SETTING THE CHILD IN THE MIDST: A HOLISTIC APPROACH TO SCREENING POST-TRAUMATIC STRESS SYMPTOMS IN CHILDREN AFTER DISASTERS IN THE PHILIPPINES

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ABSTRACT

The identification of children at risk of developing psychopathology following mass crisis events remains a significant challenge in trauma research and intervention. This dissertation addresses the critical gap between current "stepped care" models, which recommend triaging children based on mental health risk, and the lack of clear methods for such stratification. The research challenges the prevalent practice of treating children as "little adults" in trauma assessment and intervention, arguing instead for a developmentally sensitive, community-embedded approach.

Drawing on three theoretical foundations—disaster response history, Child Theology, and resilience studies—this research presents a novel framework for understanding children's trauma responses. The study employs Child Theology's concept of "setting the child in the midst" and views children as the *imago Dei* in purest form, reflecting the relational nature of the Godhead. This theological framework, combined with Ann Masten's definition of resilience as "the capacity of a dynamic system to adapt successfully to disturbances,"[1] provides a theoretical basis for examining children's trauma responses within their complete ecological system.

The study analyzes data collected by OpSAFE International across 51 child mental health psychosocial interventions in the Philippines, encompassing 7,015 children aged 6-12 years, the age range of the OperationSAFE CHMHPSS.

[1] Ann S. Masten, *Ordinary Magic: Resilience in Development* (New York: Guilford Press, 2015), 4609.

Using the Rapid Trauma Assessment Scale for Children (R-TAC), the research measures seven aspects of children's well-being—somatoform issues, depression, PTSD, coping skills, shock, and stress—as assessed by trained local volunteers. This methodology intentionally embeds assessment within the community context, recognizing that children are both dependent upon their surrounding community for resilience and are themselves part of that community's resilience.

Statistical analysis revealed significant age-related differences in trauma response ($Chi2=163.5$, $df=6$, $p<0.001$), with younger children showing greater vulnerability. The study identified three distinct developmental peer groups: Group A (6-7 year-olds plus 8-year-old males) showing the most severe PTSS, Group B (9-10 year-olds plus 8-year-old females) showing moderate PTSS, and Group C (11-12 year-olds) showing the least severe PTSS. Each of the 51 interventions represented a unique ecological system of resilience, with first-quartile PTSS scores ranging from 10 to 32 across different locales in different regions of the Philippines after various disasters.

This research makes significant contributions by demonstrating that effective trauma screening must consider both developmental timing and community context. The findings support a model of early intervention that incorporates Psychological First Aid principles while maintaining developmental sensitivity and community engagement. The study's success in identifying at-risk children through community-based assessment suggests a scalable approach to meeting the needs of entire communities after mass trauma, while ensuring children receive appropriate developmental and social support.

The results provide a practical framework for improving early intervention strategies and resource allocation in post-disaster mental health services for children. By embedding assessment within community-based interventions and comparing children within appropriate developmental peer groups, this methodology enables more precise risk assessment while supporting community resilience. This approach not only aids in identifying children at risk but also contributes to community restoration—a critical factor in children's long-term recovery from trauma.

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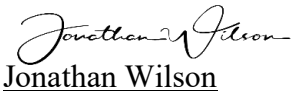

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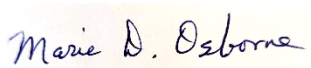

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This journey started when God placed a burden on my heart to prepare the church for disaster. As I started moving in that direction, God opened my eyes to the specific needs of children. In a four-week span God spoke the story of Pet's Adventure through me and the first OperationSAFE intervention was birthed, leading to God bringing me to the Philippines to train trainers only days before Typhoon Yolanda struck in 2013. Since then God has continued to lead the way for more children to be helped.

This dissertation represents not only years of academic research but also the culmination of collaborative efforts in serving children affected by disasters in the Philippines. First and foremost, I want to express my profound gratitude to the thousands of children who participated in the OperationSAFE interventions, and to the dedicated local volunteers who worked directly with them. Their resilience and courage in the face of adversity have been both inspiring and instructive.

I am deeply indebted to Dr. Alan Oda and Dr. Emi Koyama, whose development of the R-TAC assessment tool made this research possible. Their pioneering work following the 2011 Great East Japan earthquake and tsunami laid the foundation for more effective ways to help children after disasters. Special thanks go to Fe Foronda, director of the Philippine Children's Ministry Network, whose leadership and vision have been instrumental in implementing these interventions across the Philippines. The support of OM Philippines and the local children's ministry networks has been crucial in facilitating these interventions and reaching children in crisis.

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This work is dedicated to all children affected by disasters, in hope that it will contribute to better ways of supporting them in their time of greatest need.

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ACRONYMS

CH-MHPSS- OperationSAFE is a Child Mental Health Psycho-Social Support targeted at children ages 6-12 after a mass traumatic event. We also use "Pediatric Mental Health Intervention" to distinguish it from the more general Psychological First Aid which is designed for use with all ages.

CISM- Critical Incident Stress Management was the model of crisis intervention widely used in disaster response during the 1980s and 90s, but which has since been replaced with the less intrusive Psychological First Aid.

CISD- Critical Incident Stress Debriefing was the part of CISM that came under criticism as studies showed increased psychopathology after debriefing amplified emotional stress.

CT- Child Theology, a theological movement that seeks to place the child in the midst of theology that has long ignored them.

DSM - Diagnostic and Statistical Manual of Mental Disorders- The American Psychiatric Association's professional reference book on mental health and brain-related conditions.

HCD- Holistic Child Development is a theological discipline that seeks to minister to children holistically, treating the physical, emotional, and social needs as well as the spiritual.

PFA- Psychological First Aid is an evidenced-informed approach to mental health psychosocial support that seeks to reduce stress symptoms and strengthen support after exposure to a traumatic event.

PTSD- Post Traumatic Stress Disorder is a mental health condition that develops in some people after being exposed to a traumatic event.

PTSS- Post Traumatic Stress Symptoms are normal reactions to exposure to a traumatic event that usually subside over time in most cases.

WHO- the World Health Organization.

CHAPTER I

THE PROBLEM AND ITS BACKGROUND

Introduction

This study seeks to examine how a holistic approach to screening children's post-trauma symptoms can help identify those children at greater risk of psychopathology. The difference in how a child responds to mass trauma is dependent on a wide range of variables, including the exposure "dose," susceptibilities such as genetics or environment, past or ongoing complex trauma, the robustness of the child's own coping system, and the support received from family and community. However, many of these factors are either hidden or lack a way of being effectively measured and there is yet insufficient research to know which factors are most important to a child's risk or resilience. With hundreds or thousands of children affected by a mass trauma event in a community and limited mental health resources available, it becomes necessary to find a way to quickly and effectively assess which children are likely to recover well with adequate support, which children are less resilient and would benefit from further intervention, and which children are in need of more specific professional care. This study seeks to examine how a holistic approach to screening children's post-trauma symptoms can help identify those children at greater risk of psychopathology.

