

Chapter 2

Evidence-Based Interventions for Children and Families During Disaster Recovery: Trends, Lessons Learned, and Future Directions



Tara Powell, Jenna M. Muller, and Greta Wetzel

Background

In the past 20 years, climate-induced disasters have significantly increased in severity and frequency, adversely impacting the global population. Children and adolescents represent approximately 175 million of those affected by environmental disasters annually (Dyregrov et al., 2018), and it is estimated that 11% of young people have experienced a disaster before the age of 16 (Cadamuro et al., 2021).

Children and youth are among the most vulnerable during and after a disaster due to dependence on parents and caregivers to meet their physical and emotional needs (Felix et al., 2020). In addition to disruption of everyday life, disasters often result in secondary stressors such as family conflict and/or violence, school closures, illness, injury, or parental divorce (Peek, 2008). Other disaster-related adversities include family separation, displacement from their home and community, disrupted social supports, loss of loved ones, and lack of access to basic needs including food, water, and housing (Becker-Blease et al., 2010; Kousky, 2016; Wang et al., 2013). These extreme events can also have a sustained impact on children and youths' mental health. Psychological symptoms include post-traumatic stress symptoms (PTSS), depression, and anxiety and may persist well into the disaster recovery (Cadamuro et al., 2021). These psychological challenges have also been associated with impaired development, learning, and social-emotional abilities (Arshad et al., 2020).

T. Powell (✉) · J. M. Muller
School of Social Work, University of Illinois at Urbana-Champaign, Urbana, IL, USA
e-mail: tpowell@illinois.edu; jmuller2@illinois.edu

G. Wetzel
Save the Children, Arlington, VA, USA
e-mail: gwetzel@savechildren.org

© The Author(s), under exclusive license to Springer Nature
Switzerland AG 2023

S. E. Ortiz et al. (eds.), *Environmental Impacts on Families*, National
Symposium on Family Issues 12, https://doi.org/10.1007/978-3-031-22649-6_2

Families play an important role in a child's adjustment after a disaster by providing routines, a stable environment, safety, and security. Considering the critical role of the family in children and youths' post-disaster adaptation, we provide an overview of the role of the family system and social-ecological risk and protective factors that contribute to children and youths' recovery. We then review post-disaster evidence-based interventions and provide an overview of the Journey of Hope, a disaster-focused social-emotional program. We conclude this chapter discussing challenges and future directions of intervention delivery and research in post-disaster environments.

Social-Ecological Risk and Protective Factors

Post-disaster psychological adjustment is based on numerous factors that influence children and youths' ability to overcome these extreme events. Resilience, or the ability to successfully adapt to a threatening situation, plays an important role in post-disaster adaptation and is dependent on individual-, relationship-, and community-level social and ecological risk and protective factors (Masten & Barnes, 2018). Individual characteristics that increase risk for post-disaster psychopathology among children include previous trauma exposure, pre-existing mental health difficulties (e.g., depression, anxiety), female gender, younger age, and maladaptive coping strategies (Cadamuro et al., 2021). A systematic review, for example, found that avoidant and ruminative coping styles, negative affect, and pre-disaster psychopathology were all predictors of post-disaster PTSS symptomology (DiGangi et al., 2013). Conversely, individual-level protective factors that increase the likelihood of a child adapting or overcoming disaster-related adversity include positive or active coping strategies, emotional and behavioral regulation, and positive sense of self/self-esteem (DiGangi et al., 2013). One study that was conducted after a flood in Canada, for example, found that children who experienced fewer externalizing and internalizing behavior problems reported significantly higher resilience scores than those with more challenges (Arshad et al., 2020). While some individual-level risk and protective factors are unalterable such as age and gender, others such as coping, self-esteem, and emotion regulation are modifiable and influenced by social and family factors.

Relationship factors such as family characteristics and social connection also play an important role in post-disaster adaptation and influence individual-level modifiable risk and protective factors. Higher levels of PTSS, for example, have been reported among children whose parents are experiencing distress and are unable to provide emotional and instrumental support during and after a disaster (Cadamuro et al., 2016; Felix et al., 2016). A study after hurricane Katrina found children with low perceived family connectedness experienced sustained depression and PTSS symptoms (Kronenberg et al., 2010). Other modifiable

parent/caregiver risk factors include family conflict, low perceived family connectedness or support, and parental psychopathology (Cobham et al., 2016; Zhou, 2018).

Parental/caregiver connectedness, a stable home environment, and social connections are all associated with reduced risk of psychopathology among disaster-affected children and youth (Arshad et al., 2020; Cicchetti, 2010; Masten, 2013). Similarly, a positive relationship between perceived social support and resilience in children who experienced a flood disaster has been shown (Arshad et al., 2020). This social support may come from different sources; peer support, for example, is an important way for children and youth to process shared experiences and re-establish stability and normalcy (McDonald-Harker et al., 2021). Studies have also illustrated that family hardiness, which includes having a sense of control after stressful situations and viewing hardships as opportunities to grow, can protect against short- and long-term post-disaster psychological distress (Hackbarth et al., 2012; Jovanovic et al., 2004). For example, family hardiness and hope have been found to increase coping ability in hurricane-affected individuals (Hackbarth et al., 2012). Other studies have indicated that parent's/caregiver's ability to stay calm, maintain a positive affect, and remain consistent with routines are all associated with better adjustment and fewer psychological symptoms in their children (Chen et al., 2020; Zhou, 2018).

Children and families' post-disaster adaptation is also influenced by the larger community systems in which they live. Lack of community cohesion, socioeconomic status, school closures, and fractured social infrastructure are all factors that increase the risk for sustained psychopathology. Those who live in poverty, for example, are often less equipped for these emergencies, are at higher risk for displacement and family separation, and often require assistance to meet their basic needs (Rufat et al., 2015; Vu & VanLandingham, 2012). During the recovery phase of a disaster, economically vulnerable populations are at a disproportionate risk of mental and physical health pathology such as contracting diseases due to poor living conditions and experience higher rates of depression and PTSS than those with greater socioeconomic means (Amaratunga & O'Sullivan, 2006; Boscarino et al., 2014; Gutman & Yon, 2014; Jia et al., 2010; Kouadio et al., 2012; La Greca et al., 2013; Parkinson & Zara, 2013). Moreover, extended school closures after a disaster can disrupt access to services and impede a young person's ability to learn and gain vital social-emotional skills (Masten, 2021).

