

Mental Health and Wellness Following Large-Scale Catastrophic Events

The Role of the Pediatric Clinician



Bruce D. Perry, MD, PhD^{a,b,*}

KEYWORDS

- Trauma • Post-traumatic stress • Mass casualty • Catastrophic event
- Natural disaster

KEY POINTS

- Humanitarian crises are often created by catastrophic traumatic events.
- The scope and scale of the mental health needs following catastrophic trauma overwhelm even the most resourced mental health systems.
- Pediatric clinicians play key leadership roles in the individual, community and systemic responses to catastrophic trauma.
- Many symptoms of an acute stress response and posttraumatic stress disorders present primarily as *physical health* issues (eg, syncope, chest, and gastrointestinal pain, headaches, lethargy and mental status changes mimicking absence seizures).
- Education about the known and predictable physical and mental health impacts of traumatic stress should be incorporated into graduate and postgraduate training for pediatric health care providers.

INTRODUCTION

Each year millions of children, youth and their families are impacted by natural disasters (eg, flood, earthquake, hurricane, tsunami, tornado, wildfire, and famine) and human-induced large scale traumatic events (war, school or public shootings, forced displacement, cultural, and active genocide). This overview is based upon lessons learned from over 30 years of direct clinical care, community consultation and program development in a wide range of major traumatic events and humanitarian crises.^{1–5} These include high profile incidents (eg, Branch Davidian Siege and fire),

^a School of Allied Health, Human Services and Sport, La Trobe University, Melbourne, Victoria, Australia; ^b Neurosequential Network, Houston, TX, USA

* The Neurosequential Network, 3733-1 Westheimer Road, #1039, Houston, TX 77027.

E-mail address: bdp@neurosequential.com

Abbreviation
PTSD posttraumatic stress disorder

dozens of school shootings (eg, Columbine and Sandy Hook), terrorist actions (eg, Oklahoma City bombing, 9/11), natural disasters (eg, Hurricane Katrina, Tohoku tsunami, earthquakes in New Zealand, Turkey and Syria; wildfires and floods in the United States and Australia), mass migration humanitarian crises (eg, separation of child and parent at US border) and hundreds of other individual and family traumatic events (eg, suicide, murder, kidnapping, motor vehicle accidents, rape, and almost every version of human and natural traumatic). In each of these situations, pediatric clinicians had the opportunity to provide leadership to disorganized, overwhelmed and dysfunctional public systems struggling with the scope, scale and complexity of the physical and mental health challenges faced by children, youth and parents. In many of these major traumatic events, there were lost opportunities to optimize the healing process for children, families and the community. Thirty years ago, a major reason for this was simply a lack of awareness regarding the effects of stress, distress and trauma on the developing child (and everyone else involved in the catastrophic event). While the general knowledge about adversity and development^{1,6} and post-traumatic stress disorder (PTSD), in general, has increased, challenges remain. This overview will highlight some areas of particular relevance for pediatric health care professionals.

Posttraumatic Impacts of Catastrophic Trauma

The pattern of stress caused by large-scale catastrophic events—uncontrollable, unpredictable, often extreme and prolonged—will predictably lead to alterations in the sensitivity and reactivity of stress response systems throughout the body.^{2,3} This sensitization across the body’s multiple stress response systems results in a pervasive impact on the immune, endocrine, autonomic and central nervous systems.^{1,6} A cascade of alterations in these systems will influence cardiorespiratory, gastrointestinal, reproductive, musculoskeletal and brain-mediated functions. The result is a wide range of physical and mental health symptoms and signs.^{7,8} Common posttraumatic symptoms include syncope, gastrointestinal issues (eg, pain and constipation), r/o seizure disorder, headaches, exhaustion, as well as sleep, anxiety, attention and mood problems along with the more commonly *known* posttraumatic stress symptoms of intrusive ideations, *reenactment* behaviors and pervasive physiologic reactivity (ie, the sensitization across multiple systems). The full range of these symptoms is beyond the scope of this overview, but the emerging field of disaster mental health has provided multiple excellent resources for the pediatric clinician.^{9–13}

