

Each year, over 200 million people worldwide are impacted by disasters.¹ In the US, ninety-four percent of children (estimated at 73 million in 2016) live in communities at risk of natural disasters.^{2,3} Children are especially vulnerable to the impact of disasters, given their developmental challenges and that most emergency response systems are inadequately resourced to meet their unique needs.⁴ Following a natural or technological disaster, some children will experience long-lasting effects, including posttraumatic stress reactions that can severely challenge their ability to cope.⁵ However, with timely support, treatment, and resources, children who experience a disaster can recover.⁶



What are Natural and Technological Disasters?

Natural disasters include hurricanes, earthquakes, tornadoes, wildfires, tsunamis, and floods, as well as extreme weather events such as blizzards, droughts, extreme heat, and wind storms. These events can lead to many adversities for children and families, including displacement, stigma, health inequities, loss of home and personal property, changes in schools, economic hardship, loss of community and social supports, and even the injury and death of loved ones. Technological disasters (including oil spills, industrial fires, nuclear and hazardous materials accidents) can also lead to concerns about toxic exposure that could adversely affect health and could result in additional economic and ecological challenges, with uncertain timelines for when exposure will end.

The Consequences of Natural and Technological Disasters

When children and families experience disasters, the range and severity of reactions depends on many factors, including proximity to the event, levels of destruction, injury and death associated with the disaster, and secondary adversities post-disaster, such as prolonged separation from parents, multiple moves, and exposure to additional traumas. The vulnerability, resilience, and recovery of children and families may be affected by age, gender, socioeconomic status, ethnic and racial background, cultural issues, social support, trauma history, and family and community disruption caused by the disaster.⁷ Children of emergency responders may also face additional challenges.

Experiencing a disaster can result in a variety of both short- and long-term trauma-related mental and physical health problems including, but not limited to: ^{4,6}

- posttraumatic stress reactions (e.g., PTSD)
- behavioral and emotional dysregulation
- depression and anxiety
- substance use disorders
- suicidality
- separation distress and specific fears
- persistent grief reactions
- social withdrawal
- anger and aggression
- academic decline
- developmental disturbance (e.g., regression)
- physical complaints (e.g., headache, stomachache, fatigue)
- reduced self-care
- increased risk for acute illness



Assisting Children and Families Following Natural and Technological Disasters

Following disasters, most children can be assisted to recover, particularly when family and school routines can be maintained, and when they have support from parents, teachers, and other adults in the community.⁸ However, some children and families will need additional services and supports. Consistent with earlier recommendations,⁹ the Institute of Medicine (2015) promoted a three-tiered approach to meet the needs of children and families affected by disasters. This tiered approach includes:¹⁰

- **Universal Interventions** - appropriate for all members of a community
- **Targeted Interventions** - implemented in the short-term for children exhibiting moderate distress
- **Intensive Interventions** - for children with the most severe or long-lasting reactions

Effective interventions are available for children exposed to disasters, and have been developed for the purpose of promoting a sense of safety, fostering healthy connections, and enhancing community and self-efficacy. Specific intervention strategies include teaching problem-solving, stress management, and relaxation techniques; providing education about trauma and loss reminders and reactions; and providing appropriate treatment and referrals, where needed.¹¹

Disaster mental health services for children are often provided in community settings such as schools, disaster shelters, health and mental health care agencies, faith-based facilities, and after-school program locations.¹² Research suggests that schools provide an optimal environment to increase access to services, student and family engagement, and treatment completion.¹³ Web-based and mobile technologies can also provide cost-effective approaches to connecting families to disaster assistance and enhancing the treatment engagement of children and adolescents.¹⁴

Efforts are underway to improve the national behavioral health response to disasters. These efforts include the development of technology to train providers of both acute and long-term services for children and families. For example, distance-learning platforms can be useful for training and certification, along with accompanying mobile applications that reinforce learned intervention strategies.¹⁵ Targeted resources for parents, children, and adolescents — such as books for grieving children and for children exposed to specific types of disasters — have also been developed.

Policy Recommendations

Policymakers can ensure that the needs of children and families, often overlooked, are included in all national and state disaster preparedness and response policies. Policymakers can address these needs by expanding support for:

- children who are at heightened risk due to prior trauma (including racial and historical trauma), poverty, homelessness, limited language proficiency, pre-existing psychiatric problems, disability, health inequities, limited access to services, or living in dangerous social environments;
- the use of evidence-based assessment and treatment methods across all tiers of intervention for children of all ages;
- evaluation of promising early interventions (e.g., Psychological First Aid, Skills for Psychological Recovery) with children and families;
- services for parents and caregivers, teachers, community and religious professionals, and other adults providing care to children;
- first responders to address their exposure to trauma and cumulative stress over time and the special needs of their children and families;
- enhanced disaster preparedness for multiple hazards and response capacity in all communities and child-serving systems, especially schools;
- the development and utilization of technology to enhance training and increase child and family access to interventions and services; and
- the integration of disaster recovery services into local communities and child-serving systems when transitioning to long-term services.

How Does the NCTSN Serve as a Resource?

Authorized by Congress in 2000, the National Child Traumatic Stress Network (NCTSN) is a federally-funded child mental health service initiative designed to raise the standard of care and increase access to services for traumatized children and their families across the US. The broad mission of the NCTSN includes assessment, treatment and intervention development, training, data analysis, program evaluation, policy analysis and education, systems change, and the integration of trauma-informed and evidence-based practices in all child-serving systems. The UCLA-Duke University National Center for Child Traumatic Stress (NCCTS) coordinates the work of the NCTSN, a national network of 116 funded grantees and 170 affiliate centers and members, and hundreds of national and local partners.

