

Building Psychological Resilience: A Critical Response to the Mental Health Impacts of Climate Change

Maryam Khalili

Psychologist, Consultation Office, Semnan University, Semnan, Iran

mps.khalili@gmail.com

Shahrzad Talebsafa

Doctoral candidate, Faculty of Architecture, Technische Universität Darmstadt, Germany

talebsafa@stadt.tu-darmstadt.de

Mohammadreza Talebsafa

Environmental engineer, Semnan, Iran

m.tsafa@yahoo.com

Abstract

Climate change represents a critical global challenge with profound implications for mental health, necessitating a comprehensive understanding of its psychological impacts and potential mitigation strategies. This paper synthesizes current evidence to delineate the multifaceted pathways through which climate change affects psychological well-being, including elevated rates of post-traumatic stress disorder, major depression, anxiety, and suicidality. Beyond these acute impacts, slower-onset processes such as economic disruption, displacement, and the degradation of environmental determinants of health contribute to chronic population-level distress. Concurrently, a distinct category of psychological responses, encompassing climate anxiety, solastalgia, and ecological grief, has emerged from the existential awareness of the escalating crisis, presenting as often debilitating yet non-pathological reactions to a genuine threat. In response to this complex challenge, this paper argues for a paradigm shift toward building psychological resilience, conceptualized as a multi-level capacity. It identifies key intervention pathways, including fostering self-efficacy to empower individual action and combat helplessness, strengthening community-led initiatives and social cohesion to reduce

collective distress, and implementing robust public health and system-level strategies to ensure mental health service delivery during climate shocks. The findings reveal that protecting mental well-being amidst climate change is an urgent public health imperative, requiring the integration of psychological science into adaptation policy to transform vulnerability into proactive adaptation and collective resilience.

Keywords: Climate Change, Mental Health, Psychological Resilience, Eco-anxiety.

1. Introduction

Climate change has emerged as one of the most critical global challenges of the twenty-first century, posing escalating threats to human livelihoods, ecosystems, and societal stability (Palomo-Vélez and van Vugt 2021; Sachisthal et al. 2025). The threats are manifested through a spectrum of environmental changes, including rising temperatures, shifting rainfall patterns, and an increased frequency and intensity of extreme weather events—from devastating cyclones, floods, and wildfires to prolonged droughts—all of which converge to pose unprecedented risks to societal systems worldwide (Fadhel and Al Seyabi 2025; Hossain 2025). The ramifications of these climatic changes for human health are profound and multifaceted. While the direct physical health consequences—such as heatstroke, the spread of vector-borne diseases, and injuries sustained during extreme weather events—are increasingly well-documented, a parallel and urgent crisis in mental health is now coming to the fore (Abu and Achore 2026; Clayton 2024; Hossain 2025).

The mental health impacts of climate change are diverse, pervasive, and operate through multiple direct and indirect pathways. Direct exposure to climate-amplified disasters like wildfires, floods, and hurricanes is linked to a elevated incidence of severe psychological disorders, including Post-Traumatic Stress Disorder (PTSD), major depression, generalized anxiety, and suicidal ideation (Adepoju et al. 2025; Longman et al. 2023). The traumatic experience of the event itself is often compounded by secondary stressors such as displacement, loss of home and livelihood, and the breakdown of social and community supports. (Adepoju et al. 2025). Beyond these acute traumatic impacts, climate change also exerts chronic effects on population-level mental well-being through gradual and systemic pathways. These indirect impacts operate via the slower influences of environmental change on key social, economic, and environmental determinants of health (Marinova et al. 2025).

In addition to these direct and indirect pathways, a distinct category of psychological responses has emerged directly from engagement with the climate crisis. These include **eco-anxiety**, defined as a “chronic fear of environmental doom” (Susan Clayton et al. 2017); **ecological grief**, the grief felt in relation to experienced or anticipated ecological losses; and **solastalgia** which is “distress that is produced by environmental change impacting on people while they are directly connected to their home environment” (Albrecht et al. 2007). Critically, while these emotional

responses can co-occur with or exacerbate diagnosable disorders, they are increasingly conceptualized in the literature as non-pathological, proportionate, and context-appropriate reactions to a genuine and ongoing threat, rather than as mental illnesses (Clayton 2020; Aruta 2025).