Community-level protective factors also play a central role in post-disaster recovery. Community-based organizations, schools, and religious organizations all provide essential resources to help children and families recover from a disaster (Masten, 2021). Schools, for example, provide critical health and psychological supports and a stable environment while re-establishing a sense of safety and security among children and families in post-disaster contexts (Mooney et al., 2020). See Fig. 2.1 for a visualization of social-ecological risk and protective factors.

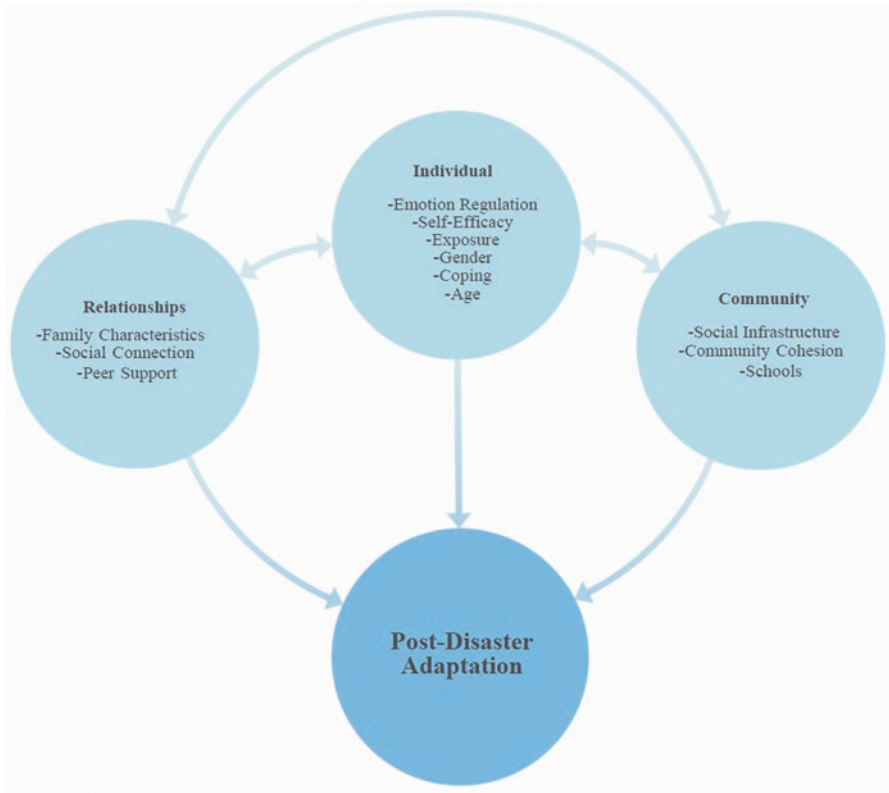


Fig. 2.1 Social-ecological interaction of risk and protective factors

Evidence-Based Interventions in Post-Disaster Contexts

Considering the impact of disasters on children and families and the role of risk and protective factors in post-disaster adaptation, evidence-based interventions have been developed to treat and/or reduce the risk of short- and long-term psychopathology. These interventions are designed to be delivered immediately after a disaster or during the longer-term recovery period.

In the immediate aftermath of a disaster, psychological first aid (PFA) is a commonly used evidence-informed approach to support the psychological needs of children and families. While not a treatment modality, PFA is often employed by first responders to reduce initial psychological distress among survivors. Five components of PFA include (1) ensuring survivors are safe; (2) providing comfort; (3) connecting individuals to essential resources; (4) promoting self-efficacy; and (5) encouraging hope (Shultz & Forbes, 2014). While PFA can be provided to adults and youth, developmental considerations such as language comprehension and reading ability are essential when delivering the intervention to children and adolescents (Gilbert et al., 2021).

Most treatment interventions provided during the recovery period target post-traumatic stress symptoms and include the use of cognitive behavioral approaches (CBT), eye movement desensitization and reprocessing (EMDR), and narrative exposure therapy (Brown et al., 2017). These evidence-based interventions are delivered in individual or group-based settings and generally include multiple sessions to treat symptoms. Trauma-focused cognitive behavioral therapy (TF-CBT), for example, is a treatment modality that incorporates psychological, cognitive, and behavioral techniques to help children regulate emotions. Parental psychoeducation is included in TF-CBT to increase family engagement, communication, and parenting skills (Cohen & Mannarino, 2008). Additionally, TF-CBT incorporates a trauma narrative that can be done through journaling, play, or arts to enable the child to tell the story of their experience (Cohen & Mannarino, 2008).

A second evidence-based treatment modality, EMDR, incorporates both cognitive and exposure components (Lewey et al., 2018). Relaxation and visualization exercises guide individuals through distressing trauma-related thoughts and replace them with positive cognitions. A primary feature of EMDR is having a client identify a “safe place” while encouraging them to continue thinking of a negative feeling or emotion associated with a trauma. The use of EMDR has been found effective in helping children identify and distinguish between positive and negative cognitions related to a potentially distressing event (Ahmad & Sundelin-Wahlsten, 2008). Narrative exposure therapy also has a well-established evidence base for both child and adult disaster survivors who are experiencing PTSS (Robjant & Fazel, 2010). The child version of narrative exposure therapy, KIDNET, incorporates child-appropriate cognitive behavior techniques in addition to writing a chronological narrative of the traumatic event (Brown et al., 2017; Fazel et al., 2020).

