



Policy brief on climate change and mental health/ well-being



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ABSTRACT

Climate change has a significant global impact on individuals' mental health and well-being. However, global health systems are inadequately prepared to address this issue. Studies indicate that climate events such as floods, droughts, tornados, earthquakes, and fires not only exacerbate chronic mental illness, but also impact well-being causing anxiety, stress, and in the worst case, suicide. The World Health Organization estimates that 12.6 million preventable deaths per year can be attributed to environmental factors, all of which are exacerbated by climate change, and an additional 250,000 deaths per year are projected between 2030 and 2050. Nurses must advocate for research, education, and policies that support disaster-resilient infrastructure and human services that allow communities across the globe to effectively mitigate the impact of climate change on human health.

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Background

Climate change is a fundamental threat to public and mental health and is already affecting individuals and communities across the globe. The World Health Organization estimates that 12.6 million preventable deaths per year can be attributed to environmental factors, which are exacerbated by climate change (World Health Organization, 2016). An additional 250,000 deaths per year are projected between 2030 and 2050 (World Health Organization, 2016). Furthermore, in the wake of the COVID-19 pandemic, climate change, land use, and biodiversity loss are all connected and can contribute to the spread of future pandemics and diseases (Vidal, 2020), with 70% of the world's infectious diseases coming from the natural environment (Brennan & Micklas, 2020). While the negative impact of climate change on physical health is acknowledged, recent evidence also points to profound adverse effects of climate change on well-being and on the exacerbation of existing acute and chronic mental health conditions.

Climate change related weather extremities and natural disasters impact mental health and well-being by disrupting health care resources and access, the economy, and social structures, and endangering the natural and social environments upon which people depend for their livelihoods, health, and well-being

(O'Neill et al., 2014; Watts et al., 2017). The nature of these changes disproportionately leaves impoverished and marginalized populations particularly vulnerable to the psychological stress and economic costs of climate-related disasters, causing already-disadvantaged groups to suffer disproportionately.

While research continues to emerge, current evidence suggests that a wide range of serious physical and mental health consequences, including post-traumatic stress disorder (PTSD) and suicide and/or suicidal thoughts, result from exposure to climate-related disasters (Burke et al., 2018; Clayton, Manning, Krygman, & Speiser, 2017). PTSD may stem from serious injury, death of family members, or forced displacement from home and is common as a result of natural disasters. The effects of climate change on PTSD has been primarily documented in the context of water-related disasters across countries and ethnicities. For example, after the torrential downpours and unstable levy infrastructure of Hurricane Katrina in 2005, the psychological aftermath continued to persist in its survivors; within just a few months after Katrina, the prevalence of PTSD in Louisiana and Mississippi rose from 15% a few months after Katrina to 21% only a year later (Kessler et al., 2008). Nearly 30% of adults (McLaughlin et al., 2011) and 20% of children (Lai, Kelley, Harrison, Thompson, & Self-Brown, 2015) exposed to Hurricane Katrina were estimated to have

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had posttraumatic stress at some point afterwards. More recently, a study documented that at least two-thirds of Houston respondents indicated some level of post-traumatic stress from Hurricane Harvey in 2017, which induced flooding of at least 46 centimeters in more than 80,000 homes (Grineski, Flores, Collins, & Chakraborty, 2019). The effect of flood-related disasters on PTSD has also been observed globally. One study investigating the effects of a severe flood in Spain in 2012 found that the likelihood to suffer PTSD was 8.18 times higher in the population affected by the flood, with symptoms lasting for several months following the traumatic event (Fontalba-Navas et al., 2017). Another study conducted in India was consistent with reports in the United States and Spain, with flood exposure substantially associated with PTSD and moderated by disrupted social support systems including family separation and broken peer connections (Dar, Iqbal, Prakash, & Paul, 2018). Given the enduring and far-reaching effects of PTSD symptoms following extreme rain and flooding, the development of population-scale methods and resources to combat PTSD is critical.

Similar to PTSD, rates of suicide and suicide ideation increase during times of climate-change related events, with heatwaves and droughts being especially concerning. Alarming, a recent study has reported that rising temperatures may be responsible for nearly 60,000 suicides in India in the past 30 years (Carleton, 2017). Farmers, in particular, are a highly vulnerable group for risk of suicide during times of drought (Ellis & Albrecht, 2017), as farmers and other residents of drought areas have significantly higher levels of anxiety, emotional distress, and depression (Clayton et al., 2015; Coêlho, Adair, & Mocellin, 2017). In fact, the more severe the drought, the greater the suicide risk, and projections suggest that this trend will only be exacerbated by rising temperatures (Ding, Berry, & Bennett, 2016). Although a myriad of complex factors contributes to the connection between climate change and suicide, these emerging data nevertheless underscore the urgency of developing effective mitigation and adaptation strategies.

