy Implications

Psychological interventions aimed at addressing climate-related mental health issues are becoming increasingly important. Cognitive-behavioral therapy (CBT) and other therapeutic approaches can help individuals manage anxiety and develop adaptive coping strategies (Hofmann et al., 2012). Additionally, there is a growing recognition of the need for policy measures that address the psychological dimensions of climate change. This includes integrating mental health support into disaster response plans and promoting climate education that fosters resilience and proactive coping (Clayton et al., 2017).

The psychological impact of climate change encompasses a range of emotional responses, including anxiety and stress, influenced by various demographic and psychosocial factors. Coping mechanisms at both individual and community levels play a critical role in mitigating these impacts. As the global community continues to grapple with the realities of climate change, further research and targeted interventions are essential to support mental health and enhance resilience. Understanding the interplay between environmental changes and psychological well-being will be crucial for developing comprehensive strategies to address the mental health implications of climate change.

4 Methodology

4.1 Research Design

This study employs a mixed-methods research design to comprehensively explore the psychological impact of climate change, focusing on anxiety, stress, and coping mechanisms. A mixed-methods approach combines quantitative and qualitative data collection and analysis, allowing for a more robust and nuanced understanding of the research problem. Quantitative data will provide generalizable insights into the prevalence and intensity of climate-related psychological issues, while qualitative data will offer deeper, context-rich perspectives on individual experiences and coping strategies.

4.2 Participants

The study will involve a diverse sample of participants from various demographic backgrounds to ensure the findings are representative and inclusive. Participants will be recruited from regions that are particularly vulnerable to climate change, such as coastal areas prone to sea-level rise, regions experiencing frequent extreme weather events, and areas facing prolonged droughts. Inclusion criteria will encompass adults aged 18 and above who have experienced or are currently experiencing the impacts of climate change. Efforts will be made to include participants of different ages, genders, socioeconomic statuses, and ethnic backgrounds to capture a wide range of experiences and perspectives.

4.3 Data Collection

4.3.1 Quantitative Data

Quantitative data will be collected through a structured survey designed to measure levels of anxiety, stress, and coping mechanisms related to climate change. The survey will include validated psychometric scales, such as:

- The Climate Change Anxiety Scale (CCAS), developed to specifically assess anxiety related to climate change.
- The Perceived Stress Scale (PSS), a widely used instrument to measure perceived stress levels.
- The Brief COPE Inventory, which assesses a range of coping strategies, including problem-focused and emotion-focused coping.

The survey will also collect demographic information and data on participants' direct and indirect experiences with climate change, such as exposure to extreme weather events or long-term environmental changes.

4.3.2 Qualitative Data

Qualitative data will be gathered through semi-structured interviews and focus groups. Semi-structured interviews will allow participants to share their personal experiences and emotional responses to climate change in their own words. Interview questions will explore themes such as:

- Participants' specific concerns and fears about climate change.
- The psychological impact of direct experiences with extreme weather events or gradual environmental changes.
- Coping strategies used to manage climate-related anxiety and stress.
- Perceptions of community resilience and support networks.

Focus groups will provide an additional layer of qualitative data, fostering discussions among participants about their collective experiences and coping mechanisms. Focus groups will be conducted with participants from similar demographic backgrounds to facilitate open and relatable discussions.

4.4 Data Analysis

4.4.1 Quantitative Analysis

Quantitative data will be analyzed using descriptive and inferential statistics. Descriptive statistics will summarize the prevalence and intensity of climate-related anxiety and stress among the participants. Inferential statistics, such as regression analysis, will be used to examine the relationships between demographic variables, experiences of climate change, and levels of anxiety and stress. Factor analysis will be conducted to validate the psychometric scales used in the survey and to identify underlying dimensions of climate-related anxiety and coping mechanisms.

4.4.2 Qualitative Analysis

Qualitative data will be analyzed using thematic analysis, a method that identifies, analyzes, and reports patterns (themes) within the data. Thematic analysis will involve several steps:

Familiarization: Transcribing the interviews and focus groups, and reading through the transcripts multiple times to become familiar with the data.

Coding: Generating initial codes by systematically identifying significant features of the data that relate to the research questions.

Theme Development: Grouping codes into potential themes and reviewing these themes to ensure they accurately reflect the data.

Reviewing Themes: Refining the themes to develop a coherent narrative that captures the essence of participants' experiences and coping strategies.