In the aftermath of the 2008 Sichuan earthquake known in China as the Great Wenchuan Earthquake, I visited tent cities thrown up hastily to house millions of those displaced by the 8.0 tremor and multiple aftershocks. Wandering around a vast plain of tents were children, many with no adults in sight, whose homes, schools, and

communities had been destroyed. A few weeks later we launched our first pediatric mental health trauma intervention, called "OperationSAFE," to give the children supervision, reduce their trauma symptoms, and connect them to ongoing support. After the first camp with a few hundred children, I inquired of the school principal about the effectiveness of the camp. He pulled a shy little girl out from behind him and told me, "After the quake, my daughter no longer smiled, laughed, or played. After your camp, I have my daughter back."[2] What we discovered was that for many children who have gone through a mass trauma event, it is as if someone has pushed "pause" on their life. They often revert to acting like a younger child, staying close to caretakers, and are reluctant to go to school or out on their own. Through the camp, they were reassured, regained confidence and hope, and started venturing out again. The OperationSAFE intervention pushed "play" so that they could restart their childhood.

For a smaller percentage of children, the traumatic experience is something that they will have a much more difficult time overcoming. In one of the camps that summer, the team struggled with a young boy who would come each day and yet never participated in the activities. He would stay on the sidelines and remark that the games, stories, or crafts were "boring" or "stupid." On the last day of the camp, one of the volunteers was walking with him when he pointed up to the mountainside and started talking about the day of the earthquake. He confessed to her that a large boulder had rolled down the hillside killing the 'uncle 'in front of him. To escape he had been forced to step on the body of the dead man. It was the first time that he had shared this with anyone, thinking that he was a bad boy. The volunteer was able to help him understand

[2] School principal, personal communication with the author, Wenchuan, China ca. 2008.

that he was not "bad" but "brave" and had done nothing wrong. After this, he was able to stop acting the way that he thought a "bad" boy behaved and resumed doing normal activities for his age.[3]

For a very small but significant group of children, a mass trauma event such as a disaster can be devastating. Often this is because there is something hidden that compounds or complicates the experience. During the response to Typhoon Haiyan (locally known in the Philippines as Yolanda) in 2014, a young teen in Eastern Samar gained enough support and confidence through the camp to self-divulge to her counselor that even before the storm, her father had been sexually abusing her while her mother was away working in the capital city of Manila. The local church network was able to bring in law enforcement and social workers, and to help with foster families for the girl and her siblings until their mother could return.[4]

The goal of the present study is to develop a way to rapidly triage children who have been through a mass trauma experience, allowing those with greater risk of psychopathology to receive greater levels of care.

Background of the Problem

Research on empirically identifying individual children at risk has been hindered by several factors, including the chaotic and unpredictable nature of disaster itself, a focus on risk or resilience traits of the individual rather than the community as a whole,

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[3] Jonathan Edward Wilson, *How Christian Volunteers Can Respond to Disasters: Lessons from the 2011 Japan Tsunami* (Tokyo, Japan: CRASHJapan, 2014), 124.

[4] Kezia M'Clelland, "A Different Kind of Child Friendly Space? Learning from Partnership in the Response to Typhoon Haiyan," Viva, February 2015, https://www.glints.org/wp-content/uploads/2016/04/a-different-kind-of-child-friendly-space.pdf.

the neglect of symptoms other than those of post traumatic stress syndrome (PTSD), and a lack of consideration of developmental timing.

Each year millions of children are exposed to some level of trauma from disasters. While mental health interventions have been widely recommended and adopted,[5] the severity and frequency of disasters has led to a consensus that these interventions must be scaled to meet the needs of whole communities "at levels that quickly outstrip the available individual-level therapists who are local or may be dispatched to a region."[6] There has been extensive research suggesting that while most children do not develop psychological disorders, severe exposure puts children at greater risk of psychopathology.[7] Exposure to trauma in childhood has been linked to PTSD, anxiety, depression, disruptive behaviors, and substance abuse.[8] What is lacking is a way to identify which children are at greater risk within a population. While there is some understanding of group differences between children who develop psychopathologies and those who do not after exposure to trauma, Andrea Danese et al. acknowledge, "We know little about how to build accurate individualized risk prediction."[9] Identification would allow a "stepped care approach," with public health interventions reaching all of

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[5] World Health Organization, "Ensuring a Coordinated and Effective Mental Health Response in Emergencies," accessed November 1, 2021.

[6] Stevan E. Hobfoll et al., "Five Essential Elements of Immediate and Mid-Term Mass Trauma Intervention: Empirical Evidence," *Psychiatry* 70, no. 4 (2007): 301.

[7] Fran H. Norris, Matthew J. Friedman, and Patricia J. Watson," 60,000 Disaster Victims Speak: Part II Summary and Implications of the Disaster Mental Health Research," *Psychiatry: Interpersonal and Biological Processes* 65, no. 3 (2002): 240–60.

[8] Katie A. McLaughlin and Hilary K. Lambert, "Child Trauma Exposure and Psychopathology: Mechanisms of Risk and Resilience," *Current Opinion in Psychology* 14, no. 14 (April 2017): 29–34, https://doi.org/10.1016/j.copsyc.2016.10.004.

[9] Andrea Danese et al.," Child and Adolescent Mental Health amidst Emergencies and Disasters," *The British Journal of Psychiatry* 216, no. 3 (2019): 161.

the children in the community while more specific interventions could be targeted to those with greater risk.[10]

There are significant challenges in conducting research in a post-disaster setting. Because of the unpredictability of disasters, there is typically little data available pre-disaster on a child's functioning. As one article states, because of this, "It was not possible to determine whether preexisting difficulties contributed to symptom presentation post-disaster." [11] Steven Hobfoll's highly regarded consensus approach which surveyed experts on directing post-disaster mental health interventions puts it bluntly:

> Currently, governments, public health agencies, and aid organizations are without any roadmap for intervention. It is our combined judgment that there will not be a blueprint that will be based on direct evidence (i.e. randomized, controlled trials) in this field in the reasonable future. Indeed, many of us feel that the chaotic and varied nature of disasters and mass casualty situations will prevent our ever having a clear, articulated blueprint based on strong, direct, empirical evidence.[12]

There has been a recent shift in the literature away from trying to find the risk or resilience factors in the individual child towards a greater awareness of systems. "Individual children and youth depend on many systems for their healthy development, and the capacity for adapting to hazards along the way is distributed across multiple systems, including the individual child." [13] Many researchers are calling for more research into interventions that address family and community support and produce

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[10] Betty Pfefferbaum et al., "Child Disaster Mental Health Interventions, Part I," *Disaster Health* 2, no. 1 (2014): 55, https://doi.org/10.4161/dish.27534.

[11] Betty S. Lai et al., "Children's Symptoms of Posttraumatic Stress and Depression after a Natural Disaster: Comorbidity and Risk Factors," *Journal of Affective Disorders* 146, no. 1 (2013): 75.

[12] Hobfoll et al., "Five Essential Elements of Immediate and Mid-Term Mass Trauma Intervention," 305.