Given the established and increasing impact of climate change on global mental health, this paper examines its multifaceted psychological impacts and explores key strategies for mitigation and adaptation to help individuals and communities cope with this escalating crisis.

2. The Direct Mental Health Impacts of Acute Climate Events

The most immediate and observable mental health effects result from directly experiencing climate-related extreme weather events. Surviving a catastrophic event like a hurricane, flood, or wildfire can cause profound psychological trauma with severe and long-lasting consequences.

2.1. PTSD and Acute Stress

The sudden, life-threatening nature of these disasters constitutes a traumatic experience that can lead to PTSD, a condition marked by recurrent distressing memories, heightened alertness, avoidance of trauma reminders, and persistent negative emotions (American Psychiatric Association 2013). This initial trauma is frequently worsened by the aftermath—witnessing widespread destruction, grieving the loss of loved ones, and seeing familiar environments destroyed. These factors can prolong acute stress, which may then develop into chronic PTSD. For example, studies of communities hit by repeated climate disasters show a marked increase in emergency room visits for anxiety and stress, highlighting the immediate strain these mental health impacts place on healthcare systems (Adepoju et al. 2025).

2.2. Depression, Anxiety, and Suicidality

The profound losses inflicted by extreme events—including the death of loved ones, destruction of homes, and collapse of livelihoods—generate intense grief that serves as a potent catalyst for major depressive disorder and anxiety disorders. This vulnerability is critically exacerbated by the disruption of social networks and community support systems. Research indicates that a substantial proportion of disaster survivors develop an anxiety or mood disorder, while risks of major depression and suicidal ideation increase significantly in the aftermath (Goldmann and Galea 2014; Adepoju et al. 2025). For individuals lacking resources to rebuild, the resulting hopelessness and despair can be particularly overwhelming and persistent.

2.3. Impacts on Specific Populations: Adolescents and Healthcare Workers

The burden of these direct psychological impacts is not distributed equally across populations. Adolescents represent a particularly vulnerable group due to their ongoing neurodevelopment and heavy reliance on peer and community structures, which disasters can severely disrupt. Empirical studies confirm this heightened vulnerability; for instance, research on California adolescents established a significant association between climate change stress and increased levels of psychological distress and suicidal ideation. Their developing cognitive and emotional capacities can make it more difficult to process the trauma and existential threat associated with such events.

Healthcare workers constitute another high-risk group, facing compounded mental health challenges during climate disasters. They operate under extreme professional pressure, managing mass casualty events while often confronting personal losses and disruptions similar to the wider community. A rapid review confirms that climate events directly threaten the physical safety and mental health of health workers, exacerbating burnout and stress (Tsakonas et al. 2024). These compounded pressures create a high-risk environment for chronic workplace exhaustion, undermining both individual well-being and the resilience of the healthcare system itself (Baumbusch et al. 2025).

3. The Psychosocial Burden of Climate Awareness

Building on the recognition of climate-specific emotional responses, a growing body of research is delineating the significant psychosocial burden imposed by the awareness of the climate crisis itself. These eco-emotions, while non-pathological, can have profound effects on individual well-being and behavior.

- **Climate Anxiety (Eco-anxiety)** is increasingly understood through the lens of existential psychology, where it manifests as a rational, yet distressing, confrontation with a global and seemingly uncontrollable threat. This anxiety is not merely a personal fear but is often linked to a deep-seated sense of ecological grief and moral injury, stemming from the perception of ongoing environmental harm and societal inaction (Clayton 2020). Its cognitive underpinnings, particularly the appraisals of uncontrollability and uncertainty, share features with clinical anxiety, which can lead to functional impairment in daily life (Fadhel and Al Seyabi 2025).
- **Solastalgia and Ecological Grief** represent the emotional toll of environmental loss. Solastalgia specifically captures the erosion of solace and identity tied to a changing home environment, while ecological grief extends to a broader mourning for lost species, ecosystems, and anticipated futures (Aruta 2025). These are not temporary feelings but can become chronic states of distress, particularly for communities whose culture,

spirituality, and economic survival are intimately linked to the land (Cunsolo and Ellis 2018).

