



Journal of Research in Allied Life Sciences

Contents available at: <https://www.swamivivekanandauniversity.ac.in/jrals/>

Climate Change and Psychological Stress in Older Adults: An Environmental Psychology Review

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Abstract

Climate change poses profound threats not only to physical health but also to the psychological well-being of older adults, a rapidly growing global population. This review synthesizes current evidence on the mental health impacts of climate-related stressors in elderly populations, highlighting physiological vulnerability, exposure to extreme weather events, environmental loss, social isolation, and anticipatory stress as key pathways influencing psychological outcomes. Drawing on environmental psychology, concepts such as place attachment, solastalgia, and person-environment fit are discussed as central to understanding the emotional responses and coping mechanisms of older adults. Despite growing awareness, critical research gaps remain, including limited longitudinal and intervention-based studies, underrepresentation of heterogeneous and cross-cultural populations, and insufficient integration of empirical findings into policy and climate adaptation strategies. Future research should prioritize age-specific, interdisciplinary approaches that operationalize environmental psychology constructs, evaluate targeted interventions, and address equity and geographic disparities. This review underscores the need for evidence-informed strategies to enhance resilience, promote mental well-being, and support adaptive capacity among older adults in the context of climate change.

Keywords: Climate change, older adults, Mental health, psychological stress, Environmental psychology, Place attachment, Solastalgia, Eco-anxiety, Resilience, Vulnerable populations

1. Introduction

Climate change stands as one of the foremost environmental and public health issues of the 21st century, impacting not only physical health but also mental well-being (Anthes et al., 2024; Hayes et al., 2024). Although the mental health effects of climate change have been increasingly studied, there is a growing awareness that older adults are particularly at risk, facing distinct psychological challenges due to climate-related stressors (Anthes et al., 2024; Riley et al., 2025). The global population is aging rapidly, with those aged 60 and above expected to surpass 2 billion by 2050, coinciding

with escalating climate threats such as extreme heat, natural disasters, and environmental degradation (Riley et al., 2025).

Older individuals are more susceptible to climate risks due to a mix of physiological, social, and contextual factors. The aging process, which includes diminished thermoregulatory ability and increased vulnerability to heat stress and air pollution, exacerbates their susceptibility to climate extremes and heightens the risk of negative psychological effects (Anthes et al., 2024; WHO, 2025). Additionally, older adults often experience social isolation, limited mobility, and reduced access to resources that aid adaptation, all of which intensify stress reactions during climate disruptions (Riley et al., 2025). Events like heatwaves, floods, and other severe weather conditions have been associated with heightened symptoms of anxiety, depression, post-traumatic stress, sleep disturbances, and cognitive decline in older adults (Anthes et al., 2024; Riley et al., 2025; Zhang et al., 2025).

Research combining qualitative and quantitative data reveals that older adults' emotional reactions to climate change are complex, involving direct trauma from extreme weather, anticipatory worries about future climate impacts, and ongoing psychosocial stress from long-term environmental changes (Riley et al., 2025). A recent meta-ethnography underscores that immediate threats lead to acute distress, while a broader understanding of climate change results in feelings of grief, loss, and existential anxiety—concepts linked to solastalgia and eco-anxiety (Riley et al., 2025; Albrecht et al., 2025). Moreover, repeated exposure to high temperatures has been statistically linked to poorer mental health outcomes in older populations, with social isolation playing a significant role in this connection (Li et al., 2025) and evidence documenting these links, **gaps remain in understanding how climate-induced psychological stress unfolds among older adults across diverse contexts**, particularly in low- and middle-income countries where aging populations co-exist with heightened climate vulnerability. Additionally, few interventions have been rigorously evaluated for effectiveness in mitigating climate-related distress among the elderly, pointing to an urgent need for interdisciplinary research that integrates environmental psychology, gerontology, and climate science.

This review aims to synthesize existing literature on the **mental health impacts of climate change in elderly populations**, elucidate underlying psychological mechanisms, and identify directions for future research and intervention. By integrating findings from epidemiological studies, qualitative syntheses, and conceptual frameworks, this paper seeks to provide a comprehensive overview of how climate-related stress affects psychological well-being in older adults and how environmental psychology can inform adaptation and resilience strategies.