Prevention interventions have also been developed to mitigate the risk of disaster-related psychological distress in children and families during the disaster recovery. These interventions, often delivered in classroom-based settings and with groups of children, generally focus on mental health promotion and problem-solving skills and address social and behavioral difficulties (Higgen et al., 2021). Schools are the primary setting for delivery of prevention programs because they provide an accessible and natural way to reach children and youth who would not otherwise receive behavioral health services (Ager et al., 2010; Wolmer et al., 2011). These interventions, which target a variety of mental health challenges, can reduce externalizing, internalizing, peer, and attention difficulties. In addition, preventative interventions may increase protective factors, such as healthy coping, peer prosocial behaviors, and emotion and behavioral regulation, serving as a mechanism through which a child’s likelihood of developing clinical manifestations of anxiety, depression, and post-traumatic stress may be attenuated (Pfefferbaum et al., 2015; Sanchez et al., 2018; Weare & Nind, 2011). Most post-disaster prevention and treatment interventions are beneficial in reducing distress among children and youth. However, few address the larger social ecological context and engage the family in the post-disaster recovery process. One program does address the needs of families during the disaster recovery. Journey of Hope is a prevention intervention designed to support post-disaster psychological adjustment among parents/care providers, children, and adolescent disaster survivors.

Journey of Hope: Post-Disaster Intervention

Journey of Hope (JoH), developed after Hurricane Katrina struck the Gulf Coast of the United States in 2005, was created in response to the need for intervention models to prevent and reduce hurricane-related emotional distress among children and families. The program was conceived after a gang fight in a public school that led to the potential expulsion of 20 middle school students in 2006. To prevent the expulsion of the students, the Recovery School District in New Orleans contacted social workers from the humanitarian response organization, Save the Children (SC), to provide social and behavioral support counseling to the students involved in the altercation. As the social workers provided clinical group work services to the youth, they realized the lack of available disaster-focused social-emotional programming in the school district. Interventions were available to treat disaster-related symptomology such as PTSS, depression, and anxiety. However, there was a lack of generalized prevention interventions to address the social-emotional needs of youth during the hurricane recovery. Many of the children in post-Katrina New Orleans experienced significant emotional and behavioral regulation challenges, not only from the hurricane, but due to secondary traumas such as community violence and separation from, or loss of, family members.

To address these challenges, three SC social workers documented discussions and piloted a series of social-emotional learning activities with the youth. Additionally, they conducted psychoeducational workshops with parents and teachers to identify specific needs of the families in post-Katrina New Orleans. These clinicians worked directly with the youth and their families over the course of a year, documenting relevant and effective activities. However, they did not have expertise in curriculum design. Therefore, Save the Children established a partnership with the International Institute of Child Rights and Development to guide the formal development of the Journey of Hope (JoH) curricula. This collaborative partnership also led to the first evaluation of the JoH program in 2009. Through this research-practice partnership, the researchers and clinicians worked together over the course of a year to design and pilot the JoH curricula. The finalized JoH intervention model yielded five developmentally appropriate child-level curricula and a parent/caregiver workshop.

Journey of Hope: Intervention Description

Grounded in social cognitive and stress and coping theories (Benight & Bandura, 2004; Lazarus & Folkman, 1984), the JoH evidence-based intervention model integrates parent and child sessions using a group-based approach to increase protective factors such as social connectedness, emotional awareness and regulation, problem-solving skills, and adaptive coping (see Fig. 2.2; Bandura, 1998; Lazarus & Folkman, 1984). The child-level JoH consists of eight 1-hour sessions with groups

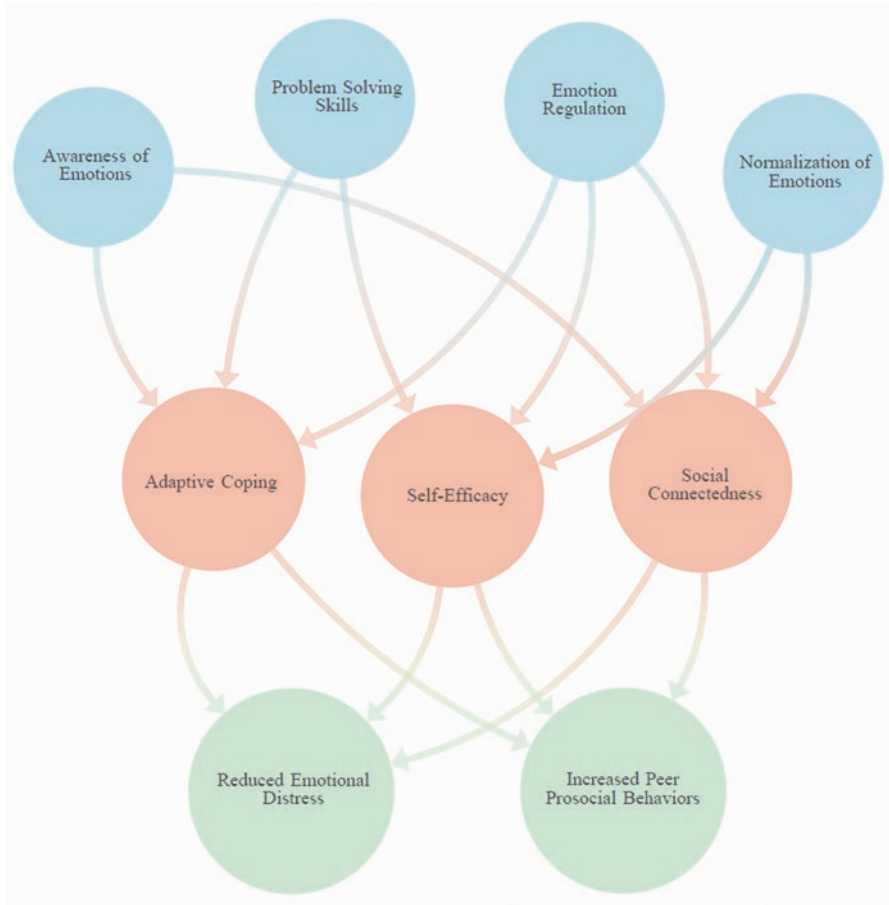


Fig. 2.2 Core principles of Journey of Hope

of 8–10 children/youth and focuses on coping with and regulating challenging emotions (e.g., fear, anger, grief) that are often heightened after a traumatic experience. Intervention delivery mechanisms include discussion, cooperative play, literacy, and mindfulness exercises. Social cognitive techniques are used to facilitate discussion of shared experiences and modeling of positive peer social interaction, thereby increasing self-efficacy, social connectedness, and adaptive coping.