In many cases a pediatric health care provider is the first and most *logical* resource for families seeking help for a symptomatic child. Often the parents (and the clinical team) do not connect the symptoms to the traumatic experience. In the case of acute mental health symptoms such as anxiety with event-specific elements (eg, reenactment play, nightmares or evocative cues clearly reminiscent of the event) it is more apparent. The further away from the event and the less *mental health* related the symptoms or signs, the less likely a clinician will make the connection. This is most apparent in clinicians who have had minimal exposure to the emerging concepts related to stress, trauma and the multisystemic impacts of traumatic stress. The range and complexity of these clinical presentations often lead to diagnostic challenges and, most important, treatment inefficiencies. Posttraumatic physical and mental health

symptoms act as *Great Imposters*—mimicking a myriad of syndromes or disease processes (eg, cardiac insufficiency and absence seizures) and complicating the presentation and control of other existing conditions (eg, diabetes, autoimmune disorders and irritable bowel syndrome [IBS]). This is where a full developmental history that includes nature, pattern and timing of adversity and, the counter-balancing, *protective* relational health is very helpful. Understanding the effects of developmental trauma can bring additional, often essential, insights to the diagnostic, and treatment planning process.

Understanding the Risk for the Development of Posttraumatic Problems

The risk of developing posttraumatic problems varies depending upon various factors (Table 1). A key factor in risk is the proximity to the event's *ground zero* or primary area of threat, destruction, and life-threatening impact (Fig. 1). Each event creates an event-specific trauma 'footprint' resulting from the pattern of immediate impact, chronic secondary effects and potential for ongoing evocative cues (eg, high profile events with Western media coverage that includes social media blasting creates an almost unavoidable flood of evocative cues). Displacement of a community following the death and destruction of an earthquake or tsunami will pose multiple year recovery issues impacting the capacity of a family and community to restore stability of housing and economic health all while grieving at multiple levels across many families. Personal grief is compounded by community or even cultural grief; loss of life, home, community, and collective identity often occurs during humanitarian crises created by war and major natural disasters. While each event is unique, there is emerging evidence to suggest that a key factor in risk following major catastrophic trauma is preevent mental health and attachment status.¹⁴ Early life experiences create the filters through, which all future events are experienced—including major catastrophic trauma. The individuals with greatest risk for posttraumatic problems following any traumatic experience are those who go into that event with preexisting vulnerability.^{1,5,14}

Whether the clinician is playing a leadership role in system-wide, family or individual responses, a major challenge is the way stress-related shifts in functioning create a *state-dependent* inefficiency in the capacity to process complex cognitive content.^{2,3} Threat, stress, fear—all activate CNS responses intended to help the individual survive the perceived threat.² In the face of inescapable distress and pain, the mental (and physical) mechanism of dissociation is the dominant adaptive response.^{1,3} A primary feature of dissociation is a graded disengagement from the external *world* with an increasing focus on the *internal* world; emotional numbness, a sense of *unreality*, a robotic mirroring quality to communication, which leads to a misunderstanding on the part of the pediatric clinician that the child/parent has actually attended to and internalized what you have been trying to communicate. When individuals are in this dissociative *state* traditional forms of communication and therapeutic work are often less efficient. This challenge in communication leads to misunderstandings and miscommunication, which only adds to the frustration, anger, disappointment and disengagement that is so often seen in crisis intervention efforts that are well-intended but trauma-unaware. Dissociation—numbness in the face of the unavoidable, uncontrollable pain of the traumatic event—dominates the acute posttraumatic period. Unfortunately, this means that when supports are most likely to be available and energized, the traumatized population is least capable of engaging and benefiting from the supports that are offered.

As mentioned earlier, there is a wide range of symptoms that are interrelated and trauma-induced; further when dealing with the acute traumatic situation, the nature of the primary symptoms will shift (Fig. 2). In the first few weeks during and after

Table 1 Factors influencing risk for developing posttraumatic mental health issues			
	Event	Individual	Family and Social
<i>Increase risk (prolong the intensity or duration of the acute stress response)</i>	• Multiple or repeated events (eg, domestic violence, sexual abuse, and physical abuse) • Physical injury to child • Involves physical injury or death to loved one, particularly mother • Dismembered or disfigured bodies seen • Destroys home, school, or community • Disrupts community infrastructure (eg, earthquake) • Perpetrator is family member • Long duration (eg, flood)	• Female • Age (Younger more vulnerable) • Subjective perception of physical harm • History of previous exposure to trauma • No cultural or religious anchors • No shared experience with peers (experiential isolation) • Low intelligence quotient (IQ) • Preexisting neuropsychiatric disorder (especially anxiety related)	• Trauma directly impacts caregivers • Anxiety in primary caregivers • Continuing threats and disruption to family • Chaotic, overwhelmed family • Physical isolation • Distant caregiving • Absent caregivers
<i>Decrease risk (decrease intensity or duration of the acute stress response)</i>	• Single event • Perpetrator is stranger • No disruption of family or community structure • Short duration (eg, tornado)	• Cognitively capable of understanding abstract concepts • Healthy coping skills • Educated about normative posttraumatic responses • Immediate posttraumatic interventions • Strong ties to cultural or religious belief system	• Intact, nurturing family supports • Nontraumatized caregivers • Caregivers educated about normative posttraumatic responses • Strong family beliefs • Mature and attuned parenting skills