Climate-change induced disasters, particularly heatwaves, may also lead to the exacerbation of existing acute and chronic mental health conditions. A Canadian study observed that extreme environmental temperatures contributed to the psychotic exacerbation of schizophrenia, with persistently high temperatures associated with a significant increase in hospital emergency room visits for patients with mental disorders (Wang, Lavigne, Ouellette-kuntz, & Chen, 2014). Similar detrimental outcomes as a result of heatwaves were found in England (Page, Hajat, Kovats, & Howard, 2012), where researchers found that patients with psychosis and dementia have a markedly increased mortality risk during heatwaves. In Vietnam (Trang, Rocklöv, Giang, Kullgren, & Nilsson, 2016), a similar occurrence was noted with a dose-response effect between rates of mental hospital admissions and the

length of the heatwaves. However, while the former study found especially strong evidence for the worsening of psychiatric disorders in elderly populations, the latter reported more substantial effects in younger populations. For this specific age group, frequent assessment of children's well-being, especially in preparation for climate change related disasters, can allow for the identification of possible mental health issues, such as anxiety in face of disaster, and early preventative measures (Dean et al., 2008). Although the mechanisms of action underlying the association between climate change and the exacerbation of mental health conditions is currently unclear, several mechanisms have been proposed, including pre-existing lowered resiliency to adapt to natural disasters (Majeed & Lee, 2017) and the magnification of other ongoing stressors (Cunsolo Willox et al., 2015). Further research in this field is necessary to elucidate the biological and psychological mechanisms of action, an undertaking that is crucial considering the quickly rising temperatures caused by climate change.

Future climate change predictions point towards more frequent and dangerous weather events, likely leading to an increase in individuals and communities experiencing higher rates of occurrence and severity of mental health problems. Furthermore, a majority of existing studies are case-studies or focused on the immediate, short-term effects of a climate change outcome. As more individuals suffer from mental health effects of climate change, adequate resources, additional healthcare providers, further research, and appropriate community responses are needed to meet the increasing needs of the affected communities. The prevalence of these climate-change-related mental health outcomes, including PTSD, anxiety, depression, and suicide, as well as the contribution of climate change to the spread of pandemics and diseases like COVID-19, underscore the need for policy and preventive solutions, as well as the expansion of the conversation surrounding climate change, so that the impacts on mental health and well-being are discussed and considered especially in disaster preparedness planning.

Responses and Policy Options

The Academy's Position on Mental Health

The American Academy of Nursing (Academy) identifies mental health as an urgent public health issue and supports policies targeted towards delivering high-quality mental and behavioral health care. These policies include removing reimbursement and coverage barriers for mental health screening, intervention, and treatment (Priester et al., 2016) and supporting resource allocation for the systematic integration of behavioral healthcare and primary care (Davis et al., 2018). The Academy urges support for governmental programs addressing mental illness, as well as for the

empowerment, education, and training of healthcare professionals for mental health treatment and care (Hanrahan, Stuart, Delaney, & Wilson, 2013; Naegle et al., 2017). The Academy promotes the mental health of families, elders, and other vulnerable populations in order to foster resilience, health, and well-being (Betz et al., 2016; Tilden, 2012).

The Academy's Position on Mental Health Related to Climate Change

The Academy places emphasis on both adaptation and prevention. Adaptation is centered around developing reactive policies to the climate change issues that we know are already occurring. Some examples of adaptive strategies include providing counseling (Hayes, Blashki, Wiseman, Burke, & Reifels, 2018), advocating for removal of barriers in access and cost to mental health care in insurance plans (Rowan, McAlpine, & Blewett, 2013), and conducting more research on existing populations of individuals who have been affected by climate change (Hayes et al., 2018). These strategies would allow investigators to better understand the scope of the problem and develop more efficacious solutions to help those affected.

Prevention encompasses taking steps to increase knowledge of the effects of climate change on mental health in the public and to prepare for possible hazardous climate events in order to minimize their impact on health and well-being. Thus, advancing mental health awareness and planning within the context of climate change is necessary and urgent (Berry, Waite, Dear, Capon, & Murray, 2018). Possible strategies include encouraging school counselors and workers in homes for the elderly to begin early monitoring of those possibly at risk for mental health issues (Hayes et al., 2018), increasing the patient capacity of hospitals, and equipping hospital staff with the skills necessary for attending to patients specifically experiencing mental health issues in the context of climate change (Laderman, Dasgupta, Henderson, & Waghray, 2018). In fact, the American Academy of Nursing is one of the endorsing organizations for the 2019 *US Call to Action on Climate, Health, and Equity: A Policy Action Agenda* (Health Voices for Climate Action, 2019).

Policy Recommendations

To reduce the psychiatric suffering exacerbated by climate change, the following interdisciplinary, multi-level recommendations addressing the impact of climate change on mental health and well-being should be implemented by policy makers, researchers, and health professionals in governmental, academic, clinical, and community settings.

More specific strategies are detailed below.

