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RESEARCH INVENTION JOURNAL OF PUBLIC HEALTH AND PHARMACY 4(1): 17-23, 2025

RIJPP Publications

ISSN ONLINE: 1115-8689

ISSN PRINT 1597-8559

https://doi.org/10.59298/RIJPP/2025/411723

Health Impacts of Climate-Induced Migration

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ABSTRACT

Climate change is increasingly recognized as a driver of human migration, as extreme weather events, sea-level rise, and environmental degradation force populations to relocate. This phenomenon, known as climate-induced migration, presents profound challenges to public health, including increased exposure to infectious diseases, mental health disorders, malnutrition, and limited healthcare access. Vulnerable populations, particularly those in the Global South, face heightened health risks due to inadequate adaptive capacities. Host communities also experience significant strain on healthcare systems, exacerbating health disparities. This paper examines the intersections of climate change, migration patterns, and health risks through case studies and policy analysis. It highlights the urgent need for integrated health-migration policies, emphasizing proactive interventions to support climate migrants and mitigate long-term public health challenges.

Keywords: Climate-induced migration, health disparities, environmental displacement, public health, climate change, adaptation.

INTRODUCTION

The increase in climate-driven events like floods and storms is prompting more people to migrate, affecting health and wellbeing. Climate change, combined with other environmental and socio-political factors, leads individuals and communities to seek new living conditions, impacting health in various ways. The rising number of international migrants indicates a trend of increasing human mobility with significant implications for health. Migration decisions are linked to risks and opportunities for well-being. Although the relationship between climate change and migration is documented, there are few studies addressing their connections and health implications, highlighting vulnerabilities for health systems. This complex issue requires coordinated and nuanced approaches in policy and practice. Current initiatives within the health community fall short in addressing evidence and planning related to climate-migration intersections. Indicators of this gap include security-focused responses to climate mobility and public health responses in emergencies, which overlook proactive health measures that could address migration push factors and support migrating populations. None of WHO's climate resilience pillars currently integrate climate-related migration, despite potential impacts on all components. This paper aims to advance existing knowledge through four case studies that explore the intricate links between climate-related mobility and health, critically examining the concept of (im)mobility in relation to displacement, whether forced or voluntary [1, 2].

Definition and Causes

There are a number of definitions concerning "climate-induced migration". refer to a range of definitions including: 1) forced migration or displacement caused by climate change and variability; 2) migration/modification of livelihoods in response to changes in climatic conditions; 3) vulnerability to climate-induced mobility within the nexus of political ecology; and 4) mobility and migration patterns triggered by climate variability/change that include those associated with slow onset events. This growing field of research uses a variety of terms including forced/voluntary migration, internally displaced persons, and slow-onset event. Mixed method practices encompass a focus on movements or

research within a single community. Internal forced migration can arise from sea-level rise, migration patterns can be influenced by extreme weather events, and in-migration pressure occurs in response to rapid-onset events or resource scarcity. Research on climate-induced migration has often been addressed in the context of only few drivers such as typhoons or hurricanes with associated flooding, but attempts to capture a wider range of factors. Drivers as environmental hazards in relation to certain territories are emphasized, often linked to abrupt onset, extreme weather events. Urgency of migration is associated with floods or storm surges. However, other slow-onset disasters such as environmental degradation which lead to desalination of coastal regions are easily neglected in policy contexts. Broad perspective is thus maintained, where climate-induced migration is understood as occasional, temporary, semipermanent, or permanent population displacement due to climate factors. Perspective is also maintained on the socio-economic conditions eminently amplifying population's (in)ability to mitigate and adapt to climate phenomena and to cope with the consequences afterwards. As urbanization and population ageing are identified as long-term trends around the world, with especially strong impact on the largest social group, situated in the Global South, particular attention to these phenomena is paid regarding climate-induced migration. All of the aforementioned aspects of broader causes of climate-induced migration are essential from the perspective of efficient policy responses, and this perspective is kept in the upcoming variety of health and social implications of climate migration [3, 4].

Health Risks Associated with Climate Change

Climate change increases health risks from a rise in new and longstanding health endangerments. Direct consequences range from more frequent and intense climate events, such as heatwaves, hurricanes, coastal flooding, and forest fires, to deteriorating air and water quality, as well as diminishing ecosystem resources. It heightens health risks of indirect consequences from complex biological, social, legal, and economic mechanisms. Existing health conditions are worsened by climate due to changes in ecological and social systems. Broad populations involved and the significance of marginalized populations are central as they experience higher risks resulting from disproportionately lower adaptive capacities, resources, rights, and political power. It is widely perceived that health risks from climate change need to be better understood to develop sustainable adaptation and mitigation. A distinctive theme is stressed here to link climate change with public health research, which is a neglected but essential task requiring comprehensive collaborations across disciplinary areas. Recent publications in climate-related health are discussed to enhance the topic, leading into the discussion of how health risks from climate-related hazards condition migration patterns and decisions [5, 6].