The development of significant posttraumatic mental health issues will vary depending upon a host of factors. Any factors that can decrease the intensity, duration and unpredictability of the individual's stress response (eg, strong relational supports) following the trauma will decrease the probability of lingering mental health effects. In large scale humanitarian events, the adults in the child's life have also been profoundly impacted. This can interfere with these important *stress-buffering* relationships and result in an increased risk for MH challenges in the entire family. For more detail see.^{4,5}

*Adapted with permission from Perry BD. Stress, trauma, and posttraumatic stress disorders in children: an introduction. Houston, TX: CTA press; 2007. https://www.childtrauma.org/_files/ugd/aa51c7_60c617d2160b417d9ee0f80e5ca8eaac.pdf.*⁴

the primary traumatic event, anxiety and dissociation are the most common primary presentations as the 2 major *wings* of the stress response systems are recruited—the arousal continuum (ie, the *fight, flight* components of our stress response capabilities) and the dissociative continuum (ie, *preserve and prepare for injury* components).

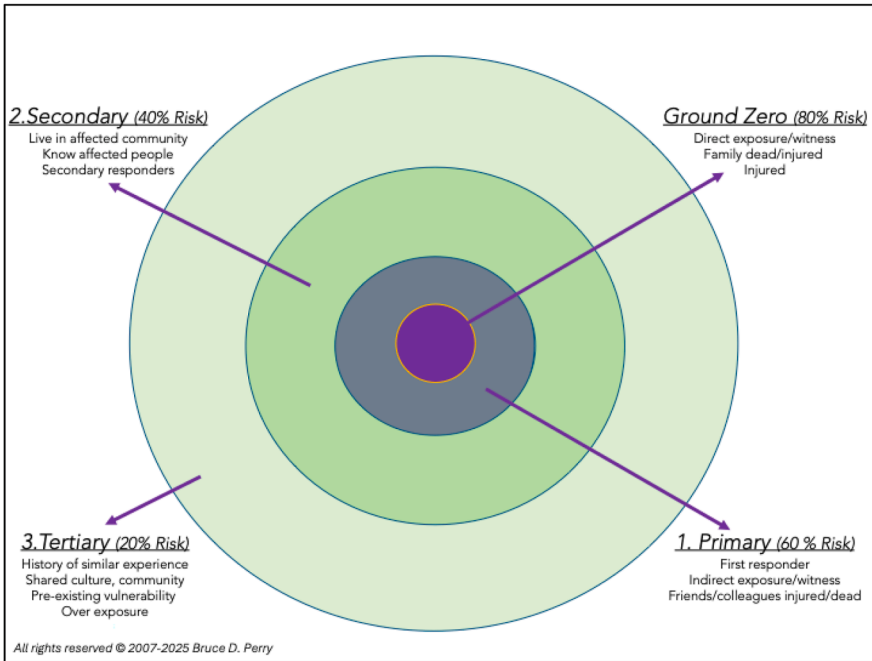


Fig. 1. Differential risk following traumatic event. Proximity to the traumatic event will influence nature and severity of the acute trauma response which, in turn, influences the risk for development of long-term or chronic health issues. Understanding this graded risk profile is helpful when pediatric health care providers are developing their differential diagnoses in children and youth who may have been impacted by a community-wide catastrophic event. Estimates of risk are based upon 30 + years of clinical experience and a variety of reports on the development of PTSD, post-traumatic stress symptoms (PTSS), and MH symptoms following various types of trauma.¹⁴ (Figure courtesy Bruce D. Perry.)