Improve access to mental health services through increased and strengthened community-based mental health facilities in underserved areas with high risk of disasters related to climate change. For example, coastal

communities prone to hurricanes and rural west coast communities prone to severe wildfires require more mental health providers in these areas (Centers for Disease Control and Prevention, 2018).

- Promote community-level mental health initiatives that target vulnerable populations, including children and the elderly, as well as low-income populations that have limited resources to build resiliency during and after climate-change related disasters.
- Educate patients and families about the health risks of climate change and how to prepare for and protect themselves.
- Treat patients for specific psychiatric syndromes associated with climate related traumas.
- Increase access to these services by continuing to increase the number of people with adequate health insurance through Medicare and Medicaid (National Alliance on Mental Illness, 2019; Rowan et al., 2013).

Improve mental health clinical capacity and patient flow. With a documented rise in hospital psychiatric admissions during times of climate change events, climate change impacts will likely cause increases in the demand for healthcare professionals and staff, as well as stretch the capacity of care delivery. In addition to a need for adequate resources, there is a need for an increase in the number of health-care practitioners, counseling services, clinics, and other health-related facilities in high impact areas for climate change outcomes. As the number of climate change related events will undoubtedly increase through the years, the supply of health providers and services must increase to meet the demand. This is particularly important given that the homes and families of providers may also have been adversely impacted by a disaster. Further, an improvement in communication between the emergency department and community-based outpatient mental health services would ensure adequate treatment and support for discharged patients and may lead to lower rates of hospital readmission (Doupnik, Esposito, & Lavelle, 2018). Finally, considering that the majority of emergency departments in hospitals do not currently have the capacity or culture to support individuals with mental health issues, further discussion on developing new approaches to improve mental health care in the emergency department is necessary (Laderman et al., 2018). Emergency department staff should also receive special training on addressing mental health issues specifically in those affected by natural disasters.

Increase the federal research funding provided by the National Institute of Mental Health (NIMH) and/or the Substance Abuse and Mental Health Services Administration (SAMHSA) targeting at prevention and intervention strategies to reduce the impacts of climate change on mental health (Mental Health America, 2019; National Institute of Mental Health, 2019; Substance Abuse and Mental Health Services Administration, 2019). As a

whole, the effects of climate change on mental and physical health are greatly under-researched, and further studies are warranted. For example, research could focus on intervention programs for patients suffering mental health issues following climate disasters or prevention programs for building resilience to the effects of climate change among people with mental health issues. Future research should broaden the scope to examine how the type, intensity, duration, and frequency of climate change events add to the burden of mental illness globally. The disproportionate impact on disadvantaged and marginalized groups should be emphasized, especially in children, adolescents, and the elderly. Furthermore, more thorough research should be conducted on long term implications on mental health across disciplines and populations. In addition, as the climate refugee situation expands and families are forced to leave low-lying coastal regions or fire prone areas, more research will be needed regarding the psychological impacts on the refugees themselves and the care providers required to serve the large number of new clients.

Improve community preparation and response to climate change in order to prevent and reduce impacts on mental health across the lifespan. For children and adolescents, schools should support nurses and counselors in recognizing and monitoring of mental health concerns among students. Frequent monitoring of students' well-being and periodically following-up with students after a climate change crisis can help reduce the effect on mental health. Similarly, nurses, counselors, and social workers in nursing and retirement homes should be more vigilant and trained in assessing, recognizing, and ameliorating the effect of climate change on mental health issues in the elderly (Zalon, 2019). The Substance Abuse and Mental Health Services Administration (SAMHSA) provides communities and responders with behavioral health disaster response plans and training that help them prepare, respond, and recover from disasters. Furthermore, community leaders should receive training in Psychological First Aid to understand the core principles of normalizing stress reactions to abnormal events, identifying and educating public to expected reactions, assisting community leaders in creating sense of safety, calmness, self and community effectiveness, supporting social connections and cohesiveness and sense of hopefulness (Hayes et al., 2018).

Advocate for increased budgets for the Department of Homeland Security to allow for improved disaster preparedness preparation, response to mental health issues, infrastructure redesign, and federal response teams that can respond quickly when local health systems are overwhelmed in a disaster (Department of Homeland Security, 2019).

Educate the public about the importance of anticipating and addressing mental health issues related to climate change

through the National Institute of Mental Health (NIMH). Currently the brochure titled "Helping Children and Adolescents Cope with Disasters and Other Traumatic Events: What Parents, Rescue Workers, and the Community Can Do" (National Institute of Mental Health) does not alert health care workers or the general public to anticipate mental health issues related to climate change. NIMH can partner with other organizations devoted to climate change and mental health, including Climate Psychiatry Alliance and Climate and Mental Health Caucus of APA, to educate the healthcare providers and the general public.

This policy brief reflects the current state of climate science and recommended policy changes. Given the complexity of the earth's ecosystem, we must implement best practices while being aware that priorities and strategies themselves will need to adapt and change as new threats emerge.

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