Since 2001, under the direction of the Terrorism and Disaster Program, the NCTSN has responded to 150 natural and technological disasters, including Hurricanes Maria and Harvey, Northern California wildfires, the Deepwater Horizon oil spill, and the 2019 flooding in Houston Texas. The NCTSN has developed intervention protocols for all tiers of intervention, including, among others, Psychological First Aid (Tier 1); Skills for Psychological Recovery, adopted by the SAMHSA Crisis Counseling Program (Tier 2); and Trauma-Focused Cognitive Behavioral Therapy (Tier 3). The NCTSN has used enhanced training technologies and methodologies to expand dissemination of these interventions.

The NCTSN has also created assessment instruments and data collection strategies for all stages of disaster impact, response, and recovery, and a variety of resources for children, parents, teachers, and child-serving professionals. These include the “Trinka and Sam” books for young children affected by disasters, and a mobile application, “Help Kids Cope,” which addresses the impact of 10 types of disasters to help parents prepare for, respond to, and recover from these events. All products are designed to be linguistically and culturally relevant, with input from youth and families. Many have been translated into multiple languages

The NCTSN’s website provides a range of resources for professionals and the public about disasters, including products, fact sheets, training opportunities, and access to training and educational resources (<http://www.nctsn.org/trauma-types/natural-disasters>).

For more information about child trauma and the NCTSN, visit www.nctsn.org or contact the NCCTS Policy Program at policy@nctsn.org.

References

- ¹ American Red Cross. (2011). Global Impact Report. Retrieved 25 July 2016 from http://www.redcross.org/images/MEDIA_Custom-ProductCatalog/m6340468_11ISDreport.pdf
- ² Save the Children. A national report card on protecting children during disasters. (2012). Save the Children: Fairfield, CT.
- ³ U.S. Census Bureau. (2016). Current population reports. Retrieved 18 July 2016 from <http://www.childstats.gov/americaschildren/tables/pop2.asp>
- ⁴ National Commission on Children and Disasters. 2010 Report to the President and Congress. AHRQ Publication No. 10-M037. Rockville, MD: Agency for Healthcare Research and Quality. October 2010.
- ⁵ National Child Traumatic Stress Network. (2014). Understanding child trauma. Retrieved 13 April 2016 from http://www.nctsn.org/sites/default/files/assets/pdfs/policy_and_the_nctsn_final.pdf
- ⁶ Pfefferbaum, B., Jacobs, A., Griffin, N., & Houston, J. B. (2015). Children's disaster reactions: The influence of exposure and personal characteristics. *Curr Psychiatry Rep*, 17(7), 1-6. doi:10.1007/s11920-015-0598-5
- ⁷ Masten, A. S., Narayan, A. J., Silverman, W. K., & Osofsky, J. D. (2015). Children in war and disaster. In R. M. Lerner (Ed.), M. H. Bornstein and T. Leventhal (vol. Eds.), *Handbook of child psychology and developmental science*. Vol. 4. Ecological settings and processes in developmental systems, 7th edition (704-745). New York: Wiley.
- ⁸ Osofsky, J. D., Osofsky, H. J., Weems, C. F., King, L., & Hansel, T. C. (2015). Trajectories of posttraumatic stress disorder symptoms among youth exposed to both natural and technological disasters. *Journal of Child Psychiatry and Psychology*, 56(12), 1-9. doi:10.1111/jcpp.12420
- ⁹ Pynoos, R. S., Goenjian, A. K., & Steinberg, A. M. (1998). A public mental health approach to the post-disaster treatment of children and adolescents. *Child and Adolescents Psychiatric Clinics of North America*, 7(1), 195-210.
- ¹⁰ Institute of Medicine. (2015). *Healthy, resilient, and sustainable communities after disaster: Strategies, opportunities, and planning for recovery*. Washington, DC: The National Academies Press. doi:10.17226/18996
- ¹¹ Pfefferbaum, B., Newman, E., & Nitiéma, P. (2016). Current evidence for selecting disaster interventions for children and adolescents. *Current Treatment Options in Psychiatry*, pp. 1-14. doi: 10.1007/s40501-016-0079-4 [online first].
- ¹² Pfefferbaum, B., Shaw, J. A., & the American Academy of Child and Adolescent Psychiatry Committee on Quality Issues. (2013). Practice parameter on disaster preparedness. *Journal of the American Academy of Child and Adolescent Psychiatry*, 52(17), 1224-1238. doi: <http://dx.doi.org/10.1016/j.jaac.2013.08.014>
- ¹³ Jaycox, L. H., Cohen, J. A., Mannarino, A. P., Walker, D. W., Langley, A. K., Gegenheimer, et al. (2010). Children's mental health care following Hurricane Katrina: A field trial of trauma-focused psychotherapies. *Journal of Traumatic Stress*, 23, 223-231.
- ¹⁴ Ruggiero, K. J., Price, M., Adams, Z., Stauffacher, K., McCauley, J., Danielson, C. K., et al. (2015). Web intervention for adolescents affected by disaster: Population-based randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, 54(9), 709-717. doi: 10.1016/j.jaac.2015.07.001
- ¹⁵ Watson, P. J., Brymer, M. J., & Bonnano, G. A. (2011). Post-disaster psychological interventions since 9/11. *American Psychologist: Special Issue of the 10th Anniversary of September 11th Terrorist Attacks*, 66, 482-494.