These 2 major response patterns work together to help the individual, but they both are energy consuming^{1,3}; the result is ultimately an exhaustion—both mental and physical. Over time, then, the primary symptoms shift and exhaustion and depression dominate—although both dissociative and anxiety continue. Lethargy, deep sadness, anhedonia, relational collapse and *robotic* engagement in everyday life characterize this heartbreaking grief. This is a time when mental health supports are most needed, and, ironically, it is a time when volunteer and affordable (or free) mental health supports are not usually available (Fig. 3). This is one of the most powerful and pervasive observations of our 30 years of work in this area—the mismatch between need and available supports. Many people and systems mobilize and rush in during the first weeks of a catastrophic trauma but 6 months later that attention, effort and concern have moved on—back to their preevent baselines.

This leaves the existing mental health and health care systems to deal with the morbidity from the traumatic event. Over the last 30 years, the disaster mental health field has grown. Research and clinical expertise have emerged and documented various challenges of catastrophic trauma.^{10–16} A major challenge is a lack of capacity—the mental health (MH) needs following a traumatic event are greater than the available, well-trained MH supports. At baseline, almost all public mental health systems are already resource challenged, near or overcapacity and dealing with high

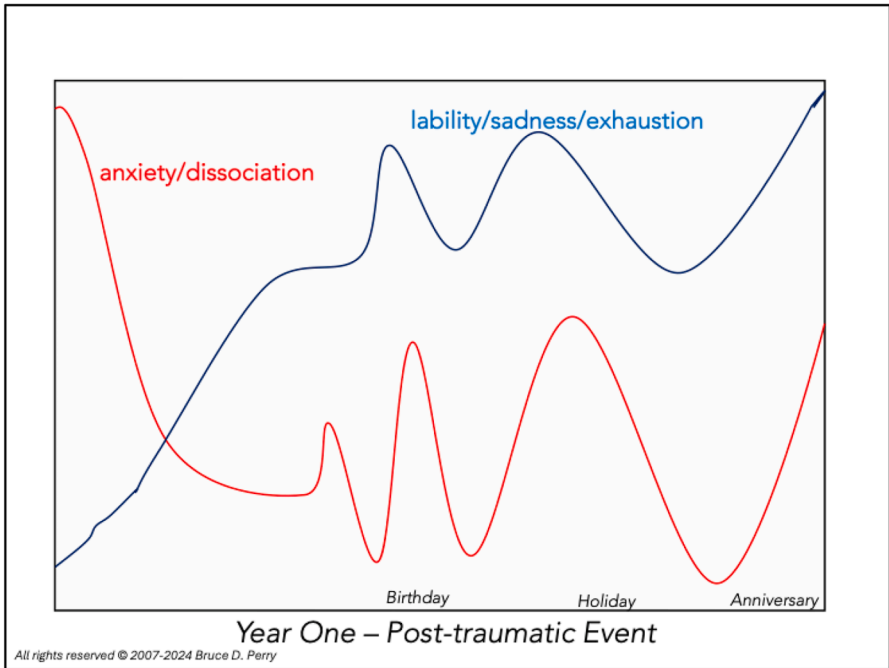


Fig. 2. Evolution of posttraumatic symptoms: Year 1. The nature of posttraumatic mental health symptoms evolve with time. While each person has a unique adaptive pattern that is influenced by many factors (see [Table 1](#)), a general trend of the waxing and waning of the type and intensity of symptoms is illustrated earlier. Anniversaries, holidays, family events all can be evocative cues in the months and years following catastrophic trauma. (Figure courtesy Bruce D. Perry.)

rates of burn out, turn over and nonstop systemic flux with constant leadership, policy and practice changes. Adding more MH needs in a community only magnifies these vulnerabilities. While there are excellent resources available to pediatric clinicians to help build *trauma-sensitive* capacity for their own clinical team, even a well-resourced, *trauma-sensitive* health care community is unable to meet the needs of even small-scale traumatic events (see further).

The Challenge of the Scope and Scale in Humanitarian Crises

Humanitarian crises pose major challenges due to the pervasive traumatic impact throughout a community. Major factors in providing support and therapeutic presence for the traumatized child are the adult relationships in the child's life—the parent, grandparent, neighbor, teacher, coach, and even the pediatric health care professional. But if all of these adults are also traumatized and overwhelmed by the same catastrophic event, their capacity to provide the safe, stable and regulating presence for the child is compromised. The scope of these events will often destabilize and impair the very systems intended to provide education, mental health and health care supports for the child. In short, catastrophic trauma and humanitarian crises overwhelm the capacity of the existing systems, including the mental health system. An additional confound in cases of armed conflict is the political climate, which is often permeated with blaming and *othering* that can influence the allocation of limited resources intended to meet the physical and mental health needs of children from all