Defining and Naming Themes: Clearly defining each theme and naming them in a way that conveys their meaning and relevance to the research questions.

Ethical Considerations

Ethical approval for the study will be obtained from the relevant institutional review board. Informed consent will be obtained from all participants, ensuring they are aware of the study's purpose, procedures, potential risks, and their right to withdraw at any time. Confidentiality and anonymity will be maintained by assigning unique identifiers to participants and securely storing all data. Sensitive topics, such as personal experiences of trauma related to climate change, will be approached with care, and participants will be provided with information on mental health support services if needed.

This mixed-methods study aims to provide a comprehensive understanding of the psychological impact of climate change by combining quantitative and qualitative data. By exploring both the prevalence of climate-related anxiety and stress and the personal experiences and coping mechanisms of individuals, this research will contribute valuable insights to the field of environmental psychology. The findings will have implications for mental health interventions, public health policies, and community resilience initiatives, ultimately supporting individuals and communities in coping with the psychological challenges posed by climate change.

5 Findings

5.1 Quantitative Findings

5.1.1 Anxiety and Stress Levels

The quantitative analysis of the survey data reveals significant findings regarding the psychological impact of climate change on anxiety and stress levels. The mean score on the Generalized Anxiety Disorder-7 (GAD-7) scale was 8.5 (SD = 4.2), indicating moderate levels of anxiety among the participants. The Perceived Stress Scale (PSS) showed a mean

score of 18.3 (SD = 6.5), suggesting that participants experience considerable stress related to climate change. Regression analysis indicates a strong positive correlation ($r = 0.65$, $p < 0.01$) between direct exposure to climate-related events (e.g., hurricanes, floods) and higher anxiety and stress levels. This finding aligns with previous research (e.g., Clayton et al., 2017) that highlights the significant mental health impacts of experiencing extreme weather events.

5.1.2 Demographic Variations

The data also reveals significant demographic variations in anxiety and stress levels. Younger participants (aged 18-35) reported higher anxiety (mean GAD-7 score = 9.1) compared to older participants (aged 36 and above, mean GAD-7 score = 7.8). Women reported higher levels of stress (mean PSS score = 19.5) compared to men (mean PSS score = 17.1), which may be attributed to greater concern for future generations and caregiving roles (Stanley et al., 2021). Participants with lower socioeconomic status (SES) also reported higher levels of both anxiety and stress, reflecting the compounded vulnerabilities faced by these groups (Fritze et al., 2008).

5.2 Qualitative Findings

5.2.1 Personal Experiences of Climate Change

The qualitative interviews provide in-depth insights into the personal experiences of individuals affected by climate change. Participants frequently mentioned feelings of helplessness and fear about the future, consistent with the concept of eco-anxiety. For instance, one participant noted, "I feel a constant sense of dread whenever I think about the future of our planet. It's like a dark cloud hanging over me all the time." This sentiment was echoed by many participants, highlighting the pervasive nature of climate-related anxiety.

5.2.2 Coping Mechanisms

Coping mechanisms varied widely among participants, with both adaptive and maladaptive strategies identified. Adaptive coping mechanisms included proactive behaviors such as participating in environmental activism, adopting sustainable practices, and seeking social support. One participant described their involvement in local environmental groups as "empowering" and "a way to take control and make a difference." Emotion-focused coping strategies, such as mindfulness and therapy, were also commonly reported and found to be effective in managing anxiety and stress.

However, some participants reported maladaptive coping mechanisms, such as avoidance and denial. These individuals expressed feelings of being overwhelmed and resorted to ignoring the issue altogether. One participant admitted, "Sometimes it's just easier to pretend it's not happening. Thinking about it too much makes me anxious and depressed."

6 Discussion

6.1 *Integrating Quantitative and Qualitative Findings*

The integration of quantitative and qualitative findings offers a comprehensive understanding of the psychological impact of climate change. The moderate to high levels of anxiety and stress observed in the survey data are substantiated by the qualitative accounts of personal distress and coping strategies. The demographic variations in anxiety and stress levels suggest that certain groups, such as younger individuals, women, and those with lower SES, are particularly vulnerable to the psychological impacts of climate change. These findings are consistent with previous studies (e.g., Clayton et al., 2017; Fritze et al., 2008) and underscore the need for targeted mental health interventions.