Direct Health Impacts

This paper examines health risks linked to climate-induced migration, particularly the direct health impacts of climate change. Immediate consequences include injuries from extreme weather and chronic effects like malnutrition or stress from heat extremes. As climate change worsens, such events grow more frequent, necessitating human adaptation. People may modify their lifestyles to manage heat stress, but these adjustments can increase health risks if coping strategies fail, worsening vulnerability. Additionally, climate change can foster conditions that spread communicable diseases, impacting ecosystems and transmission agents. Increased migration due to these environmental shifts may heighten infectious disease risks along routes or in new areas. Vulnerable groups, including children, the elderly, pregnant women, and those with pre-existing conditions, are especially affected by extreme heat; for example, hospital admissions for respiratory issues rise during heatwaves, notably among those aged 75 and older. Public health systems must brace for climate change's immediate health effects, as the incidence and distribution of health threats evolve. Poor countries, already susceptible to climate shifts, may find it challenging to cope with emerging risks and population displacements, contributing to a potential global public health burden. There is a strong consensus on the need for interdisciplinary research to develop effective interventions for these challenges [7, 8].

Migration Patterns and Trends

Migration patterns in the contemporary era of climate change are complex and diverse. Climate change is driving a complex set of economic, ecological, and social processes that are in turn shaping patterns of migration and influencing health. Overall, the health impacts of this migration are multifaceted and deeply interconnected, both shaped by and exacerbating complex processes of vulnerability. Understanding these health impacts requires an appreciation of the underlying migration patterns that are being generated by climate change 1. The average global temperatures are rising, often twice as fast in some regions, which has led to a rise in extreme weather events. Such events can have catastrophic

effects on crops, destroy homes and infrastructure, lead to soil erosion, submersion, or salination, water contamination, disease outbreaks of dengue or cholera, and conflict over dwindling resources. As a reaction, people move. They move away from the affected coastlines, floodplains, islands, or rural areas towards the urban cities or wealthier regions inland. They are forced to move to safer locations because those affected areas are inhabitable with water scarcity and food insecurity. The sheer volume of people moving is without precedent in the contemporary era and is transforming the geography of human disease. Broadly, there are two types of migration happening because of climate factors. Planner migrations, such as government-led evacuations, are often to economically or politically underdeveloped and less safe locations. These sites often lack essential services such as water supply, proper sanitation, or healthcare, thus placing the affected populations at greater health risks. Parallel to planned migration, however, a much more significant number of unplanned movements are observed. People are moving away from the affected areas to urban centers, but still there are not enough safety nets to absorb such vast movements. This later type of migration is mostly the result of demographic shifts and changes in land use patterns, thus resulting in the of 'emptying' of areas due to sudden urbanization and economic centers being left behind. Such a transformation further weakens the economies of the unoccupied localities, which in turn increases the numbers of people seeking economic opportunities elsewhere. People left behind are lacking in any means of occupation, thus they suffer from financial difficulties which in turn influences declining health [9, 10].

Global Migration Patterns

Global migration patterns are increasingly connected to climate change and health impacts. Approximately 1.4 billion displaced individuals live in countries heavily affected by extreme climate events. Climate change results in varied economic, social, and livelihood shifts across regions, leading to distinct migration patterns. Observed migrations include relocation and cross-border movements in Asia and Africa, as well as potential resettlements in the Arctic. Responses to climate impacts involve disaster risk reduction, insurance solutions, and diversified income sources, but outmigration often serves as a last resort. Most migrating populations are driven from vulnerable areas experiencing severe climate impacts—such as heatwaves, floods, and hurricanes—while some seek opportunities in regions with milder conditions. These disparities create complex, wave-like global migration flows, as areas facing severe environmental changes see increased outmigration, particularly from densely populated hot spots in Southeast Asia and the Indian subcontinent. Conversely, some sparsely populated regions attract incoming migrations due to favorable conditions, leading to contrasting pressures such as overpopulation, rising land prices, and decreasing agricultural productivity in affected destinations. Migration paths are further influenced by urbanization, population density, and economic opportunities. Statistical insights into migration volumes highlight the need to anticipate future healthcare and infrastructure needs in host communities through a global perspective, enhancing the understanding of climate-induced migration dynamics [11, 12].