2. Literature Review

Climate change is increasingly recognized not only as a threat to the environment and physical health but also as a persistent source of psychological stress throughout one's life (Hayes et al., 2018; Cianconi et al., 2020). Environmental psychology highlights that ongoing exposure to environmental unpredictability, degradation, and a perceived lack of control can lead to prolonged stress, especially in populations that are more vulnerable (Gifford & Nilsson, 2014). Stress related to climate change can stem from direct encounters with extreme events like floods, heatwaves, and cyclones, as well as from indirect or anticipatory worries about future dangers, environmental decline, and societal instability (Clayton et al., 2017). Older adults are particularly affected, facing climate stressors at the intersection of biological aging, social vulnerability, and environmental shifts. Climate change serves as a "risk multiplier," heightening mental health risks in older adults by worsening existing stressors such as chronic illness, social isolation, and diminished adaptive capacity (Cianconi et al., 2020). From an environmental psychology standpoint, the fit between a person and their environment is essential for understanding stress outcomes in later life. Age-related physiological changes—like impaired thermoregulation, increased cardiovascular strain, and greater sensitivity to air pollution—heighten older

adults' exposure to climate hazards, especially extreme heat (WHO, 2023). These physiological stressors often coincide with psychological effects, including irritability, sleep disturbances, cognitive fatigue, and emotional distress (Berry et al., 2018). Research has consistently shown a link between heat exposure and higher rates of depression, anxiety, and hospitalizations for mental health issues among older adults (Thompson et al., 2018). Environmental stress theory posits that repeated exposure to uncontrollable stressors, such as ongoing heat or environmental degradation, can gradually exhaust coping resources, leading to chronic psychological strain (Evans & Cohen, 1987).

Research indicates that after climate-related disasters, there is an increase in PTSD, depression, anxiety, and prolonged grief among older survivors (Neria et al., 2008; Cherry et al., 2017). The recovery process for older adults can be further complicated by mobility issues, financial instability, and dependence on disrupted social and healthcare networks. Environmental psychology emphasizes the role of perceived control and place dependence in influencing stress reactions. For older adults, the loss of familiar environments, homes, or community infrastructure can undermine their sense of identity, independence, and emotional stability, thereby increasing psychological distress (Rowles & Bernard, 2013). Studies indicate that displacement or relocation following climate-related disasters is linked to deteriorations in mental health, along with heightened feelings of helplessness and disorientation (Aldrich & Meyer, 2015). A central concept in environmental psychology, place attachment, describes the emotional connection individuals develop with their physical surroundings, which can influence their well-being and response to environmental changes (Scannell & Gifford, 2010). Older adults often form strong attachments to places due to long-term residence, accumulated experiences, and identity formation tied to specific environments. Climate change-induced environmental degradation can disrupt these attachments, leading to solastalgia—a distress caused by unwanted changes in one's home environment (Albrecht et al., 2007). Older adults may be particularly vulnerable, as environmental loss signifies not only ecological damage but also a disruption of personal history and continuity (Albrecht, 2011). These experiences are linked to feelings of grief, sadness, anger, and a diminished sense of belonging.

Social and contextual factors play a crucial role in shaping climate-related psychological stress among older adults. Social isolation, which is prevalent in aging populations, can intensify the mental health impacts of environmental stressors by limiting access to support, information, and resources during extreme events such as heatwaves. Structural inequalities further exacerbate vulnerability, with older adults in low-income, rural, or climate-sensitive regions disproportionately affected yet often underrepresented in mental health research (Klinenberg, 2015; Islam & Winkel, 2017). Environmental psychology highlights the importance of considering factors such as housing quality, neighbourhood design, and access to green spaces when assessing mental health risks in later life. Despite these challenges, older adults also possess psychological and social resources that can promote resilience, including a sense of coherence, meaning-making, community engagement, and connection with nature (Antonovsky, 1987; Mayer & Frantz, 2004). Participation in pro-environmental behaviours, intergenerational knowledge sharing, and community adaptation initiatives can strengthen older adults' sense of agency and purpose, helping to buffer feelings of helplessness related to climate change (Ojala, 2012). Nevertheless, research evaluating targeted interventions for climate-related psychological stress in older populations remains limited. Collectively, the literature indicates that climate change threatens the mental health of older adults through multiple pathways—physiological vulnerability, exposure to extreme events, environmental degradation, and social isolation—while emphasizing that person–environment interactions, place attachment, and cognitive appraisal processes are critical for understanding and promoting resilience. Significant gaps remain in intervention studies, cross-cultural research, and policy applications, underscoring the need for interdisciplinary approaches to support adaptive capacity and psychological well-being in this population.