The fourth session, which focuses on identifying and managing anger and aggression, for example, begins with a check-in, overview of the topic of the day, and review of group guidelines. An interactive cooperative game on anger regulation is then facilitated with the group, followed by a discussion on identifying and establishing healthy coping strategies to express anger. During the discussion, the facilitators reinforce healthy strategies to cope with anger such as deep breathing and talking to someone and strategize ways to reduce anger triggers. A second

cooperative game is facilitated to employ healthy strategies that arose during the discussion. The group then participates in a journaling activity in which they write, draw, or compose a poem on an experience that invoked anger and healthy or adaptive coping strategies they could use to express their feelings. The facilitators then conduct a progressive muscle relaxation exercise to close the group.

A caregiver/parent workshop is also provided to amplify healthy parent and family coping and equip them with skills and resources to reinforce material provided during the child-level sessions. The objectives of the caregiver workshop are twofold: (1) increase parents/caregiver post-disaster adaptation and (2) increase capacity to support children's post-disaster adjustment. The workshop includes psychoeducation on children's reactions to trauma and trauma-related stress responses and provides individual- and community-level resources to cope with disaster-related stressors. Mindfulness and breathing exercises, individual reflection, and group activities are applied within each workshop to equip parents and caregivers with tangible skills to increase coping capacity within themselves and their children (Powell & Leytham, 2014). Psychoeducational material on the emotion covered is provided to the parents/caregivers after each child session (e.g., anxiety, anger) as well as strategies to help a child cope with that emotion (see Table 2.1 for detailed intervention description).

Since its development, the JoH has been adopted by Save the Children and delivered in settings around the globe in response to climate-induced disasters such as hurricanes, wildfires, floods, tornadoes, and earthquakes. Efficacy studies have been conducted in tornado-, hurricane-, wildfire-, and earthquake-affected communities in the United States, New Zealand, and Australia. Findings from these studies illustrated significant reductions in distress and improvements in adaptive coping among children and their care providers (Alexander et al., 2021; Blanchet-Cohen & Nelems, 2013; Powell & Bui, 2016; Powell & Leytham, 2014). The widespread dissemination of the intervention has resulted in numerous lessons learned such as appropriate cultural and contextual adaptations and how to maintain fidelity in ever-changing post-disaster contexts.

Scaling Up and Maintaining Fidelity

Evidence-based practice assumes that an intervention is being implemented in accordance with its published details. Therefore, oversight and support for delivery of the JoH are essential to maintain program fidelity (Carroll et al., 2007). To maintain fidelity, individuals who facilitate the intervention complete an assessment form after each session, and staff from Save the Children passively observe two of the eight sessions. The observer appraises components of program delivery including group facilitation techniques, delivery of core elements, and rapport with child participants. After the session the facilitators debrief with the observer to provide feedback on the session and discuss challenges or successes with program delivery. As part of the debriefing, the observers use a fidelity-check-guidance document to

Table 2.1 Journey of Hope description

Children and youth sessions	
Safety	Program overview, check-in, ice-breaker cooperative game, establishing group guidelines, discussion on safety, art activity-safety map, closing activity: visualizing my safe place
Fear	Check-in, introduction of topic, cooperative game, psychoeducation on fear, group discussion, cooperative game: Identifying, understanding, and coping with fear, journaling, closing mindfulness activity
Worry/anxiety	Check-in, introduction of topic, cooperative game, psychoeducation on worry/stress/anxiety, cooperative game: Trust circle, journaling, closing activity: Progressive muscle relaxation
Grief/sadness	Check-in, introduction of topic, cooperative game, psychoeducation on grief/sadness, group discussion, cooperative game: Identifying, understanding, and coping with grief or sadness, journaling, closing visualization activity
Anger	Check-in, introduction of topic, cooperative game, psychoeducation on anger and aggression, group discussion, cooperative game: Feeling and expressing anger, journaling, closing activity: Progressive muscle relaxation
Peer conflict	Check-in, introduction of topic, cooperative game, psychoeducation on peer conflict, discussion, cooperative game: Skit on managing peer conflict, journaling, closing deep breathing activity
Self-esteem	Check-in, introduction of topic, cooperative game, psychoeducation on self-esteem and self-efficacy, group discussion, cooperative game: “What you like about me,” journaling, closing visualization activity
My community	Check-in, introduction of last session, closing the group, cooperative game: “Teach me,” discussion: “Creating my community,” journaling, closing celebration
Caregiver sessions	
Caregiver workshop	Psychoeducation: children’s reactions to stress, types and sources of stress, how stress affects the body, strategies for self-care and coping, mindfulness exercises, group activity on how to collectively support each other during collective trauma recovery
Caregiver engagement	Tip sheets on session topics and 15-min discussions with parent/caregivers after each session on how to help children cope with topic (emotion) of the day

Note: Created from Save the Children (2022)

facilitate the discussion which includes (1) asking open-ended questions and allowing the facilitators to guide the conversation, (2) offering suggestions and feedback on how to address the challenges they are facing in a supportive and collaborative way, and (3) identifying any issues for follow-up.

Cultural and Contextual Adaptations to Intervention

The JoH has been delivered across the globe in New Zealand, Australia, Ukraine, Canada, the United Kingdom, and Spain. Within these countries, the program has been delivered to refugees and indigenous peoples (e.g., Maori in New Zealand;

First Nations in Canada). Thus, adaptation is imperative to ensure the program is culturally and contextually relevant for these individuals and communities.

