

## Climate change in small island developing states: caring for youth's mental health



Unabated climate change has led to unprecedented changes to the daily lives of people living in small island developing states. Children and adolescents are particularly vulnerable as they are affected during crucial developmental phases of life and will experience cumulative exposure. Climate change affects children directly and indirectly. Effects can vary from climate-related distress to increased risk of onset or worsening of existing mental health disorders, including post-traumatic stress disorder (PTSD), anxiety, depression, phobias, substance misuse, and sleep disorders.<sup>1,2</sup>

Each year, small island developing states in the Pacific and Caribbean brace themselves for the impending tropical cyclone and hurricane season. These extreme weather events have been increasing in frequency and intensity. More than 59 million people in small island developing states have been affected by extreme weather events in the past 30 years—half of these extreme weather events have occurred since 2011.<sup>3</sup> In the Caribbean, the number of children and young people displaced by catastrophic hurricanes increased 6-fold between 2009–13 and 2014–18.<sup>4</sup> In absolute numbers, this increase represents 761 000 children affected and 175 000 children displaced from their homes.<sup>4</sup> As natural disasters become increasingly common, children and adolescents facing the impact of climate change endure chronic stress.

Climate change increases sea level rise, ocean acidification, and coastal erosion, leading to loss of land. Pacific models of wellbeing include land and sea, which are integrally linked to mental, cultural, ancestral, and spiritual factors and to identity.<sup>5</sup> Small island developing states are most vulnerable to sea level rise. Children living on atolls are particularly at risk of their islands becoming uninhabitable because of rising sea levels. Village inhabitants in the Solomon Islands have been forced to relocate inland or to other islands.<sup>6</sup> In Tuvalu, 62.4% of a surveyed population experienced psychological distress due to climate-related stressors to a degree that impaired one or more areas of daily life.<sup>7</sup> This survey included youth aged 18–24 years whose distress about climate change took the form of worry or sadness.

Although research on the effects of climate change on mental health has improved, a dearth of literature on mental health disorders in children and adolescents that is attributable to climate change remains, particularly its effect on children and adolescents living in small island developing states, as most data come from high-income countries. A recent ten-country survey of adolescents and young adults (16–25 years old) included four low-income and middle-income countries, none of which were small island developing states.<sup>8</sup> Overall, 59% of respondents indicated feeling very or extremely worried about climate change, and many reported having emotions such as sadness, anxiety, and helplessness due to climate change. Respondents also reported a lack of trust in government actions and feeling betrayed.

The global mental health burden is substantial,<sup>9</sup> and the gap between need and service provision is enormous.<sup>10</sup> WHO estimates a median of 13 mental health workers per 100 000 population and that around 1 billion people are living with a mental health disorder.<sup>10</sup> Small island developing states are acutely affected by a scarcity of health professionals, including mental health specialists. Access to health services is further hampered by the remoteness and wide geographical dispersion of islands, making the logistics

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A family stand outside their house in Roseau, on the Caribbean island of Dominica, on Sept 22, 2017, after Hurricane Maria hit the island

of providing sustained services difficult. For example, after Hurricane Dorian hit the Bahamian archipelago, New Providence was the only island offering psychiatric services. High travel costs affect the ability of Kiribati—one of the most remote small island developing states with one of the largest exclusive economic zones—to effectively provide services across 21 inhabited islands. The health systems of these nations should include post-disaster mechanisms for monitoring children and adolescents. Such mechanisms should be sustained to detect the short-term and long-term effects on mental health (such as anxiety disorders and PTSD) and provide therapy for children whose mental health conditions present months to years after exposure to extreme weather events.

Action is required at all levels. Global leadership must act with urgency to address the mental wellbeing of children in small island developing states. WHO and UNICEF have been working jointly and independently on improving mental health in children and adolescents; however, given the high vulnerability of children and adolescents living in small island developing states to climate change, more needs to be done. First, the extent and impact of mental disorders on children and adolescents needs to be measured, taking into consideration the multiple exposure pathways faced by children and adolescents of small island developing states. Population-based surveys using adapted, validated screening tools are needed to assess the prevalence of mental disorders in this population. Studies have begun in Samoa, Tonga, Tuvalu, and the Cook Islands.<sup>11,12</sup> Second, innovative interventions for treating mental disorders and building psychosocial resilience in children and families need to be developed and assessed, and these need to be appropriate to the challenges of small island developing states. Existing interventions, such as climate change education with age-appropriate coping strategies, should be evaluated and the effective ones scaled up. Third, both new and existing models of health service delivery need evaluation to increase access to mental health care. The role of technology could be expanded to improve access to care. Fourth, more public awareness is needed; education will help parents, caregivers, teachers, and children to recognise signs and symptoms of mental distress and to access help. Fifth, civic engagement of

children and young people in small island developing states is key. Opportunities should be given for children and adolescents to participate in citizens science research and advocacy around climate change and mental health. Finally, more research is needed to measure vulnerability, understand the implications, and address the problem of the high vulnerability of children and adolescents to climate change and its mental health sequelae.

The manifestations of climate change, particularly land loss, sea level rise, and the increasing intensity of tropical cyclones, pose an existential threat to the future of small island developing states. Such threats beg the urgent need for research on the effects of such exposure, interventions to build resilience, and improvement in the capacity of health systems to respond.

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