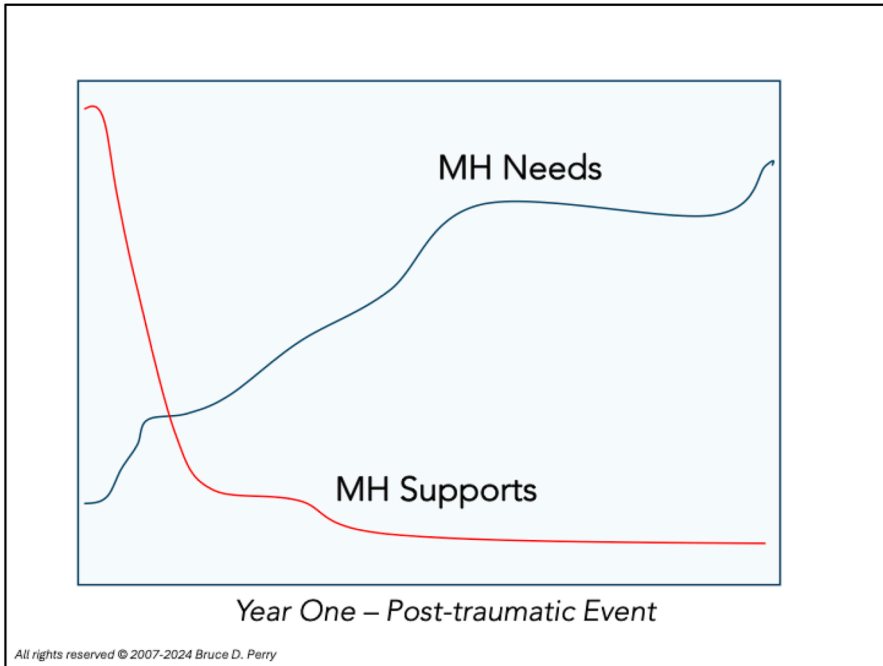
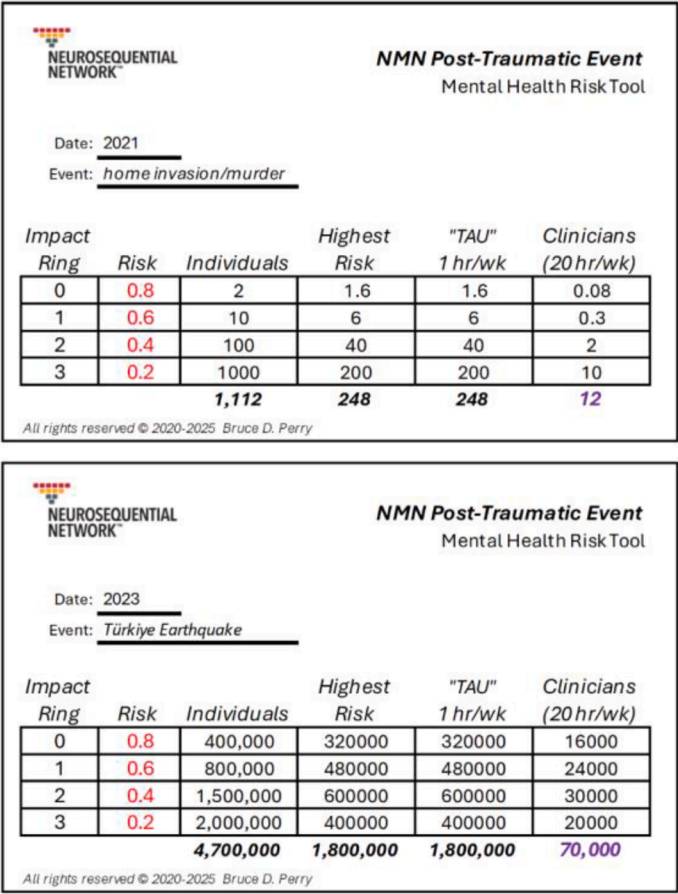


Fig. 3. Mismatch of MH needs and supports in Year 1. In high profile traumatic events it is very common for family, community and systemic supports to mobilize in the immediate aftermath. These supportive efforts are well-intended but often out of sync with the actual needs of those most impacted by the trauma. Mental health professionals often volunteer time and attention in these initial few weeks; yet traditional *therapeutic* assessment and treatment options may not be effective due to the overwhelming circumstances (ie, stress-related inefficiencies in concentration, reasoning, and reflection are common). Over time, the availability of easily accessed and affordable mental health supports shrinks. Ironically, when the most serious and enduring MH symptoms emerge and persist, the availability of MH supports has diminished. (Figure courtesy Bruce D. Perry.)

sides of the conflict. The traumatic effects of these conflicts impact children, youth and families independent of political, ethnic, religious or cultural status and should not influence the pediatric clinician's efforts to address the needs of all children.

