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REVIEW

# Climate change and the mental health of older adults in India: a geropsychological perspective on risk, resilience, and policy gaps

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**Background:** Climate change is emerging as a major public health threat with significant mental health consequences. Older adults in India, due to physical frailty, cognitive decline, and limited social protection, are uniquely vulnerable to these climate stressors. Despite their heightened susceptibility, the intersection of climate change and geriatric mental health remains underexplored in India.

**Methods:** This review synthesizes existing national and international literature on the mental health impacts of climate change among older adults, particularly in the Indian context. Databases searched include PubMed, Scopus, and Indian Journals Online. Grey literature and policy documents were also reviewed.

**Results:** Evidence indicates that older adults are disproportionately affected by heatwaves, floods, droughts, and climate-induced displacement. Key psychiatric outcomes include depression, anxiety, post-traumatic stress disorder, and suicide. Challenges include limited access to care, infrastructural inadequacies, and the breakdown of familial support. Protective factors include community engagement, intergenerational support, and culturally sensitive mental health interventions.

**Conclusion:** There is a pressing need for India to incorporate geriatric mental health into its climate adaptation and mental health strategies. Future research must focus on building climate-resilient mental health systems with a geropsychological lens.

**Keywords:** Climate change, Geropsychology, Elderly mental health, India, Vulnerability, Adaptation

## Introduction

Climate change is no longer a distant threat—it is a current and accelerating global crisis impacting physical and mental health. According to the Intergovernmental Panel on Climate Change (1), South Asia, including India, is witnessing increasing frequency and intensity of extreme weather events such as heatwaves, floods, and cyclones. These environmental disruptions have cascading effects on public health systems, infrastructure, livelihoods, and population well-being.

India, home to over 1.4 billion people, is not only highly vulnerable to climate impacts but is also experiencing a rapid demographic shift. The proportion of older adults (aged 60 and above) in India is projected to reach nearly 20% by 2050 (2). This ageing trend is accompanied by increased life expectancy, higher prevalence of chronic illnesses, and dependency on limited caregiving networks.

Older adults are especially susceptible to the mental health consequences of climate change due to a combination of biological, psychological, and social vulnerabilities. Physical frailty, multimorbidity, reduced mobility, cognitive decline,


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and social isolation amplify the risks posed by climate-induced displacement, food insecurity, and environmental degradation (3). Moreover, the emotional and psychological impact of experiencing or anticipating climate threats can result in elevated anxiety, depression, post-traumatic stress, and a sense of helplessness—issues that are often underdiagnosed in older populations (4).

The traditional Indian joint family system that once supported elderly members is gradually eroding under the pressure of urbanization, migration, and socio-economic transformations (5). This shift has led to a rise in solitary living among older adults, further compounding their mental health vulnerabilities during climate emergencies.

Despite this alarming intersection of ageing and climate risk, India's mental health infrastructure has not adequately adapted to include the needs of older adults in climate policy or health preparedness frameworks. Current national climate resilience and mental health strategies remain largely youth-centric, overlooking the specific needs of a growing elderly population.

This review aims to bridge this gap by exploring the complex interplay between climate change and the mental health of older adults in India through a geropsychological lens. It highlights key risk factors, protective mechanisms, and policy gaps, while proposing actionable strategies for inclusive, age-sensitive climate adaptation and mental health resilience.

## Pathways linking climate change and mental health in older adults

Climate change can impact mental health through two primary pathways: direct and indirect. The direct pathway includes exposure to extreme weather events—such as floods, droughts, heatwaves, and cyclones—that result in trauma, displacement, injury, or the death of loved ones. For older adults, who may already be dealing with chronic physical illnesses or mobility limitations, such traumatic exposures are associated with heightened psychological distress, including anxiety, helplessness, confusion, and symptoms of post-traumatic stress disorder (PTSD) (3).

The indirect pathway includes gradual environmental changes—such as rising temperatures, air pollution, and ecosystem degradation—which exacerbate financial insecurity, social isolation, and loss of routine. For instance, older adults in agrarian communities face cumulative stress from crop failure, water scarcity, and loss of traditional livelihoods. These stressors are intensified by age-related vulnerabilities like frailty, impaired thermoregulation, cognitive decline, and dependence on caregivers (4).

Emerging evidence shows that prolonged heat exposure can exacerbate irritability, confusion, and sleep disturbances in older individuals. High humidity, coupled with poor indoor ventilation and lack of access to cooling systems, further increases the physiological stress burden. Socially, climate change weakens community networks and increases the burden on overstretched family structures, leaving older adults more exposed to emotional neglect and loneliness (6). The result is a multifactorial, chronic psychosocial burden that remains poorly recognized by public health systems.

## Mental health impacts: Indian context and case studies

In India, regional evidence increasingly links climate variability with adverse mental health outcomes among elderly populations. For example, studies from Ahmedabad and Delhi documented significant increases in mortality and hospital admissions among older adults during extreme heatwaves, as well as a rise in mood disorders and sleep disturbances (5). The Ahmedabad Heat Action Plan was a notable initiative in response to these health threats, but geriatric mental health remained underprioritized.