[13] Ann S. Masten et al., "Resilience in Development and Psychopathology: Multisystem Perspectives," *Annual Review of Clinical Psychology* 17, no. 1 (July 2021): 539, https://doi.org/10.1146/annurev-clinpsy-081219-120307.

collective results.[14] A further shift has been the recognition that there are other risks besides Post-Traumatic Stress Disorder (PTSD) in situations of mass trauma exposure. "Most investigations examined posttraumatic stress reactions, depression, and anxiety, with fewer studying behavior problems, somatic complaints, anger, traumatic grief, fear, and functional impairment."[15] This overemphasis on PTSD fails to account for the complexity of responses to trauma, especially in the developing child.

A final gap in the literature has to do with the understanding of the developmental timing of exposure to mass trauma. "More research is needed on the developmental timing of adversity and interventions in relation to protective processes and how best to time interventions for greatest positive impact."[16] The cognitive development of the child's brain,[17] their psychosocial development in relation to their peers,[18] and the manner in which the child makes meaning are all seen to be significant.[19] Periods of transition such as entering and changing schools and adolescence carry "normative developmental challenges even for 'low-risk 'groups."[20]

Children exposed to mass trauma are at risk of developing psychological pathologies, but some children are more at risk than others. The gap in the research is how to rapidly identify those children who are at greater risk so that scarce resources can

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[14] Hobfoll et al., "Five Essential Elements of Immediate and Mid-Term Mass Trauma Intervention."

[15] Pfefferbaum et al., "Child Disaster Mental Health Interventions, Part I," 54.

[16] Masten, *Resilience in Development*, 541.

[17] Jean Piaget, *Construction of Reality in the Child* (New York: Routledge, 1954).

[18] Erik H. Erikson, *Childhood and Society* (London: Vintage Digital, 1950).

[19] James W. Fowler, "Stages of Faith from Infancy through Adolescence: Reflections on Three Decades of Faith Development Theory," in *The Handbook of Spiritual Development in Children and Adolescence*, ed. Eugene C. Roehlkepartain, James W. Fowler, and Mary Lynn Dell (Thousand Oaks, CA: SAGE Publications, 2006), 38.

[20] Suniya S. Luthar and Dante Cicchetti, "The Construct of Resilience: Implications for Interventions and Social Policies," *Development and Psychopathology* 12, no. 4 (2000): 872, https://doi.org/10.1017/s0954579400004156.

be allotted more effectively. As mentioned above, the difficulties of empirically identifying individual children at risk have included the chaotic and unpredictable nature of disaster itself, a focus on risk or resilience traits of the individual rather than the community as a whole, the neglect of symptoms other than those of PTSD, and lack of consideration of developmental timing. While randomized, controlled studies might not be physically possible or ethically permissible in disaster settings, a holistic approach to screening the children of a community after mass trauma could effectively identify children with more severe post-trauma symptoms compared to their peers, as well as their responsiveness to early intervention.

Statement of Purpose

In order to effectively screen children for trauma risk in mass crisis situations, the purpose of this quantitative descriptive study is to develop a more holistic approach to screening through analysis of secondary data collected in the OperationSAFE mental health interventions for school aged children in Visayas and Mindanao during disaster responses between 2015 and 2020.

Statement of the Problem

The problem to be addressed through this project is the lack of an effective way to screen children for trauma risk in mass crisis situations. “We need better ways to identify trauma-exposed children at greater risk of psychopathology.”[21] Researchers have suggested the need for ongoing monitoring of those who exhibit initially elevated post-

[21] Danese et al., “Child and Adolescent Mental Health amidst Emergencies and Disasters,” 161.

traumatic stress symptoms (PTSS).[22] However, some children with elevated initial PTSS show a trajectory of recovery in which these symptoms revert to normal levels over time. Identifying children at greater risk of psychopathology requires more than just understanding initial symptoms.

Since almost all children will show some initial post-traumatic symptoms following a mass trauma event,[23] the consequences of ineffective screening are that some children with greater risk of developing psychological pathologies are left undetected and therefore do not receive further help. In studies of post-traumatic trajectories, "a small proportion of youths (10%) … reported a high number of chronic symptoms initially and that increased over time."[24] Considering that as many as 175 million children are affected by disasters each year,[25] this 10% at highest risk is annually numbering in the millions.

While research has broadened past the level of exposure to explore varying trajectories, more research still needs to be done on developmental timing to better understand how the impact of adversity affects the developing child and which interventions would be most appropriate.[26] Out of the millions of children most at risk of long-term mental health consequences of disasters, many are at stages of development that make them more vulnerable or the impact more severe. What needs to be determined is not just which groups typically respond with more severe symptoms to mass-trauma,

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[22] Betty S. Lai, et al., "Trajectories of Posttraumatic Stress in Youths after Natural Disasters." *JAMA Network Open* 4, no. 2 (2021): 10, https://doi.org/10.1001/jamanetworkopen.2020.36682.

[23] George A. Bonanno, et al., "Weighing the Costs of Disaster: Consequences, Risks, and Resilience in Individuals, Families, and Communities," *Psychological Science in the Public Interest* 11, no. 1 (January 2010): 1-49, https://doi.org/https://www.jstor.org/stable/41038732.

[24] Lai, *Trajectories*, 10.

[25] Betty S. Lai and Annette La Greca, "Understanding the Impacts of Natural Disasters on Children," *Society for Research in Child Development Child Evidence Brief*, (August 2020): 1.

[26] Masten, *Resilience in Development*, 541.

but also which individuals' responses are more severe than those of their peers at a similar developmental stage.

Research Questions

How can children most at risk of psychopathology after exposure to disaster-related trauma be effectively identified for further treatment?

The thesis of this dissertation is that, up until the last decade, trauma in children has been treated and assessed in ways that were not developmentally sensitive.[27] In order to gain an accurate assessment of which children are most at risk of psychopathology, a more holistic manner of assessing trauma symptoms and analyzing scores is needed. Three sets of sub-questions address this holistic assessment.

1. Establishing a Peer Group - If age and gender affect the severity of initial PTSS, then a more holistic assessment would compare them with children within the same developmental group?

   Q1. How does age affect the severity of initial post-traumatic stress symptoms (PTSS)?

   Q2. How does gender affect the severity of initial PTSS?

2. Establishing a Locale - If location, region, or type of disaster affect the severity of PTSS, then a more holistic assessment would compare them with children within the same community.

   Q3. How does camp region affect the severity of initial PTSS?

[27] The Alliance for Child Protection in Humanitarian Action, *Minimum Standards for Child Protection in Humanitarian Action*, 2019.

Q4. How does type of disaster (typhoon, earthquake, flood) affect the severity of initial PTSS?

3. Describing Trajectories - compared with children in the same developmental group and locale, resilient, recovery, or chronic trajectories can be described.

   Q5. What is the statistically normal range of severity of initial PTSS (PTSSpre), final PTSS (PTSSpost), and change in PTSS(PTSSchange) for a peer group in a locale?

   Q6. Which children score in the first quartile or below in all three assessments (PTSSpre, PTSSpost, PTSSchange)?

   Q7. Does this method consistently identify across multiple locales and disasters the prevalence of resilient, recovery, and chronic trajectories seen in the literature?

The children who have initial PTSS scores in the first quartile of their peers in a locale can be considered as being in the dysfunctional group as compared to the functional group. Those children in the dysfunctional group who have final PTSS scores in the first quartile of their peers in a locale can be seen to have continued on a chronic trajectory. Those children with a chronic trajectory that also have PTSS Change PTSS scores in the first quartile of their peers in a locale can be seen not to have experienced significant change and would therefore be the most likely children to be more at risk of psychopathology.