A first step in planning clinical supports following a traumatic event is to better understand the scope (who has been impacted) and scale (how many people will require intervention) of the traumatic event. In our experience this is one of the major gaps in addressing the mental health needs during a humanitarian crisis, a fundamental misunderstanding of the enduring impact on individuals, families and communities. To estimate the potential mental health morbidity, we developed the Mental Health Risk Tool (Fig. 4). Using our experiences from thousands of traumatic events (from catastrophic, impacting hundreds of thousands—to community, impacting thousands—to individual, impacting hundreds) and the published literature about risk for development of Mental health problems (eg, PTSD, major depressive disorder [MDD]) we have been able to use this tool to illustrate the capacity needs assuming the 1 hour, once a week dosing of a traditional mental health intervention. In Fig. 4 the top panel illustrates how a traumatic experience can have a ripple effect within a family, school and community. In this instance, 2 children witnessed the murder of their



**NEUROSEQUENTIAL
NETWORK™**

NMN Post-Traumatic Event
Mental Health Risk Tool

Date: 2023
Event: Türkiye Earthquake

Fig. 4. Top and down. MH Risk following catastrophic traumatic events. Risk for experiencing significant mental health symptoms following traumatic events has been estimated from our 40 years of experience studying traumatic events. We developed an MH Risk Tool to help systems and communities understand the *carrying capacity* of their existing mental health systems and the predictable increased demand following these events. We have used this tool for multiple school shootings, natural disasters, and higher profile traumatic events (eg, armed conflict, Branch Davidian siege and fire, September 11). Two examples are included (see text). *Ring* refers to the *distance* from the epicenter of the most destructive traumatic impact of the event (see Fig. 1). *Differential Risk* image, with 0 being *ground zero* where the individual is directly impacted by the traumatic event (see Fig. 1), and 2 and 3 refer to different populations that were less proximal to the direct traumatic experience. *TAU* refers to treatment as usual (1 hour a week of psychotherapeutic intervention). (Figure courtesy Bruce D. Perry.)

parents during a home invasion. Ten people were directly involved and impacted by the murder, 100 were family, church, school connected and close to the parents. The MH ‘ripple’ of that single traumatic event resulted in over 250 people who had significant MH symptoms that would benefit from, at a minimum, an assessment, psychoeducation and ongoing MH supports. To adequately respond to this, a mental health system would have to dedicate 12 clinicians who would have to clear their

calendar so they could provide 20 hours of standard MH intervention to address the new MH morbidity from these murders.

All of this is complicated by major differences in how traditional mental health *help* from a stranger is viewed. At these most vulnerable times, a major challenge is finding and supporting a culturally-sensitive team that has existing connections in the community that will endure beyond the transient influx of mental health supports. The tendency for traditional mental health interventions to push *talking* about the trauma with debriefings or immediate implementation of *evidence-based* protocols with urgency can actually feel intrusive. This is one of the most universal comments our team has heard from thousands of people impacted by traumatic events over the last 40 years. In the immediate posttraumatic period quiet, respectful presence with attunement to the basic needs of the person—shelter, food, information—is what is needed. This stance will make the individual much more willing to consider more formal MH services later in the healing process; if the initial interactions feel disruptive and intrusive, future formal MH services are less attractive to the person—even if needed.

In the lower panel of [Fig. 4](#), the initial calculations for the catastrophic earthquake on February 6, 2023, in Turkey and Syria are illustrated.¹⁷ Over 55,000 people died, 40,000 buildings collapsed, 200,000 more were heavily damaged—it is estimated that more than 3 million people were displaced. The MH Risk Tool estimates, at a minimum, 1.8 million people were significantly impacted and would benefit from MH intervention. Yet, if a traditional MH ‘dose’ and intervention (1 hr/wk) was used, it would take 70,000 clinicians dedicating 50% of their time for this single catastrophic event. That is, of course, impossible. Turkey has roughly 25,000 psychiatrists, psychologists, and social workers combined¹⁷; even if each of them spent 100% of their time serving people impacted by this single catastrophic event, it would not meet the need.