Critically, the intensity of these responses is often moderated by an individual's sense of self-efficacy—the belief that one's actions can make a meaningful difference. When this is low, anxiety and grief can lead to paralysis (eco-paralysis) and disengagement. Conversely, when fostered, it can channel distress into proactive engagement, highlighting that the line between adaptive concern and debilitating distress is often a function of perceived agency (Clayton 2020; Sachisthal et al. 2025).

4. Building Resilience and Adaptive Capacity: A Framework for Response

Given the scale of climate impacts, fostering psychological and community resilience is a critical public health imperative. This requires a multi-level approach that enhances the capacity to withstand, adapt to, and recover from climate-related stressors.

4.1. Defining Resilience and Adaptive Capacity

The concept of resilience is authoritatively defined as "the capacity of social, economic and ecosystems to cope with a hazardous event or trend or disturbance, responding or reorganising in ways that maintain their essential function, identity and structure as well as biodiversity in case of ecosystems while also maintaining the capacity for adaptation, learning and transformation. Resilience is a positive attribute when it maintains such a capacity for adaptation, learning, and/or transformation" [IPCC, 2023, p. 7]. In public health, this is closely aligned with building the capacity to withstand, adapt to, and recover from climate-related stressors. This capacity is fundamentally underpinned by adaptive capacity, which is "The ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities or to respond to consequences" [IPCC, 2022 p. 2899].

In practical terms within socio-ecological systems, this represents the combination of resources a community can mobilize to anticipate and manage climate impacts. The relationship is direct: the higher the adaptive capacity within a system, the greater the likelihood that actors will be able to effectively respond to climate impacts, and thus the more resilient the system will be (Birchall et al. 2026).

4.2. Key Pathways to Building Resilience

Research points to several synergistic pathways for enhancing resilience across individual, community, and systemic levels.

- **Fostering Self-Efficacy and Climate Engagement:** Psychological engagement is a key driver of resilience. A network analysis of Dutch youth identified self-efficacy—the belief in one's ability to contribute to change—as the most central and influential construct, directly linked to proactive behaviors like information seeking (Sachisthal et al. 2025). Empowering individuals through self-efficacy is therefore a critical intervention point to combat feelings of helplessness and channel anxiety into constructive action.
- **Strengthening Community-Led Action and Social Cohesion:** Resilience is deeply rooted in community structures. Moving beyond an individual-focused model to support community-led collective actions that build robust social networks is essential (Longman et al. 2023). This approach is evidenced by strategies identified in highly impacted communities, such as "banding together" and expanding local support systems, which serve as vital buffers against collective distress (Tito et al. 2024). Strong social cohesion is a well-documented protective factor for mental health in the aftermath of disasters (Goldmann and Galea 2014).
- **Promoting Connection with Nature:** While a source of distress, the natural world can also promote healing. Exposure to nature is associated with reduced physiological and perceived stress, and a strong sense of nature relatedness predicts lower functional impairment from climate anxiety (Baumbusch et al. 2025). Fostering this positive connection can thus serve as a protective factor, building emotional resilience.
- **Implementing Public Health and System-Level Interventions:** Building resilience requires proactive investment in public health infrastructure. This includes ensuring access to mental health services post-disaster and training frontline workers, as recommended by (Adepoju et al. 2025). Furthermore, strengthening the overall resilience of health systems is paramount to ensure continuous service delivery and protect healthcare workers' well-being during climate shocks, thereby forming a critical line of defense for community health (Gkouliaveras et al. 2025; Tsakonas et al. 2024).

5. Discussion and Conclusion

This review has synthesized evidence establishing climate change as a critical determinant of global mental health, whose impacts cascade through direct traumatic exposure and the chronic burden of environmental awareness. A paramount finding is the necessity to evolve mental health frameworks beyond a focus solely on clinical pathology. The significant prevalence of non-pathological eco-emotions—such as climate anxiety, solastalgia, and ecological grief—demands

public health and clinical responses that validate this distress as a rational, if painful, engagement with reality, rather than treating it as a disorder (Aruta 2025; Clayton 2020).