A standardized cultural adaptation guide (see Table 2.2) was developed through a collaboration between a university researcher who was one of the original developers of the JoH and Save the Children staff in the United States, United Kingdom, New Zealand, Canada, and Australia. The cultural adaptation guide incorporates community-based participatory research principles such as involving community members in the adaptation process, employing a multi-disciplinary team to have a comprehensive set of perspectives, and including local and institutional actors as valuable contributors of knowledge and resources (Collins et al., 2018). Accounting for culture, language, and values is also a critical component of the adaptation process. The guidance document also advises that the process of adaptation must be

Table 2.2 Cultural adaptation guide

Tasks	Key considerations
Complete the community assessment tool	Assess need, language customs, and local capacity
Determine target audience	Who are the beneficiaries of your programming?
Determine available programming	What programs exist for your target audience? Are they culturally appropriate?
Determine language translation	Into what languages should the material be translated? Are there local staff you can hire to complete the translation?
Select a panel of local experts	Select local and country-specific experts. This should include a panel of experts such as: ⇒ Local government officials. ⇒ Teachers or college professors. ⇒ Professional researchers. ⇒ Community service workers. ⇒ Ministers and other religious leaders. ⇒ Parents/guardians/caregivers.
Obtain feedback from local experts	The local expert panel should review the program and associated materials for cultural appropriateness and to identify what modifications should be made to adapt the program while maintaining its fidelity. Provide reviewers with a list of considerations, including: ⇒ Is the material relevant to the needs of the beneficiaries? ⇒ Is the program transferrable—Can local staff deliver the program? ⇒ Can the text be literally translated? ⇒ Does the content specifically address the needs of the community? ⇒ How can the program be culturally modified to fit the needs of the community? ⇒ Can activities be adapted to promote cultural sensitivity? ⇒ Is additional evaluation necessary to assess whether the program maintains effectiveness with the population?.
Identify mode of delivery	What is the most appropriate mode of delivery? (e.g., in schools, community centers, displacement centers)

Note: Created from Save the Children (2014)

collaborative, organized, planned, and iterative, with participation of those from the population for whom the adaptation is targeted.

The Journey of Hope was designed with specific methodology, theory, and practice elements. Therefore, the cultural adaptation process provides guidance on maintaining core elements of the program while also addressing unique cultural and contextual considerations. Three steps are included in the cultural adaptation of the JoH: (1) conduct a situation assessment to determine applicability of the program in context, (2) consult local experts and community stakeholders on applicability of the program in the community, and (3) address language and cultural values of the local context (Save the Children, 2014).

Cultural Adaptation Case Example: New Zealand On February 22, 2011, a 6.3 magnitude earthquake struck Christchurch, New Zealand. The earthquake was declared the deadliest to strike New Zealand in 80 years, triggered widespread damage, displaced thousands, and caused extensive loss of life (Ardagh et al., 2012). As aftershocks continued to strike the city, many children and families experienced difficulties coping with the ongoing disruption and uncertainty. In response to the distress of the community, Save the Children New Zealand partnered with Save the Children US to adapt and deliver the Journey of Hope program to children and families affected by the earthquake.

Using the cultural adaptation guidance document as a resource, the Dynamic Adaptation Process (DAP; Aarons et al., 2012) was employed to fit the culture and context of post-earthquake New Zealand. The DAP is an approach that recognizes the needs for adaptations and a process that enables intervention adaptations while maintaining fidelity of the core elements. The DAP adaptation process included four phases: (1) exploration/assessing stakeholder characteristics and reviewing materials identifying core elements of the program, (2) preparation/adaptation of the curricula, (3) implementation/piloting the adapted program, obtaining feedback on the adapted intervention, and (4) sustainment/conducting ongoing assessments of facilitator feedback and gathering participant satisfaction surveys (Aarons et al., 2012).

The exploration and preparation phases included recruiting a panel of mental health professionals to review the curricula and provide insight on the specific needs of earthquake-affected children and families. This consultation consisted of a committee of key local stakeholders who were all New Zealand nationals, including staff from Save the Children New Zealand, psychologists, and social workers to ensure that the curriculum was adapted to the Christchurch context while maintaining fidelity to the core elements of the curricula.

The panel suggested specific alterations to fit the cultural context of Christchurch including (1) adapting the literacy activities including books that are used in the child-level curricula, (2) changing the language of the curricula from US English to New Zealand English, and (3) changing the titles to appropriately reflect the terminology of the education system (i.e., “Elementary Journey of Hope” to “Primary Journey of Hope”).

The implementation phase included dissemination of the program to children and caregivers in ten earthquake-affected schools and community centers and a pilot study to examine the efficacy and acceptability of the adapted program. The pilot study used a pre- and post-test design and included $N = 106$ parents and $N = 184$ children and youth who took part in the program. Findings illustrated that children and youth who participated in the program experienced significant reductions in emotional distress, and parents and caregivers reported increased knowledge about healthy coping strategies, community support, and stress management (see Powell & Leytham, 2014 for full study details). The sustainment phase included ongoing dissemination, ad hoc adaptations, and assessment. This phase continued until 2018 when Save the Children concluded earthquake recovery efforts in Christchurch.

Challenges to Research and Services in Post-Disaster Contexts

Many obstacles exist for researchers and clinicians in post-disaster contexts that inhibit high-quality research and service provision. Disasters are often unexpected, making data collection prior to the event unfeasible (Gilbert et al., 2021). There are also ethical concerns to conducting research in emergency contexts given the vulnerability of survivors. Quality data collection is often stymied due to recruitment challenges, high participant attrition, and difficulty in obtaining funding rapidly (Grolnick et al., 2018; Powell et al., 2021). Gathering evidence for PFA, for example, has been notoriously challenging due to complexities in the design and dissemination of the intervention approach (Shultz & Forbes, 2014). This is in part due to the chaotic and unstable environments in emergency settings and informal delivery structure of PFA. Intervention research during the disaster recovery period is also met with inherent challenges. Conducting randomized control trials (RCTs) is often unfeasible because all individuals were exposed to the trauma, and withholding an intervention is considered unethical. Additionally, those who are most affected often reside in temporary housing and are highly mobile, which impedes researchers from collecting follow-up data. Service provision in post-disaster contexts carries similar challenges, including lack of immediate or long-term funding and high participant attrition. Funding challenges in particular can serve as a barrier to recovery and may slow or completely immobilize certain aspects of service provision and reconstruction (Safapour et al., 2021). Allocation of financial resources to disaster recovery efforts has always been limited but may become even more so in future; the significant increase in climate-induced disasters, for example, has led to decreased donations and funding for organizations to provide psychological support services. While the importance of mental health support is becoming more mainstreamed, the focus on this service in a post-disaster context continues to be an afterthought. Because of this, there is often limited funding available to provide psychological support services.