Supporting Relational Health: the Healing Power of Connectedness

The best buffer for current stress is connectedness—to family, friends, classmates, neighbors. Relationships that are safe, stable and nurturing provide the optimal, and necessary, elements for healing from traumatic stress.^{1,17} The major role that a pediatric clinician can play in the posttraumatic healing process is to help identify, support and enrich the relational milieu of the child. Through this relational *orchestration* the pediatric clinician plays the role of the conductor of the relational symphony that will provide the moments of therapeutic support that are regulating, rewarding and healing. There is no need to be the only one *playing an instrument*—providing the therapeutic input. Use the natural strengths and resources of the child’s relational network—something we call the *therapeutic web*. In our work, and in others, the best predictor of positive outcomes is relational health—connection to family, community and culture.^{1,17} In the face of an overwhelmed mental health system, the most effective and therapeutic interventions are through this therapeutic web in the child’s life. Relational poverty creates ongoing risk while relational health—connectedness provides opportunities for healing. The pediatric clinician, as the conductor of this relational orchestra—can educate, engage, direct and coordinate how others in the child’s life understand and interact in ways that will be supportive, developmentally-sensitive and, ultimately, healing.

Systemic and Practice Recommendations

1. Improve pregraduate and postgraduate training about stress, distress, impact of developmental adversity, and relational health on global health wellness
2. Improve pregraduate and postgraduate training about key concepts essential to effective engagement and communication with stressed, distressed or traumatized children and families

3. Proactively create cross-sector work groups to *game* potential catastrophic events in community and begin to build leadership and communication structures with template agreements clarifying leadership roles and establishing funding flexibility
4. Have social and wellness *impact* mapping templates prepared in advance—to identify highest risk individuals for engagement and follow-up health surveillance and support
5. Screening for developmental risk should be a standard component in any comprehensive pediatric health assessment. This risk estimate can be derived from knowing the nature, timing and pattern of developmental adversities *and* counterbalancing relational anchors to family, community and culture (ie, relational health or *connectedness*).
6. Most therapeutic experiences occur outside of *therapy*. Sport, performing arts—drama and dance, creative arts—music, painting, sculpture, writing, and a host of culturally-specific community and group activities are all known to provide the regulation, reward and healing necessary to survive and thrive during and after catastrophic trauma.

Considerations for Clinical Care

The physical signs and symptoms related to a traumatic experience will vary depending upon a host of factors including proximity to the direct threat of the event, the age of the individual and preexisting mental health status (see [Table 1](#)). Further, these symptoms will wax, wane and evolve over time.

In the acute posttraumatic period, a primary adaptation is dissociation. In the face of inescapable and uncontrollable pain or distress, there is a cognitive and emotional disengagement from the external world and a *retreat* to the inner world. This graded emotional *flight* response can result in a robotic, unemotional presentation to others and a *numb* sense of unreality to the person. A primary clinical complication of this response is the impact this has on communication. The capacity to clearly process and act on advice, recommendations, prescribed treatment etc. will be significantly impaired. The resulting miscommunications will cause missed appointments, difficulty following through with prescribed treatments and misunderstandings between the clients and the health care professional.

Catastrophic traumatic stress is exhausting emotionally and physically. This will impact the capacity to function at the preexperience level. Students have a harder time learning and performing, parents have a harder time being as productive and engaged at work and home. This trauma-related impact on efficiency, effectiveness, mood and social functioning contributes to the MH morbidity of the catastrophic trauma. Psychoeducation and support are key to helping children and families through the long posttraumatic period.

Posttraumatic symptoms often mimic pediatric health conditions and should always be considered as potential factors during diagnostic process.

Relational health and connectedness to family, community and culture are the optimal developmental and therapeutic milieu.

INSIGHTS TO ACTION

- Expect overwhelming needs: Many children and families will need help, and existing systems may not be able to meet all needs.
- Physical symptoms are common: Trauma can cause headaches, stomach pains, abdominal cramping, light-headedness, fatigue and other physical complaints that may look like medical problems.

- Emotional and behavioral symptoms are common: Children, youth and adults may show anxiety, sadness, trouble sleeping, or act out; these may be present in the immediate post-event phase or appear later.
- Dissociation is frequent: Adults, youth and children may seem numb, disconnected, or robotic, making communication and treatment harder.
- Relational support is vital: Strong connections to family, friends, and community help recovery. Keep communication simple: Traumatized children and families may struggle to understand complex information; use clear, supportive language – and expect to repeat the same information multiple times.
- Prepare and educate: Clinicians should understand and be capable of teaching others, including children and youth, about the predictable effects of traumatic experience.
- Don't rush or overwhelm: Avoid pushing individuals to talk about trauma right away; focus on basic needs and gentle support. Give individuals the 'space' to control the timing and manner of 'revisiting' their traumatic experiences.