The evidence further underscores that vulnerability is not random but is mediated by developmental stage, occupation, and social capital. The acute sensitivity of adolescents and the compounded stressors faced by healthcare workers highlight how climate mental health risks are layered upon pre-existing social and structural vulnerabilities (Hindmarch et al. 2025; Tsakonas et al. 2024). This patterned inequality necessitates targeted interventions that bolster protective factors for these groups.

In response, this paper has argued for a paradigm shift toward proactively building multi-level resilience, conceptualized as a dynamic capacity underpinned by adaptive resources. The identified pathways—fostering self-efficacy to combat helplessness, strengthening community networks for collective support, and fortifying health systems to maintain care during shocks—are not isolated but synergistic (Gkouliaveras et al. 2025; Longman et al. 2023; Sachisthal et al. 2025). Empowering individual action, for instance, is more sustainable within a supportive community, and both are dependent on a resilient health system.

In conclusion, protecting mental well-being in a changing climate is an urgent and integral component of comprehensive climate adaptation. The task ahead requires integrating psychological science into climate policy and public health planning to simultaneously treat distress and prevent it by cultivating resilience. By mobilizing knowledge across these domains, society can better navigate the psychological dimensions of the climate crisis, transforming a narrative of vulnerability into one of proactive adaptation and collective strength.

References

- Abu, Thelma Z., and Meshack Achore. 2026. 'Gender at the Crossroads of Mental Health and Climate Change: A Scoping Review'. *Social Science & Medicine* 388 (January): 118708. <https://doi.org/10.1016/j.socscimed.2025.118708>.
- Adepoju, Omolola E., Lulu Xu, Summer Chavez, et al. 2025. 'Back-to-Back Climate Shocks and the Mental Health Crisis: A Texas-Sized Surge in Depression and Anxiety ER Visits'. *The American Journal of Emergency Medicine* 91 (May): 123–31. <https://doi.org/10.1016/j.ajem.2025.02.038>.
- Albrecht, Glenn, Gina-Maree Sartore, Linda Connor, et al. 2007. 'Solastalgia: The Distress Caused by Environmental Change'. *Australasian Psychiatry* 15 (1_suppl): S95–98. <https://doi.org/10.1080/10398560701701288>.
- American Psychiatric Association. 2013. *Diagnostic and Statistical Manual of Mental Disorders*. Fifth Edition. American Psychiatric Association. <https://doi.org/10.1176/appi.books.9780890425596>.