Future Directions and Conclusion

Disaster-focused prevention and treatment interventions are critical to maintaining and restoring the well-being of children, youth, and families. Despite challenges of research and service delivery in emergency contexts, significant strides have been made in provision of psychological support to survivors. Intervention modalities, for example, have evolved from focusing primarily on treatment for individuals with clinical manifestations of distress to universal approaches for all survivors. Continued research on the efficacy of interventions, however, is essential to understand the long-term benefits of these services during both the immediate disaster and longer-term recovery. Additionally, as programs scale up and become more accessible in emergency contexts, it is vital to examine how they are being implemented. Many interventions are evidence-based. However, adaptations are often made by service providers based on the needs of their clients. Ongoing assessment of ad hoc adaptations and barriers, as well as facilitators, to program delivery would continue to inform how to provide effective services in post-disaster contexts.

There also is a shortage of interventions that address the psychological needs of families in post-disaster contexts. Many programs are designed to treat the individual child or adult, but do not target family factors that are essential to post-disaster adaptation. Family-focused interventions during and after a disaster may include psychoeducation on risk and protective factors for post-disaster adjustment, activities to increase parent/child connectedness, and tools to reduce physical and emotional stress responses.

As disasters continue to increase, affecting the global population, accessible evidence-based psychological services are essential to support post-disaster recovery. Many lessons have been learned over the past 20 years. However, continued intervention research and development are critical to help individuals and families adapt to and recover from these emergencies.

References

- Aarons, G. A., Green, A. E., Palinkas, L. A., Self-Brown, S., Whitaker, D. J., Lutzker, J. R., Silovsky, J. F., Hecht, D. B., & Chaffin, M. J. (2012). Dynamic adaptation process to implement an evidence-based child maltreatment intervention. *Implementation Science*, *7*(1), 1–9. <https://doi.org/10.1186/1748-5908-7-32>
- Ager, A., Stark, L., Akesson, B., & Boothby, N. (2010). Defining best practice in care and protection of children in crisis-affected settings: A Delphi study. *Child Development*, *81*(4), 1271–1286. <https://doi.org/10.1111/j.1467-8624.2010.01467.x>
- Ahmad, A., & Sundelin-Wahlsten, V. (2008). Applying EMDR on children with PTSD. *European Child & Adolescent Psychiatry*, *17*(3), 127–132. <https://doi.org/10.1007/s00787-007-0646-8>
- Alexander, L., Carpenter, L., Simpson, J., & Gibbs, L. (2021). *Journey of hope evaluation*. Save the Children.
- Amaratunga, C. A., & O’Sullivan, T. L. (2006). In the path of disasters: Psychosocial issues for preparedness, response, and recovery. *Prehospital and Disaster Medicine*, *21*(3), 149–153. <https://doi.org/10.1017/s1049023x00003605>

- Ardagh, M. W., Richardson, S. K., Robinson, V., Than, M., Gee, P., Henderson, S., Khodaverdi, L., McKie, J., Robertson, G., & Schroeder, P. P. (2012). The initial health-system response to the earthquake in Christchurch, New Zealand, in February, 2011. *The Lancet*, 379(9831), 2109–2115. [https://doi.org/10.1016/S0140-6736\(12\)60313-4](https://doi.org/10.1016/S0140-6736(12)60313-4)
- Arshad, M., Mughal, M. K., Giallo, R., & Kingston, D. (2020). Predictors of child resilience in a community-based cohort facing flood as natural disaster. *BMC Psychiatry*, 20(1), 1–10. <https://doi.org/10.1186/s12888-020-02944-y>
- Bandura, A. (1998). Health promotion from the perspective of social cognitive theory. *Psychology and Health*, 13(4), 623–649. <https://doi.org/10.1080/08870449808407422>
- Becker-Blease, K. A., Turner, H. A., & Finkelhor, D. (2010). Disasters, victimization, and children's mental health. *Child Development*, 81(4), 1040–1052. <https://doi.org/10.1111/j.1467-8624.2010.01453.x>
- Benight, C. C., & Bandura, A. (2004). Social cognitive theory of posttraumatic recovery: The role of perceived self-efficacy. *Behaviour Research and Therapy*, 42(10), 1129–1148. <https://doi.org/10.1016/j.brat.2003.08.008>
- Blanchet-Cohen, N., & Nelems, R. (2013). A child-centered evaluation of a psychosocial program: Promoting children's healing, safety and well-being in post-disaster contexts. *Children, Youth and Environments*, 23(1), 23–42. <https://doi.org/10.7721/chilyoutenvi.23.1.0023>
- Boscarino, J. A., Hoffman, S. N., Adams, R. E., Figley, C. R., & Solikhah, R. (2014). Mental health outcomes among vulnerable residents after hurricane Sandy: Implications for disaster research and planning. *American Journal of Disaster Medicine*, 9(2), 107–120. <https://doi.org/10.5055/ajdm.2014.0147>
- Brown, R. C., Witt, A., Fegert, J. M., Keller, F., Rassenhofer, M., & Plener, P. L. (2017). Psychosocial interventions for children and adolescents after man-made and natural disasters: A meta-analysis and systematic review. *Psychological Medicine*, 47(11), 1893–1905. <https://doi.org/10.1017/S0033291717000496>
- Cadamuro, A., Versari, A., Vezzali, L., & Trifiletti, E. (2016). Preventing the detrimental effect of posttraumatic stress in young children: The role of theory of mind in the aftermath of a natural disaster. *European Journal of Developmental Psychology*, 13(1), 52–66. <https://psycnet.apa.org/doi/10.1080/17405629.2015.1055240>
- Cadamuro, A., Birtel, M. D., Di Bernardo, G. A., Crapolicchio, E., Vezzali, L., & Drury, J. (2021). Resilience in children in the aftermath of disasters: A systematic review and a new perspective on individual, interpersonal, group, and intergroup level factors. *Journal of Community & Applied Social Psychology*, 31(3), 259–275. <https://doi.org/10.1002/casp.2500>
- Carroll, C., Patterson, M., Wood, S., Booth, A., Rick, J., & Balain, S. (2007). A conceptual framework for implementation fidelity. *Implementation Science*, 2(1), 1–9. <https://doi.org/10.1186/1748-5908-2-40>
- Chen, S., Bagrodia, R., Pfeffer, C. C., Meli, L., & Bonanno, G. A. (2020). Anxiety and resilience in the face of natural disasters associated with climate change: A review and methodological critique. *Journal of Anxiety Disorders*, 76. <https://doi.org/10.1016/j.janxdis.2020.102297>
- Cicchetti, D. (2010). Resilience under conditions of extreme stress: A multilevel perspective. *World Psychiatry*, 9(3), 145–154. <https://doi.org/10.1002/j.2051-5545.2010.tb00297.x>
- Cobham, V. E., McDermott, B., Haslam, D., & Sanders, M. R. (2016). The role of parents, parenting and the family environment in children's post-disaster mental health. *Current Psychiatry Reports*, 18(6), 53. <https://doi.org/10.1007/s11920-016-0691-4>
- Cohen, J. A., & Mannarino, A. P. (2008). Trauma-focused cognitive behavioural therapy for children and parents. *Child and Adolescent Mental Health*, 13(4), 158–162. <https://doi.org/10.1111/j.1475-3588.2008.00502.x>
- Collins, S. E., Clifasefi, S. L., Stanton, J., The Leap Advisory Board, Straits, K. J., Gil-Kashiwabara, E., Rodriguez Espinosa, P., Nicasio, A. V., Andrasik, M. P., Hawes, S. M., Miller, K. A., Nelson, L. A., Orfaly, V. E., Duran, B. M., & Wallerstein, N. (2018). Community-based participatory research (CBPR): Towards equitable involvement of community in psychology research. *American Psychologist*, 73(7), 884–898. <https://doi.org/10.1037/amp0000167>