Statement of the Null Hypotheses

A holistic assessment comparing children exposed to mass trauma of similar age and gender within the same locale does not accurately describe the prevalence of resilience, recovery, and chronic PTSS trajectories as seen in the literature.

Alternative hypothesis: A holistic assessment of children exposed to mass trauma, i.e., of similar age and gender within the same locale, accurately describes the prevalence of resilience, recovery, and chronic PTSS trajectories as seen in the literature.
Q1: Age of child has no effect on the initial PTSS scores of children in this study. Q2: Gender has no effect on the intitial PTSS scores of children in this study. Q3: Geographical region of the camp has no effect on the initial PTSS scores of children in this study. Q4: Type of disaster has no effect on the initial PTSS scores of children in this study. Q5: There is no statistically normal range of severity for initial PTSSpre, PTSSpost, PTSSchange scores for a peer group in a locale. Q6: There are no children who score in the first quartile of scores for all three assessments (PTSSpre, PTSSpost, PTSSchange). Q7: This study does not consistently identify across multiple locales and disasters the prevalence of resilient, recovery, and chronic trajectories seen in the literature.

Theoretical Framework

To view a child's risk or resilience as a fixed trait within the child or stemming from a single factor in their environment is misleading, as it assumes that the child's development is primarily individual rather than also relational.

Psychology long considered the working of the brain to be somewhat like a computer. During the "cognitive revolution" in the late 1950s, the working of the mind was thought of in this way. "Not only did this metatheory strictly follow the dictates of the Cartesian worldview by splitting mind from body, it also explicitly framed itself

within the worldview's basic category system, the machine."[28] In this machine-like framework, researchers looked for resiliency traits within children themselves, or risk factors such as levels and types of exposure or predisposed genetics. More recently, resilience theory has been coming to the conclusion that no one factor is appropriate for coping well, with some pointing to the involvement of various resources and systems, and others seeing the need for flexibility in coping repertoires.[29]" There is no right stuff for every situation and no single trait for coping well with adversity."[30]

Ann Masten defines resiliency as "the capacity of a dynamic system to adapt successfully to disturbances that threaten system function, viability, or development."[31] The key concept is that resiliency is a "dynamic system," which draws on the Relational-Developmental Systems meta-theory. This theory rejects Cartesian dualism and the simplification of likening the mind to a machine, but rather places the child in an "inherently active, self-creating (autopoetic, enactive), self-organizing, and self-regulating, relatively plastic, nonlinear complex adaptive system."[32] Contrary to popular belief, children are not innately resilient.[33] They adapt in response to their environment and relationships.

> To consider genes, neurons, cultural objects, parents, peers, or neighborhoods to be sets of additive mechanical causes that drive development is to miss the point that these are all resources and conditions that the relational developmental

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[28] Richard M. Lerner and Willis F. Overton, "Processes, Relations and Relational-Developmenal Systems," in *Handbook of Child Psychology and Developmental Science*, ed. Richard M. Lerner (Hoboken, NJ: John Wiley and Sons, 2015), 23.

[29] George A. Bonanno, *The End of Trauma: How the New Science of Resilience is Changing How We Think about PTSD* (New York: Basic Books, 2021).

[30] Ann S. Masten, *Ordinary Magic: Resilience in Development* (New York: Guilford Press, 2015), 4609.

[31] Masten, *Ordinary Magic*, 277.

[32] Lerner and Overton, 12.

[33] Bruce Perry and Maia Szalavitz, *The Boy Who Was Raised as a Dog: And Other Stories from a Child Psychiatrist's Notebook -- What Traumatized Children Can Teach Us about Loss, Love, and Healing* (2006; repr., New York: Basic Books, 2017), 11.

> system itself uses to develop. It is the relational developmental system itself that is the cause of development—if we must use the word cause—and this system enacts development by engaging in a multitude of complex relational actions with these resources and conditions.[34]

It is these "resources and conditions" --or the lack thereof--that best predict if a child is at risk or will be resilient. But it is insufficient to point to the existence or absence of any one factor, as an engineer might analyze weakness in a structure, or a physician might write a prescription to correct a chemical imbalance. The dynamic system as a whole functions to cope with the disruption.

To fully mend the Cartesian rift that separates mind and body, it is necessary to adopt Bronfenbrenner's ecological systems theory where he suggests multiple layers of a child's ecological system, starting with the child's inner biology, but extending also to their interactions with close family in the micro-system, with school, friends, and community religious organizations in the meso-system, and the impacts on them from society and culture in the exo-system.[35] With this kind of ecological systems approach, the risk or resilience of the child is not a trait in the brain, a gene to be discovered, or even a few protective or moderating factors, but a complex dynamic system that uses the resources and conditions available to it to adapt.

Conceptual Framework

To gain an accurate understanding of a child's risk or resilience, it is necessary to start with symptoms rather than presumed causes and to measure that child's response to mass trauma in relation to their context, i.e., the resources and conditions that are

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[34] Lerner and Overton, "Processes, Relations and Relational-Developmenal Systems," 52.

[35] Urie Bronfenbrenner, *The Ecology of Human Development: Experiments by Nature and Design* (London: Harvard University Press, 1979).

available to the child in their present ecological position in the process of development. "Resilience is a capability that can wax and wane, not a permanent, innate trait."[36] The trait that might help one child in one situation to be resilient might not be sufficient for another. Yet still other traits might help a different child to adapt successfully. "The concept of equifinality (i.e., that there are multiple means to the same end) is a core concept of the relational developmental systems."[37]

The first key consideration is the development of the child. The age of the child is most indicative of their stage of development, and so it is necessary to consider age as the most important variable in this study. All of the children considered in this study are between the ages of six and twelve years old and can be categorized as being in middle childhood. Cognitively, this puts them in a range of transition from Piaget's Pre-operational stage to Concrete Operational stage at the younger end and another transition into the Formal Operational stage at the older end.[38] Likewise, similar transitions are taking place in their psychosocial development, with younger children transitioning from the home to the broader context of school and older children becoming more concerned with a sense of self and personal identity.[39] Finally, and crucially for coping with post-traumatic stress, the way that children construct meaning is also seen as age dependent, with the younger children moving from Fowler's Intuitive-Projective faith, which imitates visible cues from parents, to the broader Mythic-Literal faith, which includes beliefs from others outside the family. Once again, older children are often then making

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[36] Bruce Duncan Perry and Oprah Winfrey, *What Happened to You?: Conversations on Trauma, Resilience and Healing* (London: Bluebird, 2021), 201.

[37] Lerner and Overton, "Processes, Relations and Relational-Developmenal Systems," 52.

[38] Jean Piaget, *Construction of Reality in the Child* (New York: Routledge, 1954).

