Editorial

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After the Storm: Helping Children Cope with Trauma after Natural Disasters

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Abstract

The hurricane season for 2017 was plagued with catastrophic storms impacting millions of people in the US and its territories. Surviving a natural disaster can have a range of consequences including the development of post-traumatic stress disorder (PTSD). Those who are most susceptible to developing PTSD after a traumatic event are children. Hurricane Katrina was an event marked by severe deficits in the provision of care to residents in Louisiana and Mississippi causing increased PTSD symptoms that were preventable. No crisis intervention is perfect and lessons learned are applied to the next, similar event. Recommendations to plan for and recover from natural disasters to decrease PTSD symptoms based on studies conducted with children who survived Hurricane Katrina are discussed.

Keywords: Trauma; Natural disaster; Crisis intervention; PTSD; Children

Editorial

As many parts of Texas and Louisiana were still reeling from the extraordinary effects of Hurricane Harvey, another catastrophic Hurricane Irma, brought devastating destruction to the Caribbean and South Florida. Meanwhile, Hurricanes Jose and Katia churned ominously in the background. While computer projections eventually determined that these hurricanes were unlikely to impact the United States, Hurricane Maria devastated the island of Puerto Rico and the US Virgin Islands decimating their power and communication systems. The 2017 hurricane season has struck fear in the hearts and minds of United States citizens directly and indirectly impacted by these unprecedented storms.

Though adults undoubtedly suffer tremendous stress in the aftermath of natural disasters such as these, it is often the most vulnerable, the children, who are most traumatized and possess the fewest coping skills. In the days following a natural disaster, children suffering from psychological trauma may show many of the symptoms commonly associated with Post Traumatic Stress Disorder (PTSD). While very few of these children will go on to develop full-blown PTSD, the symptoms they experience can be distressing and debilitating. These children may have intrusive, recurring thoughts of the trauma and vividly relive the horrors they experienced in the form of nightmares or flashbacks. They may startle easily and be hypervigilant-constantly on the lookout for signs of danger. These children may have difficulty sleeping and be irritable and prone to angry outbursts. Parents may notice that their child seems withdrawn, depressed, and has trouble concentrating. Children may avoid things that remind them of what they've been through, for example, refusing to return home to collect salvageable items or shutting down any attempt to discuss what has happened.

Young children frequently somaticize when dealing with trauma, their psychological distress expressed in the form of physical aches and pains. They may also regress, with parents finding formerly independent children clinging to them, bed wetting, or behaving immaturely. Older children may act out. Some develop risky behaviors and engage in potentially destructive activities like alcohol and drug use.

While the above-mentioned signs of child trauma may be evident in the days and weeks following a natural disaster, what might not be immediately noticeable is the effect of trauma on a child's developing brain. Bruce Perry, M.D., Ph.D., is a formidable psychiatrist specializing in the area of the neurodevelopmental impact of childhood trauma [1,2] contends that children respond to trauma in two neuronal response patterns, the hyperarousal continuum and the dissociative continuum. The hyperarousal continuum occurs when there is an increase in locus coeruleus (mediator of "fight or flight" response) and ventral tegmental nucleus (regulates the sympathetic nuclei in the pons/medulla) after a traumatic event. This hyperarousal potentially leads to exaggerated reactivity that can be triggered by daily stressors resulting in maladaptive psychological and behavioral problems. The dissociative continuum occurs when a child moves past the hyperarousal continuum after failed caregiver support to persistent traumatic threats. Children could then be predisposed to react in freeze response or "refusal" to follow through on an activity when in an anxious state, which can

eventually lead to dissociation with repeated exposure to trauma.

Trauma's biological impact extends beyond the brain, but has hormonal implications as well. When experiencing high levels of stress, a child's body is flooded with stress hormones, including cortisol. Prolonged exposure to cortisol can damage the hippocampus, resulting in life-long deficits in memory and other cognitive functions (National Scientific Council on the Developing Child, 2005/2014). High levels of stress hormones also suppress the body's immune system, leaving children vulnerable to a variety of infections as well as chronic illnesses like heart disease and diabetes [3-5]. Furthermore, exposure to stress negatively affects the pre-frontal cortex, the part of the brain responsible for executive functions like attention, self-regulation, and working memory [5]. Thus, children exposed to psychological trauma, particularly over an extended period of time, may face a lifetime of problems in the areas of learning, behavior and physical and mental health.

Children of color are especially vulnerable to the harmful effects of psychological trauma following a natural disaster. In the United States in 2015, 36% of black children and 30% of Hispanic children lived in poverty, compared to 12% of white children [6]. Simply living in poverty can present a constant stressor for these children. Parental stress related to finances, insecure housing, and food instability are everyday realities for many children living in poverty. In addition, these children are more likely than their wealthier counterparts to have experienced exposure to domestic and community violence, abuse and neglect. Consequently, when these children are faced with a natural disaster, it exacerbates an already complicated history of psychological trauma.