- DiGangi, J. A., Gomez, D., Mendoza, L., Jason, L. A., Keys, C. B., & Koenen, K. C. (2013). Pretrauma risk factors for posttraumatic stress disorder: A systematic review of the literature. *Clinical Psychology Review, 33*(6), 728–744. <https://doi.org/10.1016/j.cpr.2013.05.002>
- Dyregrov, A., Yule, W., & Olf, M. (2018). Children and natural disasters. *European Journal of Psychotraumatology, 9*(Suppl 2), 1–3. <https://doi.org/10.1080/20008198.2018.1500823>
- Fazel, M., Stratford, H. J., Rowsell, E., Chan, C., Griffiths, H., & Robjant, K. (2020). Five applications of narrative exposure therapy for children and adolescents presenting with post-traumatic stress disorders. *Frontiers in Psychiatry, 11*, 19. <https://doi.org/10.3389/fpsy.2020.00019>
- Felix, E., Kaniasty, K., You, S., & Canino, G. (2016). Parent–child relationship quality and gender as moderators of the influence of hurricane exposure on physical health among children and youth. *Journal of Pediatric Psychology, 41*(1), 73–85. <https://doi.org/10.1093/jpepsy/jsv038>
- Felix, E., Rubens, S., & Hambrick, E. (2020). The relationship between physical and mental health outcomes in children exposed to disasters. *Current Psychiatry Reports, 22*(7). <https://doi.org/10.1007/s11920-020-01157-0>
- Gilbert, R., Abel, M. R., Vernberg, E. M., & Jacobs, A. K. (2021). The use of psychological first aid in children exposed to mass trauma. *Current Psychiatry Reports, 23*(9), 1–9. <https://doi.org/10.1007/s11920-021-01270-8>
- Grolnick, W. S., Schonfeld, D. J., Schreiber, M., Cohen, J., Cole, V., Jaycox, L., Lochman, J., Pfefferbaum, B., Ruggiero, K., Wells, K., Wong, M., & Zatzick, D. (2018). Improving adjustment and resilience in children following a disaster: Addressing research challenges. *American Psychologist, 73*(3), 215–229. <https://doi.org/10.1037/amp0000181>
- Gutman, G. M., & Yon, Y. (2014). Elder abuse and neglect in disasters: Types, prevalence and research gaps. *International Journal of Disaster Risk Reduction, 10*, 38–47. <https://doi.org/10.1016/j.IJDRR.2014.06.002>
- Hackbarth, M., Pavkov, T. W., Wetchler, J., & Flannery, M. (2012). Natural disasters: An assessment of family resiliency following Hurricane Katrina. *Journal of Marital and Family Therapy, 38*(2), 340–351. <https://doi.org/10.1111/j.1752-0606.2011.00227.x>
- Higgen, S., Mueller, J. T., & Mösko, M. (2021). Universal mental health interventions for young students in adverse environments – A systematic review of evaluated interventions. *Child and Adolescent Mental Health. https://doi.org/10.1111/camh.12493*
- Jia, Z., Tian, W., Liu, W., Cao, Y., Yan, J., & Shun, Z. (2010). Are the elderly more vulnerable to psychological impact of natural disaster? A population-based survey of adult survivors of the 2008 Sichuan earthquake. *BMC Public Health, 10*(1), 172. <https://doi.org/10.1186/1471-2458-10-172>
- Jovanovic, A. A., Aleksandric, B. V., Dunjic, D., & Todorovic, V. S. (2004). Family hardiness and social support as predictors of post-traumatic stress disorder. *Psychiatry, Psychology and Law, 11*(2), 263–268. <https://doi.org/10.1375/pplt.2004.11.2.263>
- Kouadio, I. K., Aljunid, S., Kamigaki, T., Hammad, K., & Oshitani, H. (2012). Infectious diseases following natural disasters: Prevention and control measures. *Expert Review of Anti-Infective Therapy, 10*(1), 95–104. <https://doi.org/10.1586/eri.11.155>
- Kousky, C. (2016). Impacts of natural disasters on children. *The Future of Children, 26*, 73–92. <https://files.eric.ed.gov/fulltext/EJ1101425.pdf>
- Kronenberg, M. E., Hansel, T. C., Brennan, A. M., Osofsky, H. J., Osofsky, J. D., & Lawrason, B. (2010). Children of Katrina: Lessons learned about postdisaster symptoms and recovery patterns. *Child Development, 81*(4), 1241–1259. <https://doi.org/10.1111/j.1467-8624.2010.01465.x>
- La Greca, A. M., Lai, B. S., Joormann, J., Auslander, B. B., & Short, M. A. (2013). Children’s risk and resilience following a natural disaster: Genetic vulnerability, posttraumatic stress, and depression. *Journal of Affective Disorders, 151*(3), 860–867. <https://doi.org/10.1016/j.jad.2013.07.024>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
- Lewey, J. H., Smith, C. L., Burcham, B., Saunders, N. L., Elfallal, D., & O’Toole, S. K. (2018). Comparing the effectiveness of EMDR and TF-CBT for children and adolescents: A meta-