[39] Erikson, *Childhood and Society*.

the transition from this stage to the Synthetic-Conventional faith, where meaning-making relies more on relationships, personal identity, and acceptance.[40]

The second consideration is to widen the measured symptoms beyond the mind-body divide and take into account that children are very likely to express psychological stress in physical and behavioral ways. To accurately measure these normative responses, it is not sufficient only to measure PTSD symptoms, but it is also necessary to take into account developmentally appropriate expressions of stress symptoms such as psychosomatic complaints, behavioral issues, general distress, and interpersonal problems. These stress symptoms are expressed through the physical body and in relationship with others, and they can manifest as loss of appetite, worsening of general health, lack of sociability, and/or problems with conflict or distress.

The third consideration is the context of the child. This includes their micro-system, meso-system, and exo-system. It must also include the general level of exposure to trauma that the community went through. To fully appreciate the dynamic relational system, it is necessary to place the child's assessment within the context of their peers in their own community. Given the complexity of factors influencing resilience, the community context includes many of the shared meso-system and exo-system factors in the assessment.

The fourth consideration is the conditions of mass trauma exposure. This study limits mass-trauma to disasters and not crises such as conflict, refugee displacement, violence or poverty. In order to understand the differences between experiences of

[40] Fowler, "Stages of Faith from Infancy through Adolescence," 38.

disaster in different communities, it is necessary to collect data on differing disasters in a large number of locations.

A Brief Description of the Research Design

This study seeks to identify which individual children are more at risk of psychopathology based on variance from their peers in initial, final, and degree of change PTSS scores and lack of clinically significant improvement after intervention. To meet the qualifications of the contextual framework, the study analyzed secondary data collected by OpSAFE International for program evaluation over the course of multiple implementations of the OperationSAFE child mental health psychosocial intervention from 2015 to 2020. OpSAFE International collected quantitative observational data on the severity of seven post-trauma symptoms on 7,015 children attending 51 camps in the Philippines after various disasters including typhoons, earthquakes, and floods in the Visayas and Mindanao regions. The assessments were made on two occasions: on the first day and the last day of the five-day-long intervention. These seven post-trauma symptoms included PTSD as well as physical, behavioral and social aspects.

OpSAFE International rejected an experimental design in data collection that would have included randomized, controlled trials because of ethical considerations of withholding intervention from needy children. The idea of determining causation is antithetical to the theoretical framework chosen of the relational development systems theory, so in considering the complex interactions of environment, resources, and conditions involved in resilience to trauma, this was a quantitative descriptive study.

The first set of research questions established developmental peer groups for the children based on their initial PTSS according to age and gender. The second set of

research questions section checked whether locale played a role in the severity of initial PTSS so that children could be compared with children with similar exposure, susceptibilities, and coping resources from the community. The third set of research questions described the normal range of severity of initial PTSS, final PTSS, and the change in PTSS for each peer group in a locale. The final question of the study identified which individual children were more at risk of psychopathology based on variance from their peers in all three measures and lack of clinically significant improvement and compared that with rates of chronic trajectories in the literature.

Significance of the Study

This study adds to the limited amount of empirical research on the resilience of children who have experienced mass trauma because of a disaster and contributes to establishing a method for rapid assessment of traumatic stress symptoms and risk of future psychopathology.

By exploring peer groups and the severity of trauma symptoms, it will be possible to set guidelines for policy that take into account the developmental stage of the child. It will also be possible to use the instrument as an ongoing tool to assess the severity of traumatic stress symptoms in children in a way that takes into consideration the developmental stage of the child by including physical, behavioral, and social elements.

The end goal of the study was to enable rapid assessment of the overall level of risk to children in a specific disaster response and the provision of appropriate interventions. Those working with children in local communities will be able to perform rapid triage so that they can better advocate for children in need. Specific children will benefit by being identified early for advanced interventions to lower their risk of future

pathology. Disaster managers and mental health professionals will benefit by being able to target scarce resources to children most at risk while providing more sustainable therapeutic interventions for all children affected by the crisis.

Assumptions of the Study

Both the initial and final assessment of the children was done by trained local volunteers who were assumed to have intimate knowledge of typical children in their area. It is assumed that while observation might introduce bias over data collected by survey of the children themselves, it was more practical and reliable for volunteers to assess children ranging from 6-12 years old, the age range for which the OperationSAFE child mental health psychosocial support intervention was designed. It is also assumed that local volunteers would be able to make a more accurate assessment than volunteers coming from outside the disaster area.

Definition of Terms

A Holistic Approach- This study defines a holistic approach as one that regards the uniqueness of children developmentally, contextually, and spiritually.

Barangay- local government unit in the Philippines.

Children- Children in this study are defined as those of elementary school age (6-12) as this was the range for which the OperationSAFE child mental health psychosocial intervention was designed.

Clinical Significance- a statistical approach developed by Jacobson and Truax to determine that clients who begin as part of a dysfunctional population no longer belong to that population.

Disaster Risk Reduction- "Disaster risk reduction is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development." [41]

Disasters- "Events that disrupt the social order"[42] is how Kathleen Tierney defines disaster. This study narrows the definition to only what has been considered as "natural disasters," not including responses to war or poverty. However, every disaster has a social component so there is no such thing as a truly "natural" disaster.

Kobo Toolbox- open-source platform for collecting, managing, and visualizing data. It is the most widely used data tool for humanitarian purposes globally.

Likert Scale- a five-point psychometric scale developed by Rensis Likert that is often used in research questionnaires.

Locale- In this study, a locale is a unique location where an OperationSAFE CH-MHPSS has been held, including the ecological system supporting or inhibiting resilience.

Neuroception- a concept of Stephen Porgess describing how neural circuits determine threat or safety in a manner that is separate from conscious perception.

OperationSAFE- CH-MHPSP designed to be rapidly implemented by local communities for children in crises.

Polyvagal Theory- Stephen Porgess 'theory of how mammals developed a social method of controlling threat responses based on an extra vagal nerve that connects the brain to visceral organs and the muscles of the face and inner ear.

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[41] UNDRR, "Disaster Risk Reduction," www.undrr.org, 2015, https://www.undrr.org/terminology/disaster-risk-reduction.

[42] Kathleen J. Tierney, *Disasters: A Sociological Approach* (Cambridge, UK: Polity, 2019), 4.

Psychopathology- mental illness or disorder.

Post Traumatic Stress Symptoms- normal reactions to exposure to a traumatic event that usually subside over time in most cases. In this study, typical adult PTSS such as flashbacks, hyperarousal, depression, and PTSD are expanded to include PTSS shown by children such as psychosomatic, behavioral, and social issues.

PTSSpre- variable in this study combining initial assessments in seven areas into one well-being/stress score between 7 and 35, where larger scores mean more well-being and lower scores indicate greater stress.

PTSSpost- variable in this study combining final assessments in seven areas into one well-being/stress score between 7 and 35 where larger scores mean more well-being and lower scores indicate greater stress.

PTSSchange- variable in this study indicating how many points of change there were between the PTSSpre and PTSSpost variables.

Relational-Developmental Systems Meta-Theory- "Metatheory characterizes the living organism as an inherently active, self-creating (autopoetic, enactive), self-organizing, and self-regulating, relatively plastic, nonlinear complex adaptive system. The system's development occurs through its own embodied activities and actions operating coactively in a lived world of physical and sociocultural objects, according to the principle of probabilistic epigenesis. This development leads, through positive and negative feed-back loops created by the system's organized embodied action, to increasing system differentiation, integration, and complexity, directed toward adaptive ends."[43]

[43] Lerner and Overton, "Processes, Relations and Relational-Developmenal Systems," 51.