The factors contributing to youth's increased susceptibility to PTSD after a natural disaster describe the populations targeted by the recent slew of hurricanes- those at risk, living in urban and/or high-poverty areas. As a result, we have a duty to learn from our past and ensure that the upheaval resulting from Hurricane Katrina does not repeat itself.

At the time of Hurricane Katrina, there was little to no guidance on the type of empirical interventions most appropriate for children affected by such a disaster [7]. Therefore, a number of studies were conducted as a result of the lack of evidenced- based guidelines to prepare and respond to a catastrophic natural disaster. We outline findings from selected studies to aid in the preliminary planning of crisis intervention for children negatively impacted by natural disasters. These recommendations are not exhaustive and only account for minimal considerations in planning efforts.

Identify secondary resources- Plan to expect neighboring mental health facilities or providers to be unavailable. Access to mental health services may be disrupted as natural disasters impact business infrastructures, individual living conditions, and could lead to difficulty recruiting child-focused mental health professionals to fill in the service gap long term [8]. Consider telehealth options or establish relationships with facilities and individuals in locations outside of your locale (county or state for example) in advance to be on standby for these specific types of events.

Establish a plan to get the word out-If mental health services are made available, develop a mode of communication that is minimally impacted by the natural disaster to disseminate information and informed consents to parents regarding the provision of mental health services. Alternatives to cellular phones and internet-based communications are optimal as distribution of information was seen as a significant obstacle to service provisions [9].

Identify factors predicting susceptibility to PTSD symptoms- Utilize screeners to identify children at risk for PTSD symptoms. Screeners such as The Hurricane Assessment and Referral Tool for Children and Adolescents developed by the National Child Traumatic Stress Network [10] is an example of a pre-referral screener that can be modified for cultural sensitivity to identify children susceptible to traumatic responses. [11] conducted a study including 7,258 students ages 7 to 19 from affected parishes in Louisiana two years post-Katrina. Utilizing the NCTSN hurricane referral tool, the authors found up to half of the participants met criteria for a mental health referral. Predictors of increased symptomatology included prior trauma experiences, significant personal loss, separation from a caregiver, death of a family member or friend, displacement to a shelter, younger in age, and gender identify as female.

Account for previous trauma- [7] found children with the most elevated PTSD symptoms also had previous exposure to trauma and existing pathology. When providing intervention services focused on trauma, children may identify these traumatic events as more bothersome than the PTSD related to the natural disaster itself [9], therefore, sustained trauma-focused treatment, as opposed to short-term, may result in more clinically significant outcomes [7,9].

Minimize return to learn barriers. Extending the time it takes to become reacclimated to the educational setting can be distressing. Additional stressors for students after a natural disaster can involve finding records to ensure students obtain appropriate credits and graduate on time [10]. Receiving tutoring and similar supports to get back on grade level could be helpful.

Determine a best-fit intervention program- [12] conducted one of the first studies evaluating treatment efficacy of children with trauma symptoms postdisaster and found that children who received some form of treatment reported significant symptom reduction compared to those who received no treatment. Similar results were demonstrated in treatment studies post Hurricane Katrina [7]. Cognitive-Behavioral Intervention for Trauma in Schools (CBITS) and Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) are shown to be effective empirical-based interventions for those who participated post Hurricane Katrina [7,9], though more accessible intervention services, such as those provided at school a [7] and group treatment [7,12] increased participation rates.

Consider schools as a service agent- As reported in outcome studies, parents and children will more likely attain services at convenient locations and times such as at school or outside of work hours. Services at the school-wide, small group, and individual levels have demonstrated efficacy in reducing PTSD symptoms [9]. Schools are key stakeholders for providing mental health services to those negatively impacted by natural disasters. School responsibilities have long expanded outside of solely educating students as the provision of mental health care are, at times, the only source of psychoeducational intervention for children. Schools can be an agent of care by conducting routine screenings for PTSD in addition to identifying students through their pre-referral or Response to Intervention processes [9]. Implementation of trauma-focused programming in a school setting is has its obstacles such as limited funding, resources, and the number of staff trained in providing disaster focused programs [7,9]. Notwithstanding, schools are arguably responsible [13,14] for providing such intervention services. Establishing community partnerships can minimize these barriers and provide the most effective care for children with mental health needs.

As we enter the recovery phase post 2017 hurricane season, we hope agencies consider the recommendations above for providing sustained disaster interventions to our most vulnerable. Collectively, mental health providers can save a generation from increased prevalence rates of trauma and similar mental health disorders by investing in our youth through early intervention recovery services after these collective natural disasters.

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