DECLARATION OF AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this work the authors used MS Copilot in order to format the reference section. After using this tool/service, the author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

DISCLOSURES

The author has no commercial interests to declare.

REFERENCES

1. Perry BD, Szalavitz M. *The boy who was raised as a dog*. 2nd edition. New York: Basic Books; 2017.
2. Perry BD, Pollard R, Blakely T, et al. Childhood trauma, the neurobiology of adaptation and "use-dependent" development of the brain: how "states" become "traits." *Infant Ment Health J* 1995;16(4):271–91.
3. Perry BD, Pollard R. Homeostasis, stress, trauma, and adaptation: a neurodevelopmental view of childhood trauma. *Child Adolesc Psychiatr Clin N Am* 1998; 7(1):33–51.
4. Perry BD. Stress, trauma and post-traumatic stress disorders in children: an introduction. Houston (TX): CTA Press; 2007. Available at: https://www.childtrauma.org/_files/ugd/aa51c7_60c617d2160b417d9ee0f80e5ca8eaac.pdf.
5. Ungar M, Collin-Vezina D, Perry BD. Violence, trauma and resilience. In: Alaggia R, Vine C, editors. *Cruel but not unusual: violence in families in Canada*. 3rd ed. Waterloo (ON): Wilfrid Laurier University Press; 2022. p. 13–41. <https://doi.org/10.51644/9781771125376-003>.
6. Anda RF, Felitti VJ, Walker J, et al. The enduring effects of childhood abuse and related experiences: a convergence of evidence from neurobiology and epidemiology. *Eur Arch Psychiatr Clin Neurosci* 2006;256(3):174–86.
7. Ursano RJ, Fullerton CS, Weisaeth L, et al, editors. *Textbook of disaster psychiatry*. 2nd ed. Cambridge, England: Cambridge University Press; 2017.
8. Flynn BW, Vance MC, Morganstein JC. *Curriculum recommendations for disaster health professionals: disaster behavioral health*. 2nd ed. Center for the Study of Traumatic Stress. 2020. Available at: https://www.cstsonline.org/assets/media/documents/CSTS_Curriculum_Recommendations_2nd_ed.pdf.

9. Rahmani M, Muzwagi A, Pumariaga AJ. Cultural factors in disaster response among diverse children and youth around the world. *Curr Psychiatry Rep* 2022;24(10):481–91.
10. Schauss E, Hawes K, Roberts S, et al, BRAIN Center at the University of Memphis. Examining the incidence of acute stress in pediatric trauma patients. *Trauma Surg Acute Care Open* 2022;7:e000946.
11. Medical traumatic Stress Working Group of National Child Traumatic Stress Network (NCTSN). Pediatric medical traumatic stress: a comprehensive guide. Available at: https://www.nctsn.org/sites/default/files/resources/pediatric_toolkit_for_health_care_providers.pdf.
12. Powell T, Cohen F, Ramchal M. Children's coping in disasters: developments, challenges, and future directions. *Curr Psychiatry Rep* 2026;28(3). <https://doi.org/10.1007/s11920-025-01654-0>.
13. Dixon KE, Layne CM, Ho Misiaszek KS, et al. Interpersonal, not existential, adversities predict postwar deterioration in youth social support. *Academia Medicine* 2024;1. <https://doi.org/10.20935/AcadMed6252>.
14. Powell T, Wegmann KM, Backode E. Coping and post-traumatic stress in children and adolescents after an acute onset disaster: a systematic review. *Int J Environ Res Publ Health* 2021;18:4865.
15. Heanoy EZ, Brown NR. Impact of natural disasters on mental health: evidence and implications. *Healthcare* 2024;12:1812.
16. Wood LCN. Impact of punitive immigration policies, parent-child separation and child detention on the mental health and development of children. *BMJ Paediatrics Open* 2018;2:e000338.
17. Perry BD. Understanding the challenge of catastrophic traumatic events 1: Turkey & Syria. Neurosequential Model YouTube Channel; 2023. Available at: <https://youtu.be/oPmG-tPG4fc?si=xAikOyHcb5Ge9hLu>. Accessed January 16, 2026.