Resilience- Ann Masten defines resilience as "the capacity of a dynamic system to adapt successfully to disturbances that threaten system function, viability, or development."

Reliable Change Index- RCI was developed by Jacobson and Truax to specify the amount of change between measurements of a specific psychometric instrument for that change to be reliable and not due to measurement error alone.

R-TAC-Rapid Trauma Assessment for Children- a psychometric scale developed by Oda and Koyama to evaluate the OperationSAFE CH-MHPSS and integrated into each intervention.

Setting the Child in the Midst- A key text of Child Theology is Matthew 18 where Jesus set a child in the midst of His disciples. In this study this phrase is used to refer to placing the child in the context of its ecological system.

Screening- the process through which children who are at greater risk of future psychopathology can be identified out of the greater population of their community.

Social Capital- networks of relationships that allow societies to function; in this study, applied to resilience.

Stepped Care- a method of allocating mental health resources so that public health approaches that are effective but less costly are delivered first and then increasing the level and cost of the care depending on the patient's need.

Trajectories- heterogeneous pathways of response to traumatic events.

Triage- determining the order of priority based on need for further treatment.

Scope and Delimitations of the Study

While OpSAFE International collected data between 2015 and 2020 on 16,768 children over 158 interventions in the Philippines, Nepal, Indonesia, and Mongolia, these events included a variety of crises such as conflict, violence, poverty, and displacement, as well as disasters. The scope of this study was to analyze the data from 7,015 children who were affected by disasters such as earthquakes, typhoons, and floods in the Visayas and Mindanao regions of the Philippines. While some camps were held in the Luzon region, insufficient data was collected to make meaningful comparisons, so this study was limited to complete data collected during disaster responses conducted in partnership with the Philippine Children's Ministry Network. The OperationSAFE camp was designed for children ages six to twelve years old, but because of ethical considerations, children of other ages were not turned away. This study, however, analyzed data only on children who attended these camps between the ages of 6 and 12 years of age and did not include data on children outside of the intended target age range.

CHAPTER II

REVIEW OF RELATED LITERATURE AND STUDIES

Introduction

In approaching the research question of how children most at risk of psychopathology after exposure to disaster-related trauma can be effectively identified for further treatment and its sub-problems regarding developmental stages, community as a ecological system and typical trauma trajectories, it was necessary to investigate three major fields of research. The first is how children have been treated in the history of response to disasters. This begins with physical needs but leads to a broadening understanding of the psychological and social needs of children in modern times. The second field is Child Theology and how the child "placed in the midst" can serve as a corrective to the "Theology of Community" of Stanley Grenz, revealing the crucial role the child serves by both being dependent upon their community and yet key to that community entering the kingdom of God. The third field of research is the study of resilience, or why some children are more severely affected by trauma than others. This quickly leads to a vast number of factors that defy all attempts to single out any one reason. Instead, it points to a relational-developmental systems approach that sees the child as part of a layered ecosystem that dynamically adjusts to cope with trauma. Considering together research from those who study disaster response, trauma resilience, and theology reveals a need for children to be approached in a more developmentally

sensitive way, as part of an ecological community rather than as purely individuals, and also reveals that intervention and assessment strategies for post-traumatic stress symptoms need to consider these factors.

Children in the History of Disaster Response

Historically, the needs of children after a disaster have largely been considered the same as the needs of the general population. Not until modern times have the psychological needs of children been considered separately. While psychosocial interventions have been widely adopted in humanitarian responses in the last few decades, these responses have been focused on psychological stress, and more attention needs to be given to the importance of the social ecology for the child's resilience.

The Ancient World

While the ancient world was well acquainted with disaster and there are records of attempts to protect vulnerable children from exploitation, there is little evidence of any specific understanding of children's vulnerability in times of disaster. Disasters are defined as events that "disrupt the social order", i.e., not simply cataclysmic events but any events that affect vulnerable people.[44] For as long as people have lived in close proximity to hazards, there has been exposure to disaster. Pliny the Younger wrote in 79 A.D. after the eruption of Mt. Vesuvius blocked out the sun with a dark cloud of ash, "You could hear the shrieks of women, the cries of children, and the shouts of men. With their shouts some were seeking their parents, others their children, and still others their

[44] Kathleen J. Tierney, *Disasters: A Sociological Approach* (Cambridge, UK: Polity, 2019), 4.

wives; by their voices they recognized them."[45] In the ancient world, leaders like the politicians of today were judged on how well they responded in the aftermath of disasters. The emperor Titus appointed officials to manage the relief effort and rebuild cities buried by the eruption, but he was soon deposed anyway.[46]

The ancient world also had an understanding of vulnerability and the need to protect those who were powerless. In the code of Hammurabi, there is mention of the responsibility of the leader as called by the gods to protect orphans.[47] The Old Testament contains a strong tradition in the Law, the Prophets, and the Wisdom Literature of upholding justice for the fatherless and the widow. Yahweh is portrayed in Deuteronomy as one who "administers justice for the fatherless,"[48] and perverting the justice due a fatherless child is both prohibited and cursed.[49] The prophets Isaiah, Jeremiah, and Ezekiel rebuke Israel's leaders because they "do not defend the fatherless" nor plead "the cause of the fatherless," and they have "mistreated the fatherless."[50] The wisdom literature continues this theme with Job condemning the practice of taking orphans away from their mothers as security for a loan, and Proverbs prohibiting exploitation of fields belonging to the fatherless.[51] The Greeks made provisions to care for the orphaned children of soldiers who fell in battle, and the Romans made laws to protect orphans.[52] However, it is uncertain whether the connection between the vulnerability of children and

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[45] William C. Mcdermott and Wallace E. Caldwell, *Readings in the History of the Ancient World* (New York: Rinehart and Company, 1951), 448.

[46] Katrin Pfeifer, Niki Pfeifer, and J. Donald Hughes, "Responses to Natural Disasters in the Greek and Roman World," in *Forces of Nature and Cultural Responses* (Dordrecht: Springer, 2013), 134.

[47] John T. Fitzgerald, "Orphans in Mediterranean Antiquity and Early Christianity," *Acta Theologica* 23, no. 1 (2016): 34, https://doi.org/10.4314/actat.v23i1s.2.

[48] Deuteronomy 10:18

[49] Deuteronomy 24:17, 27:19

[50] Isiah 1:23, Jeremiah 5:28, Ezekiel 22:7

[51] Job 24:9, Proverbs 23:10

[52] Fitzgerald, 39.

the threat of disaster were linked together. In surveys of the ruins of Pompeii, it is striking that of the casualties discovered, 85 were children, 80 were women, and only 45 were men.[53] As in disasters of today, it is the children and those who are burdened with caring for them who are most vulnerable and the least able to find ways of escape.