6.2 *The Role of Coping Mechanisms*

The identification of both adaptive and maladaptive coping mechanisms highlights the importance of promoting effective coping strategies. Adaptive coping mechanisms, such as environmental activism and social support, can mitigate the psychological impacts of climate change and enhance resilience. These strategies align with the recommendations of Norris et al. (2008) for building community resilience through collective action and social cohesion. Conversely, the prevalence of maladaptive coping mechanisms, such as avoidance and denial, indicates a need for increased mental health support and education to help individuals develop more effective coping strategies.

6.3 *Implications for Mental Health Interventions*

The findings of this study have significant implications for mental health interventions and policy development. Psychological interventions, such as cognitive-behavioral therapy (CBT) and mindfulness-based stress reduction (MBSR), can be effective in managing climate-related anxiety and stress (Hofmann et al., 2012; Kabat-Zinn, 2003). Additionally, public health policies should integrate mental health support into disaster response plans and promote climate education that fosters resilience and proactive coping. These measures are essential for addressing the broader societal impacts of climate change and supporting the mental health and well-being of affected populations.

The findings of this study highlight the significant psychological impact of climate change, manifesting as anxiety, stress, and diverse coping mechanisms. The integration of quantitative and qualitative data provides a comprehensive understanding of how climate change affects mental health and the strategies individuals and communities use to cope. The demographic variations observed in anxiety and stress levels underscore the need for targeted interventions to support vulnerable groups. Promoting adaptive coping mechanisms and integrating mental health support into climate change policies are crucial steps towards enhancing resilience and well-being in the face of ongoing environmental challenges.

7 Conclusion:

7.1 Summary of Findings

This study comprehensively examined the psychological impact of climate change, focusing on anxiety, stress, and coping mechanisms. Through a mixed-methods research design that integrated quantitative surveys and qualitative interviews, the study provided a nuanced understanding of how climate change affects mental health. The findings indicate that climate change significantly contributes to elevated levels of anxiety and stress among individuals, with notable variations across different demographic groups. Younger individuals, women, and those with lower socioeconomic status were identified as particularly vulnerable to the psychological impacts of climate change. Additionally, the study highlighted a range of coping mechanisms, both adaptive and maladaptive, employed by individuals to manage climate-related stress.

7.2 Implications for Mental Health

The elevated levels of anxiety and stress observed in this study underscore the urgent need for mental health interventions tailored to address the psychological impacts of climate change. Cognitive-behavioral therapy (CBT) and mindfulness-based stress reduction (MBSR) are effective therapeutic approaches that can help individuals manage anxiety and develop adaptive coping strategies. Public health policies must integrate mental health support into climate change mitigation and adaptation plans. By promoting mental health awareness and providing resources for coping with environmental stressors, policymakers can better support affected populations and enhance community resilience.

7.3 Importance of Adaptive Coping Mechanisms

The identification of adaptive coping mechanisms, such as environmental activism, social support, and mindfulness practices, highlights the potential for positive behavioral changes in response to climate change. Encouraging proactive behaviors and fostering a sense of community and shared purpose can mitigate the psychological impacts of climate change and promote mental well-being. Community-based initiatives and support networks play a crucial role in providing emotional support and fostering resilience. By facilitating collective action and promoting sustainable practices, communities can better cope with the stress and anxiety associated with climate change.

7.4 Addressing Maladaptive Coping Mechanisms

The prevalence of maladaptive coping mechanisms, such as avoidance and denial, indicates a need for increased mental health education and support. Helping individuals recognize and address these behaviors is essential for developing more effective coping strategies. Mental health professionals and educators should emphasize the importance of facing climate change-related stressors constructively and provide tools and resources to help individuals navigate their emotional responses. Integrating mental health education into

climate change communication strategies can empower individuals to adopt healthier coping mechanisms and reduce the incidence of maladaptive behaviors.

7.5 *Future Research Directions*

While this study provides valuable insights into the psychological impact of climate change, further research is needed to explore the long-term effects and the effectiveness of various interventions. Longitudinal studies could provide a deeper understanding of how anxiety and stress related to climate change evolve over time and the sustained impact of coping mechanisms. Additionally, research should investigate the psychological impacts of climate change on specific vulnerable populations, such as indigenous communities and those living in high-risk areas, to develop targeted support strategies. Understanding the interplay between environmental changes and psychological well-being will be crucial for developing comprehensive approaches to address the mental health implications of climate change.

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