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Health Perceptions of Climate Change in At-risk Populations

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Introduction

Climate change poses an unprecedented threat to human health, and its impacts are not felt equally across the globe. Among those most at risk are vulnerable populations groups that, due to social, economic, environmental, or biological disadvantages, are disproportionately exposed to and affected by climate-related health hazards. These include low-income communities, the elderly, children, indigenous peoples, individuals with chronic illnesses, and those residing in environmentally sensitive or underserved regions. As the effects of climate change intensify manifesting through extreme weather events, rising temperatures, deteriorating air quality, and shifting disease vectors many in these groups increasingly perceive their health to be under threat. Their concerns are not simply hypothetical; they are grounded in real, lived experiences that intertwine with systemic inequities in healthcare access, education, infrastructure, and government response. Understanding how vulnerable populations perceive climate-related health risks is essential not only for shaping effective public health strategies but also for advancing social and environmental justice. This paper explores the intersection between climate change, health perception, and vulnerability, arguing that these perceptions are deeply influenced by socio-political context, cultural values, and access to resources, and must be considered in developing inclusive climate adaptation and mitigation policies [1].

Description

The link between climate change and health outcomes is widely documented, but its effects vary significantly based on demographic, geographic, and socio-economic factors. Vulnerable populations often live in areas more susceptible to climate events such as flood zones, drought-prone regions, or polluted urban centersand have fewer resources to recover from health shocks. These communities are also more likely to lack adequate healthcare, clean water, nutritious food, and safe housing, all of which are exacerbated by climate-induced disruptions. Consequently, they are more attuned to the health threats posed by environmental changes. Perceptions of climate risk are shaped by direct experiences with disasters, media narratives, community beliefs, trust in authorities, and educational background. For instance, in regions hit by frequent hurricanes or wildfires, residents often associate climate change with physical injuries, mental trauma, displacement, and loss of livelihoods. Indigenous populations, whose cultural and spiritual identity is tied to the environment, perceive climate threats as existential, encompassing both physical health and cultural survival [2].

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Moreover, the rise in vector-borne diseases like malaria and dengue in warmer regions has heightened awareness of climate-health links. In urban low-income areas, the "urban heat island" effect and poor air quality contribute to respiratory issues, which residents increasingly connect to a changing climate. Mental health, often overlooked, is a growing concern. Feelings of anxiety, helplessness, and grief sometimes referred to as eco-anxiety or climate grief are widespread among youth and marginalized communities who foresee a bleak environmental future but feel excluded from decision-making. Despite this, vulnerable groups are not passive victims. Many exhibit remarkable resilience, relying on traditional knowledge, communal support systems, and grassroots activism to cope and adapt. Community-led initiatives for clean water, sustainable agriculture, and emergency preparedness are examples of localized, culturally-informed responses. However, these efforts often go unsupported by national and global climate policies, which tend to prioritize technological or market-based solutions over human-centered approaches [3].

Without addressing the structural barriers that limit adaptive capacity such as poverty, discrimination, and inadequate infrastructure climate strategies risk deepening existing inequalities. Health perception research thus becomes a critical tool for policymakers, as it reveals how people understand and respond to risk, where gaps in communication and trust exist, and what forms of support are most needed. An inclusive and just climate response must integrate these perspectives to create policies that are both effective and equitable. Climate change affects health through both direct and indirect pathways, and these pathways disproportionately harm vulnerable populations. Direct effects include injuries and fatalities from extreme weather events such as hurricanes, heatwaves, floods, and wildfires. Indirect effects are more pervasive and long-term, including increased food and water insecurity, vector-borne diseases, respiratory illnesses, and mental health challenges. Vulnerable populations, such as those in low-income urban areas, remote rural regions, coastal settlements, and indigenous territories, are often situated in high-risk zones with minimal infrastructure to withstand or recover from environmental shocks. Their lived realities make the health impacts of climate change both immediate and inescapable, shaping a powerful perception that their well-being is continuously under threat [4].

For instance, in many low-income countries, rising temperatures and unpredictable rainfall patterns have contributed to agricultural failures, malnutrition, and food scarcity. Families that depend on subsistence farming experience the breakdown of local food systems first-hand, and thus associate climate change with hunger and declining child health. Similarly, in densely populated urban slums, where air pollution, poor sanitation, and lack of clean water are already daily struggles, the intensification of climate extremes compounds public health risks. Vulnerable individuals often report higher instances of respiratory conditions, skin diseases, and waterborne infections following heatwaves or flooding. These observations build a tangible perception of climate change as a degrading force on their health and quality of life. Additionally, vector-borne diseases are rapidly spreading into new regions as global temperatures rise. Mosquitoes carrying malaria, dengue, chikungunya, and Zika virus now thrive in areas previously too cold for transmission. Communities without strong healthcare systems are the first to detect and fear these outbreaks. Many indigenous and rural populations interpret these

changes not only through scientific understanding but also through traditional ecological knowledge, which may frame the emergence of new diseases as a disruption of natural or spiritual balance. As a result, their perceptions of health threats from climate change are complex, merging biological, ecological, cultural, and existential concerns [5].

Conclusion

Vulnerable populations are at the frontline of the climate crisis, facing mounting threats to their physical and mental health. Their perceptions of risk are informed by real-world impacts, shaped by their environments, and filtered through the lens of inequality and exclusion. These perceptions should not be dismissed as merely anecdotal or emotional; rather, they offer critical insight into the human dimension of climate change. By listening to and centering the voices of those most affected, governments, healthcare systems, and international bodies can design more responsive, empathetic, and just policies. Strategies must move beyond one-size-fits-all approaches to recognize and accommodate cultural diversity, historical injustices, and localized forms of resilience. Investing in community-based adaptation, inclusive risk communication, and equitable healthcare access will not only improve outcomes for vulnerable groups but also strengthen societal resilience as a whole. Ultimately, how we respond to the health concerns of vulnerable populations in the face of climate change will be a defining test of our global commitment to justice, sustainability, and human dignity. A failure to act equitably risks entrenching health disparities, while a compassionate, inclusive approach offers a pathway toward a healthier and more resilient future for all.

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Conflict of Interest

None.

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