Heartaches over housing: correlating cardiovascular disease rates and housing damage in the aftermath of the Canterbury earthquakes

See Articles page e242

In *The Lancet Planetary Health*, Andrea Teng and colleagues[1] investigate the effect of chronic psychological stress related to level of housing damage on cardiovascular outcomes in residents aged 45 years or older following the 2010–11 Christchurch, New Zealand earthquakes. Most international research in this area focuses on cardiovascular events immediately after an earthquake, usually with up to 6 months of follow-up. This is the first longitudinal investigation (with 5 years of follow-up) of cardiovascular health outcomes after a natural hazard event. Research findings have established that the negative effects of earthquake-related stresses on cardiovascular outcomes continue for 12 months after the earthquakes. The study by Teng and colleagues uses a new cardiovascular stressor: level of property damage in area of residence, with damage defined as the ratio between the total value of building damage claims at an occupied dwelling and the property's value. The association between increased cardiovascular disease and level of property damage in an individual's area of residence has been developed by linking Canterbury District Health Board hospital admissions and mortality data with insurance-assessed damage on Christchurch housing stock. Population-wide information has been generated that could inform the development of early interventions to address post-earthquake stresses and enhance cardiac services.

Findings from the Teng and colleagues' Article[1] could also be used to illustrate the principle of secondary surge capacity within the disaster medicine literature. Secondary surge is the sudden increase in the need for long-term health-care service for incident-related chronic disease following a disaster.[2] Access to health-care resources, such as medical centres, health professionals, specialist services, pharmacies, and medical equipment, is reduced in the aftermath of disasters. Access can be further restricted by the loss of medical facilities or their transfer to outside of the disaster zone, resulting in exacerbation of pre-existing medical conditions due to reduced continuity of care and delays in chronic disease management.[3] Prior to a disaster, decisions made around planning for and funding an upsurge in demand for services for areas as diverse as cardiovascular disease,[1] mental health,[1] and aged care[4] might help to mitigate a range of poor health outcomes after a disaster and during the recovery phase. These measures relate to the objectives within the 2015 Sendai Framework for Disaster Risk Reduction,[5] which require a commitment to reducing mortality through strengthening built infrastructure, increasing public health capability and capacity, and improving access to health services.[6]

Property insurance increases post-disaster resilience by providing funds for the reconstruction of built infrastructure during the recovery phase. Teng and colleagues[1] note that "both home owners and tenants in highly damaged areas were faced with relocation, limited housing options, and rapidly increasing rental prices due to a shortage of housing"; however, differing socioeconomic circumstances between home owners and people without assets might have shaped access to housing resources after the disaster. Further targeted research is therefore needed to investigate the effects of residing in areas with severely damaged homes on housing tenants, transitory residents, and homeless people. Research findings might potentially provide valuable in-depth information about health stresses associated with rent hikes, relocation challenges, and difficulties accessing essential health and social services, which could enhance planning for more effective health services in post-earthquake contexts.[7] In addition to documenting and addressing challenges, such targeted research could highlight health protective factors, addressing a potential gap within the exiting health literature. For example, Teng and colleagues[1] found no statistical evidence of interactions between earthquake damage and Māori ethnicity (and deprivation). This is a surprising finding considering the higher rate of cardiovascular disease reported among Māori people compared with the broader New Zealand population,[8] and the fact that most local Māori resided in the lowest socioeconomic decile areas of Christchurch,[9] which were the suburbs that had the severest damage

to housing.[10] The stable cardiovascular disease rate evidenced by the Māori community at the time of the earthquakes suggests that cultural factors might mitigate cardiovascular health risks in times of adversity. Research[11] on factors that facilitated Māori resilience following the Canterbury earthquakes identified key attributes such as kinship ties, cultural values, relational networks, and long-embedded adaptive capacity to natural hazards and the impacts of colonisation. We believe that future research investigating the health protective qualities of the aforementioned cultural attributes would be very valuable, particularly regarding the ways such attributes can be drawn on to mitigate cardiovascular risks for Māori during times of housing uncertainty and more generally after major earthquakes.

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