In Kerala and Assam, elderly residents displaced by flooding reported heightened symptoms of anxiety, PTSD, and social withdrawal. Displacement, loss of personal belongings, and separation from familiar environments deeply affect older adults' sense of identity and control, triggering grief and a sense of purposelessness (7). Temporary shelters often lack age-friendly infrastructure, and older evacuees frequently experience a lack of privacy, inadequate sanitation, and unaddressed medical needs—all of which further impair mental well-being.

In rural Maharashtra and Telangana, drought-induced agrarian distress has been associated with a disturbing rise in suicides among elderly farmers (8). While most suicide prevention programs target younger individuals, elderly suicides often go unnoticed or are misclassified due to stigma and underreporting.

The COVID-19 pandemic offered a parallel disaster scenario in which older adults faced prolonged isolation, disrupted routines, and anxiety over infection and mortality. Studies indicate that many seniors in urban areas experienced depression and cognitive decline due to social disconnectedness, while those in rural areas were affected by limited access to telehealth and psychiatric care (9).

Taken together, these examples demonstrate that climate-related stressors in India—whether sudden (disasters) or slow-onset (droughts, pandemics)—magnify psychological vulnerabilities among the elderly. However, there is a lack of targeted mental health interventions or structured support mechanisms to address these emerging risks in this age group.

## Geropsychological considerations

Geropsychology is a subfield of psychology that focuses on the mental health and well-being of older adults, especially in the context of ageing-related transitions (10). This includes cognitive decline, loss of independence, chronic illness, bereavement, and changing social roles. The cumulative life experiences of older individuals shape their resilience, yet these same experiences may heighten their vulnerability during climate crises.

Disasters such as floods, cyclones, and heatwaves often lead to abrupt displacement or loss of familiar environments, which can be particularly disorienting for older adults. The trauma of losing a home, ancestral land, or community structures is processed differently by older individuals due to long-term emotional attachment and sense of identity. Furthermore, individuals with dementia or mild cognitive impairment (MCI) may struggle to comprehend the unfolding crisis, follow safety protocols, or adapt to new living environments, increasing the risk of confusion, distress, and worsening cognitive symptoms.

Though emotional regulation may be more mature among older adults due to a lifetime of coping with adversities, this is counterbalanced by increased emotional burden from loneliness, bereavement, fear of dependence, and existential anxieties—especially in unfamiliar or disempowering post-disaster settings (11). Additionally, older adults may underreport their distress due to generational stigma around mental health or the belief that suffering is an inevitable part of ageing. Without proactive screening and culturally appropriate interventions, these psychological issues often go unnoticed and untreated.

## Family, community, and socio-cultural dynamics

Family and community structures are essential determinants of elderly well-being, particularly in collectivist societies like India. Traditionally, the Indian joint family system served as a buffer against psychosocial stress for older adults, offering caregiving, emotional support, and social identity (12). However, rapid urbanization, labour migration, and shifting socio-economic norms have led to nuclear families and geographic fragmentation, weakening these support systems.

In climate-vulnerable regions, this fragmentation becomes particularly stark. Younger family members often migrate to cities for livelihood opportunities, leaving behind elderly parents to cope alone in ecologically high-risk rural areas. The elderly may find themselves solely responsible for managing homes, livestock, or land, often without adequate financial, physical, or emotional resources.

Gender adds another layer of vulnerability. Widowed and elderly women, especially in rural India, face greater risks due to patriarchal social norms, lack of land ownership, and economic dependence. Climate-related resource scarcity may exacerbate elder neglect or even abuse within families, particularly when caregiving burdens increase or when limited aid is distributed inequitably (13).

Community cohesion and religious or spiritual frameworks often offer resilience. Yet when entire communities are displaced or fragmented due to floods or droughts, these protective networks collapse. Rebuilding them requires intentional, inclusive efforts that center older adults—not merely as vulnerable recipients, but as holders of traditional knowledge and community memory.

## Policy landscape and institutional gaps (expanded)

India has made significant strides in mental health and elderly welfare through the National Mental Health Programme (NMHP) and the National Policy for Senior Citizens. However, these policies operate in silos and are not integrated into climate adaptation or disaster preparedness frameworks (14). This fragmentation prevents the development of coordinated, age-responsive mental health services during climate crises.

The National Disaster Management Authority (NDMA), while progressive in developing community-based disaster preparedness protocols, rarely addresses the unique vulnerabilities of older adults in its guidelines (15). Disaster shelters often lack wheelchair accessibility, hearing or vision aids, geriatric medication, and trained personnel to support older evacuees. Elderly individuals are also more likely to be excluded from early warning systems due to digital illiteracy or isolation.

Furthermore, India's District Mental Health Programme (DMHP), the operational arm of NMHP, is under-resourced and largely urban-focused, failing to reach remote and rural elderly populations (16). The absence of geriatric psychiatry as a public health priority reflects both institutional neglect and broader societal ageism.

Internationally, models such as Japan's integrated disaster risk reduction approach—which includes geriatric mental health screening and community drills—may offer valuable lessons for India. A convergence of mental health, aging, and climate resilience in policy frameworks is urgently required to prevent marginalization of older adults during environmental crises.