- analysis. *Journal of Child & Adolescent Trauma*, 11(4), 457–472. <https://doi.org/10.1007/s40653-018-0212-1>
- Masten, A. S. (2013). Risk and resilience in development. In P. D. Zelazo (Ed.), *The Oxford handbook of developmental psychology (Self and other)* (Vol. 2, pp. 579–607). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199958474.013.0023>
- Masten, A. S. (2021). Resilience of children in disasters: A multisystem perspective. *International Journal of Psychology*, 56(1), 1–11. <https://doi.org/10.1002/ijop.12737>
- Masten, A. S., & Barnes, A. J. (2018). Resilience in children: Developmental perspectives. *Children*, 5(7), 98. <https://doi.org/10.3390/children5070098>
- McDonald-Harker, C., Drolet, J. L., Sehgal, A., Brown, M. R. G., Silverstone, P. H., Brett-MacLean, P., & Agyapong, V. I. O. (2021). Social-ecological factors associated with higher levels of resilience in children and youth after disaster: The importance of caregiver and peer support. *Frontiers in Public Health*, 9, 682634. <https://doi.org/10.3389/fpubh.2021.682634>
- Mooney, M., Tarrant, R., Paton, D., Johnston, D., & Johal, S. (2020). The school community contributes to how children cope effectively with a disaster. *Pastoral Care in Education*, 39, 24–47. <https://doi.org/10.1080/02643944.2020.1774632>
- Parkinson, D., & Zara, C. (2013). The hidden disaster: Domestic violence in the aftermath of natural disaster. *Australian Journal of Emergency Management*, 28(2), 28–35.
- Peek, L. (2008). Children and disasters: Understanding vulnerability, developing capacities, and promoting resilience—An introduction. *Children, Youth and Environments*, 18(1), 1–29.
- Pfefferbaum, B., Jacobs, A. K., Griffin, N., & Houston, J. B. (2015). Children's disaster reactions: The influence of exposure and personal characteristics. *Current Psychiatry Reports*, 17(7), 56. <https://doi.org/10.1007/s11920-015-0598-5>
- Powell, T., & Bui, T. (2016). Supporting social and emotional skills after a disaster: Findings from a mixed methods study. *School Mental Health*, 8(1), 106–119. <https://psycnet.apa.org/doi/10.1007/s12310-016-9180-5>
- Powell, T., & Leytham, S. (2014). Building resilience after a natural disaster: An evaluation of a parental psycho-educational curriculum. *Australian Social Work*, 67(2), 285–296. <https://doi.org/10.1080/0312407X.2014.902981>
- Powell, T., Wegmann, K. M., & Backode, E. (2021). Coping and post-traumatic stress in children and adolescents after an acute onset disaster: A systematic review. *International Journal of Environmental Research and Public Health*, 18(9), 4865. <https://doi.org/10.3390/ijerph18094865>
- Robjant, K., & Fazel, M. (2010). The emerging evidence for narrative exposure therapy: A review. *Clinical Psychology Review*, 30(8), 1030–1039. <https://doi.org/10.1016/j.cpr.2010.07.004>
- Rufat, S., Tate, E., Burton, C. G., & Maroof, A. S. (2015). Social vulnerability to floods: Review of case studies and implications for measurement. *International Journal of Disaster Risk Reduction*, 14, 470–486. <https://doi.org/10.1016/j.ijdrr.2015.09.013>
- Safapour, E., Kermanshachi, S., & Pamidimukkala, A. (2021). Post-disaster recovery in urban and rural communities: Challenges and strategies. *International Journal of Disaster Risk Reduction*, 64. <https://doi.org/10.1016/j.ijdrr.2021.102535>
- Sanchez, A. L., Cornacchio, D., Poznanski, B., Golik, A. M., Chou, T., & Comer, J. S. (2018). The effectiveness of school-based mental health services for elementary-aged children: A meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry*, 57(3), 153–165. <https://doi.org/10.1016/j.jaac.2017.11.022>
- Save the Children. (2014). *Journey of hope: Cultural adaptation guidance* [Unpublished manuscript].
- Save the Children. (2022, January). *Protecting America's kids: Social and emotional learning programs*. <https://www.savethechildren.org/us/what-we-do/protection/child-protection>
- Shultz, J. M., & Forbes, D. (2014). Psychological first aid: Rapid proliferation and the search for evidence. *Disaster Health*, 2(1), 3–12. <https://doi.org/10.4161/dish.26006>

- Vu, L., & VanLandingham, M. J. (2012). Physical and mental health consequences of Katrina on Vietnamese immigrants in New Orleans: A pre-and post-disaster assessment. *Journal of Immigrant and Minority Health, 14*(3), 386–394. <https://doi.org/10.1007/s10903-011-9504-3>
- Wang, C.-W., Chan, C. L., & Ho, R. T. H. (2013). Prevalence and trajectory of psychopathology among child and adolescent survivors of disasters: A systematic review of epidemiological studies across 1987–2011. *Social Psychiatry and Psychiatric Epidemiology, 48*(11), 1697–1720. <https://doi.org/10.1007/s00127-013-0731-x>
- Weare, K., & Nind, M. (2011). Mental health promotion and problem prevention in schools: What does the evidence say? *Health Promotion International, 26*(Suppl 1), i29–i69. <https://doi.org/10.1093/heapro/dar075>
- Wolmer, L., Hamiel, D., & Laor, N. (2011). Preventing children’s posttraumatic stress after disaster with teacher-based intervention: A controlled study. *Journal of the American Academy of Child & Adolescent Psychiatry, 50*(4), 340–348. <https://doi.org/10.1016/j.jaac.2011.01.002>
- Zhou, D. (2018). The role of family in children with PTSD after natural disasters. *Journal of Biosciences and Medicines, 6*(12), 111–127. <https://doi.org/10.4236/jbm.2018.612011>