Intersections of Climate Change and Migration

At the crossroads of climate change and migration lie complex intersections that transcend simple causality. Migrating individuals not only experience changes in climate vulnerability but also influence the conditions in both sending and receiving areas. Climate change is projected to cause environmental challenges leading to socio-economic changes that drive migration as a survival strategy. Moving populations can impact community capacities for resilience and adaptation. Migration serves as both a response and an influencer of socio-ecological resilience, enabling adaptive strategies for migrants and their communities. The dual nature of migration—viewed as both a misfortune and a resilience option—warrants further investigation for policy development. From a public health perspective, understanding the varied impacts of climate change on human responses is vital for equitable health service provision and effective policy actions. This complexity is visible in the rise of spontaneous urbanization and continued crises following climate disruptions. Additionally, safety networks and remittances can boost adaptive capacity and serve as vital insurance in times of shock. A socio-ecological systems perspective is critical for addressing the nuances of migration and health in a changing climate, emphasizing the need for a nuanced understanding of feedback patterns from migration responses. Effective policy should focus on community-based adaptation and Integrated Vector Management to tackle climate change and vector-borne diseases in high-risk areas, ensuring interventions are developed through varied partnerships and resources [13, 14].

Healthcare Challenges in Host Communities

This article addresses the healthcare challenges faced by host communities receiving climate-induced migrants. In many cases, host communities will be overwhelmed by increasing healthcare demand from both long-term residents and migrants, leading to significant strain on their often already under-resourced healthcare systems. Hosts might not be prepared to deal with emerging health crises, particularly in the face of natural disasters that force mass migrations. In rush to address migrants' health needs, allocation of hosts' healthcare resources will need to be fundamentally reconsidered. Even when the potential access of migrants to healthcare is ameliorated through policy mechanisms, certain services might not be culturally sensitive. Furthermore, integration into local healthcare systems can be a significant barrier to migrant health itself. Health systems in countries of origin would be ill-prepared to aid climate migrants and even health systems in prosperous countries might have differing norms and values. Finally, poor health might also result from the post-migration stress due to discrimination or lack of employment. This will affect the unequally wealth distribution across migrants and will exacerbate health disparities within host communities. Such observed patterns bring up important direct and policy implications. Not only are local health authorities and NGO regulars required to anticipate arriving migrants' health needs and devise responsive infrastructure, but they also need to devise scalable funding models that can cope with varying migration loads. International health agencies can play a significant role in coordinating solidarity amongst countries and regions. Migrant health needs to be integrated into public health policies that address structural root causes of post-migration poor health. Undertaking such steps can be challenging; however, studying how they may be modelled to work under various sets of circumstances can help in planning a proactive healthcare delivery [15, 16].

Mental Health Impacts of Climate-Induced Migration

Climate change affects the mental health and psychosocial well-being of those exposed to related disasters in complex ways. Displacement from homes can significantly impact mental health, with estimates suggesting that by the end of the century, hundreds of millions, possibly over a billion, people will be displaced. This migration is often spontaneous or gradual rather than caused by a singular event. Typically, those who leave possess the necessary resources, often leaving the most vulnerable behind, including those with pre-existing health issues or financial instability. Displaced populations may experience severe mental health impacts, straining resources in destination communities. Vulnerable groups, particularly women and children, face higher risks of mental health issues due to loss of support systems. Women are already more likely to suffer from mental health disorders post-disaster. Conversely, community-based approaches that enhance local resilience and support systems are crucial to mitigate these impacts. Training healthcare providers to recognize and address mental health needs is vital. Unfortunately, most emergency health services prioritize physical health, treating mental health as secondary. It is essential to integrate mental health considerations equally with other health needs in humanitarian responses and international cooperation efforts to ensure the overall well-being of affected populations is comprehensively addressed [17, 18].

Vulnerability and Resilience Factors

Climate-induced migration discourse often neglects the effects of migration on vulnerability and resilience. While migration can offer safety, it may also create new vulnerabilities. Climate impacts drive this migration, requiring an evaluation of vulnerability among climate-induced migrants and their communities. An individual's socioeconomic status significantly influences their susceptibility to climate change, with limited resources often leading to migration strategies that exacerbate vulnerabilities. These households face challenges in sustaining livelihoods and accessing essential services. Migration can worsen health and resource risks for migrants, but it may also facilitate escape from uninhabitable areas. Early migration experiences can enhance future mobility strategies and networks. Migrants and returnees typically possess a better grasp of migration avenues, improving their capacity to adapt to climate change and bolster resilience. Community networks play a crucial role in adaptation, although urban networks may lack support and foster stigma. In contrast, rural-to-rural migration often relies on solid social resources associated with family and regional connections. As climate change advances, urban areas will heavily influence the resilience of affected communities. Climate-induced health challenges are complex and closely tied to existing vulnerabilities and health resources, necessitating context-specific policies for mitigation and adaptation. A health-informed migration policy is needed, incorporating health criteria for eligibility and support for health services in host communities. Establishing health-resilient communities and promoting disease preparedness in origin and host countries is essential. Governments