Christians, following the tradition they inherited from the Jews, were also concerned about the need to protect children in general and spoke out in opposition to practices such as abortion, infanticide, exposure, and sexual relations between children and adults, all of which were common in the Roman world.[54] The pages of the New Testament record how the Apostle Paul mobilized relief to be brought to the aid of Jerusalem after a famine.[55] The food distributed to widows in Acts 6:1 most likely also included portions for their children.[56] What was unusual about the Christian relief was that it was not limited to those who shared their faith but was also given to those who were unbelievers as implied by the Emperor Julian who complains in a letter to a priest in Galatia that the "impious Galileans support not only their own poor, but ours as well."[57]

It can be asserted that the ancient world was familiar with disasters such as earthquakes, famines, volcanic eruptions, and plagues. Governments understood that their survival often depended on bringing effective relief to cities after disaster. There was also a general awareness of the vulnerability of children, and the need to protect them from

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[53] Giuseppe Luongo et al., "Impact of the AD 79 Explosive Eruption on Pompeii, II. Causes of Death of the Inhabitants Inferred by Stratigraphic Analysis and Areal Distribution of the Human Casualties," *Journal of Volcanology and Geothermal Research* 126, no. 3-4 (2003): 179, https://doi.org/10.1016/s0377-0273(03)00147-1.

[54] Reidar Aasgard, "Children in Antiquity and Early Christianity: Research History and Central Issues," *Revista De Ciencias y Orientación Familiar*, no. 33 (January 2006): 36, https://doi.org/10.36576/summa.29303.

[55] Acts 11:29; Romans 15:26; 1 Corinthians 16:1; and 2 Corinthians 9:2

[56] Fitzgerald, "Orphans in Mediterranean Antiquity and Early Christianity," 41.

[57] Julian Emperor, *The Works of the Emperor Julian: Orations I-V*, trans. Wright Wilmer Cave France (Cambridge, MA: Harvard University Press, 1913), 71.

injustice and exploitation. However, there is little evidence that the connection between the powerlessness of children and their specific vulnerability to disaster was made in the ancient world.

The Needs of Children

While the theory proposed by Philippe Aries--that childhood is a modern invention--has been brought into question,[58] until very recently in the field of disaster management, children have been largely treated as "little adults." There was little specialized treatment considered for children beyond the basic needs that were common to all survivors. Kathleen Tierney writes (in the mid 1970s) that pre-1971 disaster relief in America "focused mainly on insuring that victims were provided with food, clothing and shelter in the immediate emergency period and that property and physical facilities were restored in the long run."[59] All in all, the attitude was not that different from the priorities of the ancient Romans.

In the international humanitarian arena, there has been a bit more interest in the special needs of children. This was largely spurred by reactions to the great conflicts of the 20th century centered in Europe. With large numbers of children migrating across Europe fleeing war, arrangements for their safety and care engendered the rise of groups like Save the Children, as well as the adoption amongst the League of Nations, and eventually the United Nations, of the concept of the "rights of children."[60] However, in practice, the bulk of disaster relief activity for children continued to be simply providing

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[58] Aasgard, "Children in Antiquity and Early Christianity," 26.

[59] Kathleen J. Tierney and Barbara Baisden, *Crisis Intervention Programs for Disaster Victims: A Source Book and Manual for Smaller Communities* (Newark, DE: Disaster Research Center, 1977), 36.

[60] Eleanor Davey, John Borton, and Matthew Foley, *A History of the Humanitarian System: Western Origins and Foundations* (London: Overseas Development Institute, 2013), 8.

basic necessities and emergency medicine, along with rebuilding infrastructure such as schools and hospitals.

It was not until 2004 with the second edition of the Sphere series of minimum standards in disaster response that "children" and "protection" were briefly mentioned in a paragraph on "Cross-cutting issues" in the introduction.[61] This would be expanded in the 2011 third edition into a full section of the Sphere manual as "Cross-Cutting Themes," including the topics of "Children" and, for the first time, "Psychosocial Issues."[62] It has only been in the last decade that two complete manuals have focused on child protection with the 2013 and 2019 editions of the *Minimum Standards for Child Protection in Humanitarian Action*.[63]

Psychosocial Needs of Children in Disaster

Current psychosocial interventions are designed for general populations and fail to take into account the developmental needs of children. While the term "Psychosocial" only started receiving attention in the humanitarian standards in the last decade, there has been an awareness of the psychological effects of mass trauma since at least the nineteenth century. The most attention was given to results of the experiences of war in soldiers who were described as having 'war neuroses. on attack nuclear of threat The [64]' civilian populations during the cold war prompted the U.S. Federal Civil Defense

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[61] *Humanitarian Charter and Minimum Standards in Disaster Response*, 2nd ed. (Geneva: The Sphere Project, 2004), 10.

[62] *Humanitarian Charter and Minimum Standards in Disaster Response*, 3rd ed. (Geneva: The Sphere Project, 2011), 10.

[63] The Alliance for Child Protection in Humanitarian Action, *Minimum Standards for Child Protection in Humanitarian Action*, 2019.

[64] Edward A. Strecker, "Experiences in the Immediate Treatment of War Neuroses," *American Journal of Psychiatry* 76, no. 1 (1919): 45-69, https://doi.org/10.1176/ajp.76.1.45.

Administration to request the American Psychiatric Association to write guidelines for communities in the aftermath of disasters. This document in 1954 contained the first use of the term, "Psychological First Aid" (PFA), modeled after the popular Red Cross training "First Aid," which could be practiced by lay people without formal medical training to save lives.[65]

It was not until the 1970s that mental health started being considered a part of disaster response in America.[66] This was largely done by offering immediate stress counseling after traumatic events as recommended by the PFA model of the time. During the 1980s and 1990s, crisis intervention, critical incident stress management (CISM), and critical incident stress debriefing (CISD) were widely implemented following disasters. However, research found that this model, involving group counseling immediately after an event, and talking about painful experiences, was "unhelpful and possibly increased the one-year risk of PTSD after a traumatic event."[67] During the 2000s, a transition was made to revive the use of the cold-war era PFA but with an updated understanding of what techniques were effective. What has proven elusive in disaster settings has been finding research supporting specific interventions. The current PFA models are sets of guidelines of helpful practices that are considered therapeutic by a panel of experts who have identified five key principles: safety, connectedness, self and collective efficacy, calmness, and hope.[68]

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[65] C. S. Drayer et al., "Psychological First Aid in Community Disaster.," *PubMed* 156, no. 1 (September 4, 1954): 36–41.

[66] Tierney, "Crisis Intervention Programs," 36.

[67] Kurt Eifling and Philip Moy, "Evidence-Based EMS: Disaster Scenarios and Psychological First Aid," *Emergency and Mobile Medicine Learning Network* 44, no. 7 (July 2015): 32-4, http://www.emsworld. com/article/12077165/evidence-for-psychological-first-aid.

[68] Hobfoll et al., "Five Essential Elements of Immediate and Mid–Term Mass Trauma Intervention," 283.

While PFA has been widely used with adults and children in humanitarian responses, once again there has been a tendency to treat children as "little adults," without consideration of their special needs, vulnerabilities, and protection requirements. Indeed, a recent survey of the literature states, "Researchers have studied children's reactions to disaster since the 1940s, but the field has expanded tremendously over the past decade."[69] Use of PFA with children needs to be informed by the advances made in the field.

