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The climate change–homelessness nexus

Climate change affects human health and wellbeing¹ with differential impacts on populations and regions. For example, climate change disproportionately affects girls and women and can amplify conflict and violence in resource-deprived environments.² The way climate change exacerbates economic and social disparities underscores the role of migration in response to climate pressures.³ Movement or staying in place, whether forced or voluntary, have important immediate and downstream implications for the growing numbers of people affected. Although the mechanisms through which climate impacts human health are becoming better understood, substantial knowledge gaps remain. One such gap is the role of shelter. Housing and shelter are pivotal in considering the physical and mental health impacts of climate change for individuals without shelter or who live in temporary and unfit housing.⁴

For homeless and marginally housed people, the risks related to climate change fall in two domains.⁵ First, marginally housed individuals are at risk of becoming homeless due to climate-change-related factors, including rising sea levels, extreme weather events, and economic strain due to energy, water, and food insecurity. Second, individuals who do not have shelter are exposed to an array of climate-related risks, including air pollution, extreme heat and cold, and foodborne, waterborne, and vectorborne diseases.

The risks related to exposures are compounded by the compromised health of homeless populations, their inadequate access to health and social care services, and their limited inclusion in climate risk mitigation and disaster response strategies.⁶ By contrast with a much larger literature on climate-driven migration, the literature that addresses how shelter influences health outcomes is minimal, with the least information available for the places most affected by climate change.⁵

A system dynamics approach can help to understand better the many interacting socioeconomic, cultural,



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political, and environmental variables and processes that comprise the climate-homelessness nexus and how to respond effectively.⁷ System dynamics can track and model over time interactions between primary (eg, heat) and secondary (eg, food insecurity) climate risks, as they are moderated by population-specific characteristics (eg, malnourishment, adaptation resources) to affect outcomes (eg, morbidity and mortality, homelessness prevalence).⁵ Moreover, system dynamics theory can articulate variable relationships such as positive feedback loops. An example is the so-called vicious cycle⁸ nature of the climate-homelessness nexus whereby the complexity and expense of intervening are seen to increase exponentially the further response moves away from prevention. As with models that describe climate-driven migration,³ each step in which the quality of shelter is diminished or lost altogether compounds the health, safety, and wellbeing risks faced by individuals and families.

Interventions are needed for these marginalised populations that do not deepen existing inequities (eg, green infrastructure that drives up urban housing costs). Leveraged prevention efforts in this area include the use of evidence-based strategies to generate new housing and improve the condition and viability of existing housing with respect to both cost and weather resilience. Prevention efforts also need to develop data to enable the prediction of climate-vulnerable hotspots worldwide. Such data can be used to support adaptations that allow individuals and communities to safely stay in place or plan organised relocation to adequate housing and infrastructure in those settings. Generating accurate data for simulations will identify where to intervene and inform decision making about possible interventions. This approach is likely to be more effective than trial-and-error responses that can waste resources and compound risks.^{9,10} For crisis response strategies, practices include cooling centres, medical and education outreach, effective aftercare, and incorporating the needs of homeless populations in the disaster response.⁵ These approaches can be optimised through co-design with impacted individuals and organisations and the use of planning frameworks such as the human rights-based approach.¹¹

Crucially, attention must be given to interdependencies. There is an inclination towards “othering” concerning displaced and homeless populations¹² that cultivates

public and political apathy or even antipathy. Yet the impacts of the COVID-19 pandemic have highlighted social interdependencies and the potential of large-scale health and socioeconomic interventions.¹³ Now is an important time to focus on housing as a fundamental human right and a determinant of health and sustainable development during the climate emergency. The role of shelter needs to be more fully incorporated into the science that is articulating how our changing climate affects human health.

We declare no competing interests.

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