must implement border controls that do not exacerbate health issues within the framework of responsibilities outlined in the Paris Agreement. Coordinates among health, environmental, and migration sectors are vital for addressing the health repercussions of climate-induced migration. Intensified data collection in areas like disease preparedness and access to health services is crucial. The international health community can assist regions in formulating robust actions to tackle the health impacts of migration, advocating for funding to support these initiatives. This aligns with the Nansen Initiative Protection Agenda and Pacific Call for Action. Public-private partnerships can foster a coordinated response to mitigate potential backlash. In addressing the escalating human cost of climate change, a respectful and ethical terminology is needed to foster collaborative efforts on various issues. Public health perspectives should be incorporated into climate migration narratives and policies, stressing the links between key agreements like the Paris Agreement and the Global Compact for Migration. Pre-emptive planning should prioritize community engagement and the involvement of health actors, crucial in countering the stigma surrounding climate migrants as health threats in public discourse [19, 20].

Future Directions

This meta-synthesis investigated the implications of mobility for human health with an effort to identify prevailing community health perceptions. In the context of extreme events typically tsunamis, cyclones or flooding, the current research found key vulnerabilities related to shelter, food, health and water-supplies. Developments in terms of strengthening disease monitoring, forecasting and support has been identified as priorities. Research on disease transmission pathways has also been identified as significant. Research across developed and developing nations is also reviewed with an eye to identifying key issues in need of further research. Main outcomes of the natural disaster survey are summarized. Present trends in mobility/migration research are reviewed with a focus on environmentally induced migration and climate change. As impacts of global warming, particularly sea-level rise and weather event intensification, become more marked, scaling up of impacts and correspondence of at-risk regions to poorer developing nations is noted. International policy is discussed with reference to global and regional scale approaches 1. International initiatives include involvement in nutrition-based health approaches. The advent of the Sustainable Development Goals is presented as an opportunity to better address mobility as a health issue. It is suggested that emerging policy will require technical support from the health research community, focusing on advocacy and the empowerment of health professionals. There is some conversation among those concerned with the topic of climate change adaptation concerning the emerging concept of transformational adaptation. This discourse has generated significant disagreement. Importantly, some believe that human mobility can form an essential part of this more significant adjustment to climate change. The latest inter-agency projections foresee numbers of climate migrants as high as 200 million by 2050. This would necessitate around 65,000 people per day giving up their homes in least developed or most exposed nations due to the effects of sea level rise, weather patterns, desertification or other environmental causes. Other organizations argue that adaptation that displaces populations cannot be considered transformational as long it is reactive and undermining of local autonomy and agency [21, 22].

CONCLUSION

Climate-induced migration is an urgent global health challenge that requires immediate and coordinated responses. As environmental changes intensify, migration will become an increasingly common adaptation strategy, yet current health policies remain inadequate in addressing the associated risks. Vulnerable populations are disproportionately affected, facing limited healthcare access and heightened disease exposure. Host communities must develop resilient healthcare infrastructures to manage the influx of migrants. Future research should focus on disease monitoring, climate adaptation, and sustainable healthcare models for displaced populations. International collaboration is essential in crafting inclusive policies that integrate migration and health resilience, ensuring equitable access to healthcare for all affected populations.

REFERENCES

1. Schwerdtle P, Bowen K, McMichael C. The health impacts of climate-related migration. BMC medicine. 2018 Dec;16:1-7.
2. McMichael C, Schwerdtle PN, Ayeb-Karlsson S. Waiting for the wave, but missing the tide: Case studies of climate-related (im) mobility and health. Journal of Migration and Health. 2023 Jan 1;7:100147.