- Aruta, John Jamir Benzon R. 2025. 'Mental Health and Climate Justice: Why Asian Psychiatry Must Engage with the Climate Crisis'. *Asian Journal of Psychiatry* 114 (December): 104748. <https://doi.org/10.1016/j.ajp.2025.104748>.
- Baumbusch, Jennifer, Isabel Sloan Yip, and Nilanga Aki Bandara. 2025. 'Always on Duty - Fostering Climate Resilience in the Nursing Profession: A Discussion Paper'. *International Journal of Nursing Studies* 172 (December): 105227. <https://doi.org/10.1016/j.ijnurstu.2025.105227>.
- Birchall, S. Jeff, Kat Villeneuve, Desiree Rose, Nick Baran, and Sean Adams. 2026. 'Exploring the Modifying Effects of Adaptive Capacity on Resilience to Climate Change across 4 Coastal Cities in British Columbia, Canada'. *Cities* 169 (February): 106559. <https://doi.org/10.1016/j.cities.2025.106559>.
- Clayton, Susan. 2020. 'Climate Anxiety: Psychological Responses to Climate Change'. *Journal of Anxiety Disorders* 74 (August): 102263. <https://doi.org/10.1016/j.janxdis.2020.102263>.
- Clayton, Susan. 2024. 'A Social Psychology of Climate Change: Progress and Promise'. *British Journal of Social Psychology* 63 (4): 1535–46. <https://doi.org/10.1111/bjso.12749>.
- Cunsolo, Ashlee, and Neville R. Ellis. 2018. 'Ecological Grief as a Mental Health Response to Climate Change-Related Loss'. *Nature Climate Change* 8 (4): 275–81. <https://doi.org/10.1038/s41558-018-0092-2>.
- Fadhel, Fahmi Hassan, and Shaikha Abdulla Al Seyabi. 2025. 'Navigating Environmental Stress: Climate Change Impacts on Adults' Mental Health in the Middle East'. *Geopsychiatry* 2 (December): 100031. <https://doi.org/10.1016/j.geopsy.2025.100031>.
- Gkouliaveras, Vasileios, Stavros Kalogiannidis, Dimitrios Kalfas, and Stamatis Kontsas. 2025. 'Effects of Climate Change on Health and Health Systems: A Systematic Review of Preparedness, Resilience, and Challenges'. *International Journal of Environmental Research and Public Health* 22 (2): 232. <https://doi.org/10.3390/ijerph22020232>.
- Goldmann, Emily, and Sandro Galea. 2014. 'Mental Health Consequences of Disasters'. *Annual Review of Public Health* 35 (1): 169–83. <https://doi.org/10.1146/annurev-publhealth-032013-182435>.
- Hindmarch, Grace M., Jocelyn Meza, Riti Shimkhada, Imelda Padilla-Frausto, and Daniel Eisenberg. 2025. 'Climate Change Stress Among Adolescents In California: Associations With Psychological Distress, Suicide Ideation, and Social and Demographic Factors'. *Journal of Adolescent Health* 76 (6): 1098–104. <https://doi.org/10.1016/j.jadohealth.2025.02.019>.
- Hossain, Babul. 2025. 'A Systematic Review of Adaptation Practices to Promote Health Resilience in Response to Climate Change'. *Environmental Development* 54 (June): 101166. <https://doi.org/10.1016/j.envdev.2025.101166>.
- IPCC. 2022. *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on*

Climate Change. 1st edn. Cambridge University Press.

<https://doi.org/10.1017/9781009325844>.

Longman, Jo, Maddy Braddon, Blanche Verlie, et al. 2023. 'Building Resilience to the Mental Health Impacts of Climate Change in Rural Australia'. *The Journal of Climate Change and Health* 12 (July): 100240. <https://doi.org/10.1016/j.joclim.2023.100240>.

Marinova, Nushka, Luis Calabria, and Elizabeth Marks. 2025. 'A Meta-Ethnography of Global Research on the Mental Health and Emotional Impacts of Climate Change on Older Adults'. *Journal of Environmental Psychology* 102 (March): 102511. <https://doi.org/10.1016/j.jenvp.2024.102511>.

Palomo-Vélez, Gonzalo, and Mark van Vugt. 2021. 'The Evolutionary Psychology of Climate Change Behaviors: Insights and Applications'. *Current Opinion in Psychology, Psychology of Climate Change* (2021), vol. 42 (December): 54–59. <https://doi.org/10.1016/j.copsyc.2021.03.006>.

Sachisthal, Maien S. M., Jacqueline N. Zadelaar, and Maartje E. J. Raijmakers. 2025. 'A Psychological Network Approach to Engagement with Climate Change in Dutch Youth'. *Acta Psychologica* 258 (August): 105290. <https://doi.org/10.1016/j.actpsy.2025.105290>.

Susan Clayton, Christie Manning, Kirra Krygsman, and Meighen Speiser. 2017. 'Mental Health and Our Changing Climate: Impacts, Implications, and Guidance'. American Psychological Association, and ecoAmerica.

Tito, Villarino Resti, Hozhabri Kazem, Saint-Onge Kadia, and Bernard Paquito. 2024. 'A Systematic Review of Mental Health and Climate Change in the Philippines'. *Asian Journal of Psychiatry* 101 (November): 104191. <https://doi.org/10.1016/j.ajp.2024.104191>.

Tsakonas, Kiera, Simi Badyal, Tim Takaro, and Chris G. Buse. 2024. 'Rapid Review of the Impacts of Climate Change on the Health System Workforce and Implications for Action'. *The Journal of Climate Change and Health* 19 (September): 100337. <https://doi.org/10.1016/j.joclim.2024.100337>.