3. Methodology

3.1 Data Sources and Search Strategy

This review was informed by a comprehensive and systematic search of peer-reviewed literature across major academic

databases, including PubMed, Scopus, Web of Science, PsycINFO, and Google Scholar. Searches were conducted using combinations of key terms related to climate change and mental health in older populations, such as “*climate change*,” “*global warming*,” “*extreme weather*,” “*heatwaves*,” “*mental health*,” “*psychological distress*,” “*eco-anxiety*,” “*solastalgia*,” “*environmental stress*,” “*older adults*,” “*elderly*,” “*aging*,” and “*gerontology*.” Boolean operators (AND/OR) were used to refine and expand search results, and reference lists of relevant articles and reviews were manually screened to identify additional sources. Priority was given to peer-reviewed empirical studies, systematic reviews, and theoretical papers published in English, with particular attention to literature from environmental psychology, public health, and gerontology. Reports from reputable international organizations, such as the World Health Organization, were also included to contextualize findings related to climate risks and aging. Studies focusing primarily on children or younger adults without age-disaggregated findings were excluded. This search strategy aimed to capture a broad yet focused body of evidence examining the psychological impacts of climate change on older adults and the environmental and social mechanisms underlying vulnerability and resilience.

3.2 Research Gaps

Although there is an increasing amount of research highlighting the psychological effects of climate change on older individuals, several significant research gaps persist. Most current studies are largely descriptive, concentrating on the links between climate-related stressors and mental health outcomes, while paying little attention to causal mechanisms or the long-term progression of psychological distress in later life. There is a significant shortage of intervention-focused research assessing the effectiveness of psychosocial, environmental, or community-level strategies specifically aimed at reducing climate-related stress in older adults. Moreover, older adults are often viewed as a uniform group, which overlooks important differences related to socioeconomic status, cultural background, health conditions, and geographic location. Perspectives from cross-cultural and Global South contexts are especially lacking, even though these areas face greater climate risks. Additionally, concepts from environmental psychology, such as place attachment, solastalgia, and person–environment fit, are seldom applied in empirical research or incorporated into policy and planning frameworks. Lastly, there is limited integration between mental health research, climate adaptation policy, and gerontology, leading to a lack of evidence to guide age-sensitive, equity-focused interventions. Addressing these gaps through longitudinal, interdisciplinary, and applied research is crucial for developing effective strategies to support the psychological well-being of older adults in the face of climate change.

4. Future Directions

Future studies should advance beyond mainly descriptive methods by employing longitudinal and mixed-methods designs to elucidate causal pathways and monitor the progression of climate-related psychological stress in later life. There is an urgent requirement for thoroughly assessed, age-specific interventions that combine psychosocial support, environmental design, and community-based adaptation to alleviate climate-related distress among older adults. Researchers should also focus on disaggregated analyses that reflect the diversity within older populations, considering variations in socioeconomic status, gender, cultural background, health status, and location. Expanding research efforts in low- and middle-income countries and other regions vulnerable to climate change is crucial to bridging current geographic and equity gaps. Furthermore, future research should more clearly define and measure environmental psychology concepts—such as place attachment, solastalgia, and person–environment fit—and explore how these can inform climate-resilient housing, urban planning, and relocation policies. Lastly, enhanced interdisciplinary collaboration among environmental psychology, gerontology, public health, and climate policy is necessary to convert empirical findings into evidence-based, age-sensitive strategies that foster mental well-being and resilience among older adults in the face of climate change.

Conclusion

Climate change poses a profound and multifaceted threat to the mental health of older adults, operating through interconnected physiological, psychological, social, and environmental pathways. This review highlights that older individuals are uniquely vulnerable to climate-related stress due to age-related biological changes, heightened exposure to extreme weather events, strong attachments to place, and social and structural inequities that limit adaptive capacity. Environmental psychology provides a critical lens for understanding these impacts, emphasizing the importance of person–environment fit, place attachment, perceived control, and meaning-making in shaping psychological responses to environmental change. While the literature consistently documents associations between climate stressors and adverse mental health outcomes such as anxiety, depression, trauma, and grief, substantial gaps remain in causal understanding, cross-cultural representation, and intervention-based evidence. Addressing these gaps requires interdisciplinary, longitudinal, and equity-focused research that integrates environmental psychology with gerontology, public health, and climate policy. By advancing age-sensitive, contextually grounded, and evidence-based approaches, future efforts can better support resilience, well-being, and dignity among older adults as they navigate the escalating psychological challenges posed by a changing climate.

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