## Adaptation and resilience strategies (expanded)

A proactive response to climate-related mental health challenges in older adults demands age-integrated,

community-based interventions. Key strategies include the deployment of mobile mental health units, especially in disaster-prone districts, and elderly-friendly shelters equipped with age-appropriate infrastructure and psychosocial support services.

Training frontline workers—such as ASHAs, ANMs, and panchayat-level volunteers—in geriatric psychosocial first aid can strengthen grassroots capacity. These workers can identify early signs of distress, coordinate referrals, and offer companionship to isolated elders. Such efforts align with WHO's "Age-friendly Primary Health Care" principles (17).

Digital mental health platforms also hold promise, provided they are adapted for older users with large fonts, local languages, and simple interfaces. Tele-counseling services, such as those piloted by NIMHANS and supported by NGOs like HelpAge India, have shown feasibility in reducing anxiety, especially during the COVID-19 lockdowns (18).

Social capital remains a key buffer. Strengthening intergenerational programs, senior citizens' associations, and faith-based networks can rebuild fractured community ties. Incorporating older adults into local climate committees not only empowers them but ensures their unique perspectives are reflected in climate adaptation planning.

## Research and ethical imperatives (expanded)

Despite growing recognition of climate change as a public health crisis, there is a paucity of longitudinal and geriatric-specific research on its psychological impacts in the Indian context. Most existing studies focus on younger populations or treat the elderly as a homogenous group, without disaggregating data by age, gender, rurality, or socioeconomic status. There is an urgent need for multidisciplinary research that explores how climate-related stressors affect different subgroups of older adults over time.

Ethical challenges arise when conducting research involving cognitively impaired elders—such as those living with dementia or mild cognitive impairment. Ensuring informed consent, autonomy, and privacy becomes complex when participants may have limited comprehension or communicative ability. Researchers must employ surrogate consent mechanisms, use accessible language, and involve caregivers while upholding participants' dignity and rights (19).

Further, post-disaster research must avoid retraumatization. Engaging older adults in such contexts demands trauma-informed methodologies, sensitivity to grief and loss, and efforts to avoid extraction without benefit. Intersectionality is essential; elderly persons' experiences with climate stress are shaped by caste, class, gender, tribal identity, and disability (20). For example, Dalit or Adivasi elders may face systemic exclusion from relief efforts or rehabilitation schemes.

There is also a research gap in documenting the resilience and adaptive strategies employed by older adults, including indigenous knowledge, religious coping, and community leadership. Without such inclusive and ethical research, policies will continue to marginalize the very people they aim to protect.

## Recommendations

To bridge the gaps identified across systems, services, and research, the following evidence-based, geropsychology-informed recommendations are proposed:

- Develop geriatric-specific mental health modules within NDMA and NMHP that address trauma, grief, and climate-induced anxiety in older adults. These modules should also include training on cognitive impairment and elderly-specific psychosocial assessment tools.
- Increase funding and resource allocation for geriatric mental health services, particularly in rural, tribal, and climate-vulnerable regions. This includes establishing satellite geriatric clinics, mobile outreach programs, and dedicated disaster counseling teams.
- Implement early warning and alert systems tailored for older adults. These should use multi-sensory modes (e.g., visual cues, audio announcements in local languages) and involve community volunteers to reach elders with limited mobility or hearing/vision impairments.
- Train frontline health and social workers in geropsychology-informed disaster response, including how to recognize signs of depression, trauma, or cognitive decline in elders. ASHA workers, Anganwadi staff, and Panchayati Raj institutions can be capacitated to act as first responders.
- Foster intergenerational dialogue and community-based adaptation models, such as pairing youth volunteers with older adults for environmental education, mutual aid, and climate action. Programs that build on existing senior citizen clubs, religious congregations, and local NGOs have shown promise in reducing isolation while empowering elders as community knowledge holders.
- Integrate digital literacy programs for older adults to ensure their inclusion in telehealth and emergency information platforms.
- Establish monitoring and accountability mechanisms within public health and disaster departments to track the delivery and quality of elderly-centered mental health services during and after climate events.

## Conclusion

Climate change acts as a powerful risk amplifier for the mental health of older adults, particularly in low- and middle-income countries like India where public health infrastructure and geriatric care remain underdeveloped. The elderly face compounded vulnerabilities due to physical frailty, cognitive decline, social isolation, and lack of targeted policy attention during climate-related crises.

India's mental health and climate adaptation frameworks must evolve to inclusively address the needs of its ageing population. A geropsychological lens not only enhances diagnostic accuracy but also serves as a critical foundation for building equitable, culturally grounded, and future-ready mental health systems. Incorporating older adults as active stakeholders—rather than passive recipients—can foster more resilient, compassionate, and age-inclusive responses to the mental health consequences of a changing climate.

## Author contribution

The author independently conceptualized and designed the review, conducted the literature search and data extraction, and synthesized the results into the final manuscript. The author have read and approved the final version.

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## Ethics statement

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## Consent to participate

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