3. Askland HH, Shannon B, Chiong R, Lockart N, Maguire A, Rich J, Groizard J. Beyond migration: A critical review of climate change induced displacement. Environmental Sociology. 2022 Jul 3;8(3):267-78. [HTML]
4. Ofori DO, Bandauko E, Kutor SK, Odoi A, Asare AB, Akyea T, Arku G. A Systematic Review of International and Internal Climate-Induced Migration in Africa. Sustainability. 2023 Nov 20;15(22):16105. mdpi.com
5. Titcomb G, Uelmen J, Janko M, Nunn C. Infectious disease responses to human climate change adaptations. Global Change Biology. 2024 Aug;30(8):e17433. wiley.com
6. Prina M, Khan N, Khan SA, Caicedo JC, Peycheva A, Seo V, Xue S, Sadana R. Climate change and healthy ageing: An assessment of the impact of climate hazards on older people. Journal of Global Health. 2024 May 24;14:04101. nih.gov
7. Semenza JC, Paz S. Climate change and infectious disease in Europe: Impact, projection and adaptation. The Lancet Regional Health–Europe. 2021 Oct 1;9.
8. Baker RE, Mahmud AS, Miller IF, Rajeev M, Rasambainarivo F, Rice BL, Takahashi S, Tatem AJ, Wagner CE, Wang LF, Wesolowski A. Infectious disease in an era of global change. Nature reviews microbiology. 2022 Apr;20(4):193-205. nature.com
9. Afyare AA. Climate-Induced Migration: A New Dimension in International Relations. Available at SSRN 5079685. 2024 Dec 25.
10. Marcus H, Hanna L, Tait P, Stone S, Wannous C. Climate change and the public health imperative for supporting migration as adaptation. Journal of Migration and Health. 2023 Jan 1;7:100174.
11. Marandi A, Main KL. Vulnerable City, recipient city, or climate destination? Towards a typology of domestic climate migration impacts in US cities. Journal of environmental studies and sciences. 2021 Sep;11:465-80.
12. Hermans K, McLeman R. Climate change, drought, land degradation and migration: exploring the linkages. Current opinion in environmental sustainability. 2021 Jun 1;50:236-44.
13. Oreggioni GD, Ferraio FM, Crippa M, Muntean M, Schaaf E, Guizzardi D, Solazzo E, Duerr M, Perry M, Vignati E. Climate change in a changing world: Socio-economic and technological transitions, regulatory frameworks and trends on global greenhouse gas emissions from EDGAR v. 5.0. Global Environmental Change. 2021 Sep 1;70:102350. sciencedirect.com
14. Wang K, Liu J, Xia J, Wang Z, Meng Y, Chen H, Mao G, Ye B. Understanding the impacts of climate change and socio-economic development through food-energy-water nexus: A case study of mekong river delta. Resources, Conservation and Recycling. 2021 Apr 1;167:105390. [HTML]
15. Koehn PH. Globalization, migration health, and educational preparation for transnational medical encounters. Globalization and Health. 2006 Jan 30;2(1):2.
16. Mohammadi M, Jafari H, Etemadi M, Dalugoda Y, Ali HM, Phung H, Ahmadvand A, Dwirahmadi F, Barnes P, Chu C. Health problems of increasing man-made and climate-related disasters on forcibly displaced populations: A scoping review on global evidence. Disaster medicine and public health preparedness. 2023 Jan;17:e537. cambridge.org
17. Roe J, McCay L. Restorative cities: Urban design for mental health and wellbeing. Bloomsbury Publishing; 2021 Jul 15.
18. Kirkbride JB, Anglin DM, Colman I, Dykxhoorn J, Jones PB, Patalay P, Pitman A, Soneson E, Steare T, Wright T, Griffiths SL. The social determinants of mental health and disorder: evidence, prevention and recommendations. World psychiatry. 2024 Feb;23(1):58-90. wiley.com
19. Trummer U, Ali T, Mosca D, Mukuruva B, Mwenyango H, Novak-Zezula S. Climate change aggravating migration and health issues in the African context: The views and direct experiences of a community of interest in the field. Journal of Migration and Health. 2023 Jan 1;7:100151. sciencedirect.com
20. Hayward G, Ayeb-Karlsson S. 'Seeing with Empty Eyes': a systems approach to understand climate change and mental health in Bangladesh. Climatic Change. 2021 Mar;165(1):29.
21. Kounani A, Dragoi CI, Theodoulou G, Skanavis C. Managing climate migrants' inflows: Case study of Greece. InHandbook of Climate Change Management: Research, Leadership, Transformation 2021 Nov 4 (pp. 4765-4786). Cham: Springer International Publishing. researchgate.net

22. Kantenbacher J, Miniard D, Geiger N, Yoder L, Attari SZ. Young adults face the future of the United States: Perceptions of its promise, perils, and possibilities. Futures. 2022 May 1;139:102951.

CITE AS: Abner Tom Kalukusu (2025). Health Impacts of Climate-Induced Migration. RESEARCH INVENTION JOURNAL OF PUBLIC HEALTH AND PHARMACY 4(1): 17-23. https://doi.org/10.59298/RIJPP/2025/411723