Social Capital

Psychosocial programming for children needs to consider their social ecology and how it affects resilience. Criticism of psychosocial intervention in humanitarian disasters has also come from sociologists, who claim that the emphasis on trauma and PTSD is imposing a Western medical model on non-Western societies that individualizes pathology and resilience, neglecting the role of social factors.[70] Vanessa Pupavac claims, "The model overlooks how distress is mediated by political or religious convictions, cultural beliefs, social circumstances, previous experience of adversity and not simply the distressing events themselves.[71]

In the disaster resilience literature, these social factors are considered under the heading of "Social Capital," originally defined by Bourdieu as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more

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[69] Lori Peek et al., "Children and Disasters," in *Handbook of Disaster Research* (Springer International Publishing, 2018), 257.

[70] Joshua L. Miller and Gianluca Pescaroli, "Psychosocial Capacity Building in Response to Cascading Disasters: A Culturally Informed Approach," *International Journal of Disaster Risk Reduction* 30 (2018): 164-171, https://doi.org/10.1016/j.ijdrr.2018.04.018.

[71] Vanessa Pupavac, "Psychosocial Interventions and the Demoralization of Humanitarianism," *Journal of Biosocial Science*36, no. 4 (2004): 494, https://doi.org/10.1017/s0021932004006613.

or less institutionalized relationships of mutual acquaintance or recognition."[72] The idea of social capital looks beyond the resources of each individual to those that are accessible as part of networks of social relations. Aldrich describes social capital as "an asset held by both individuals and communities; individuals benefit both from their personal social networks and from their presence in neighborhoods rich in local and extra local connections."[73] His research on social capital in disaster has shown that social capital has a greater impact on resilience in communities than presumably more important factors such as less exposure or greater economic resources.

Perhaps the criticism from sociologists is a needed correction to the current use of the term "psychosocial" in humanitarian responses which almost exclusively means psychological programming. The concept was first developed by Ian Suttie in the 1920s to critique Freud's psychoanalytic doctrine and then developed further by James Lorimer Halliday to consider links between poverty, the social environment, emotional stress and psychological and physical ill-health.[74] To them the "psychosocial" was, "a point of intersection between the individual, the state, and society that Suttie, and later Halliday, came to believe was crucial to emotional health."[75]

Reconsideration of the social element of resiliency is needed to counter the predominantly Western individual bias and emphasis on psychological trauma and pathology in humanitarian disaster response. Psychosocial programming should take into

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[72] John G. Richardson and P. Bourdieu, "The Forms of Capital," in *Handbook of Theory and Research for the Sociology of Education* (New York: Greenwood Press, 1986), 248.

[73] Daniel P. Aldrich, *Building Resilience: Social Capital in Post-Disaster Recovery* (Chicago: The University of Chicago Press, 2012), 49.

[74] Rhodri Hayward, "Enduring Emotions: James L. Halliday and the Invention of the Psychosocial," *Isis* 100, no. 4 (2009): 827-838, https://doi.org/10.1086/652022.

[75] Hayward, "Enduring Emotions," 829.

consideration the environment and social connections that influence resilience as a whole. However, although the concept of social capital has been studied in regard to disasters and resiliency, there is little specific research into how it affects children and their response to disaster. Once again, while children are included in the discussion, they are still largely seen as "little adults" rather than having their own sets of needs and vulnerabilities.

Discussion of Disaster Response for Children

All throughout history, children have been affected by disasters, they have always been more vulnerable than others, and societies have always sought to protect them from harm and exploitation. However, in times of disaster, the needs of children have not always been prioritized or distinguished separately from those of the general population. Instead, children have been viewed operationally as "little adults." Even as disaster relief and humanitarianism became institutionalized in the twentieth century, specific protocols for children would not be developed until the last twenty years.

Likewise, while greater understanding of the long-term effects of traumatic experiences on mental health led to the development of psychological interventions, there has rarely been differentiation between programs used with adults and those used with children. Psychosocial interventions used in humanitarian responses are largely built upon practices aimed at the general population rather than the specific needs of children.

Psychosocial interventions in humanitarian responses to disasters have swung almost entirely toward psychology and away from sociology, neglecting important resources for resilience that can be found not only in the individual child but in the community and society in which they live. Further research is needed on how children

relate to social capital and its importance for their well-being, how trauma affects children in different stages of their development, and how best to measure and design psychosocial interventions specifically for children.

Biblical and Theological Reflection on Children in Disaster

It would not be truly holistic to consider the needs of children in disaster without taking their spiritual needs into account. However, in much the same way that humanitarians and disaster responders have failed to differentiate their programs for the specific needs of children, theologians have also neglected to view children as objects of serious discussion until the twenty-first century. In one sense, the great project of Child Theology is to "place the child in the midst,"[76] that is, to reconsider every theological doctrine in regards to what it has to do with the child, and what the child has to do with it.

In this section, I begin with how setting the child in the midst changes not only how we view children but also how we see the role of the church in a world disrupted by the destruction of community. Following Keith J. White's lead,[77] I placed the child in the midst of Stanley Grenz's *Theology for the Community of God*, starting with the social Trinity, and explored how children are made in the imago Dei, born into a world disrupted by sin, and how the church only truly becomes the community of God as it welcomes them. Along the way, I looked at the child in the Bible as exegeted by scholars in Marcia Bunge's work,[78] seeking insights into how children can best be approached in disaster by the church.

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[76] Keith J. White, *Introducing Child Theology: Theological Foundations for Holistic Child Development* (Penang, Malaysia: Malaysia Baptist Theological Seminary, 2012), 8.

[77] Keith J. White, *The Growth of Love: Understanding Five Essential Elements of Child Development* (Abingdon: The Bible Reading Fellowship, 2011), 147.

[78] Marcia J. Bunge, *The Child in the Bible* (Johanneshov: MTM, 2015).

The result of this theological reflection informs a Holistic Child Development practice that truly considers the child spiritually, seen as having needs distinct from adults, but also viewing children and their communities as intertwined entities, which cannot be separated without causing significant damage to both.

Child Theology

The Child Theology Movement sprang out of the need for serious theological thinking for those who were doing a variety of ministries with children at risk. "Children at risk are persons under 18 who experience an intense and/or chronic risk factor, or a combination of risk factors in personal, environmental and/or relational domains that prevent them from pursuing and fulfilling their God-given potential."[79] Many of the children who were the beneficiaries of these programs did not fit typical Western models of childhood, and their existence brought up questions rarely mentioned by theologians.[80] However, it soon became apparent that it was not only the child-at-risk that was neglected by theologians, but even the phrase "the child" itself was rarely mentioned at all.

By failing to consider children and their development as separate and different from adult human beings, theology was falling into the same "little adult" trap that plagues humanitarian practices towards children in disaster. "To take one example of how we need to redefine theology, the most glaring need is in theological anthropology, our understanding of human nature. As currently defined, it is often just about adults, and

[79] Lausanne Consultation on Children at Risk. Quito Call to Action on Children at Risk. Quito, Ecuador: Lausanne Movement, 2015.

[80] White, *Introducing Child Theology*, 25.

even just male adults. It takes no account of development particularly of children."[81] Adrian Thatcher complains, "Stanley Grenz 'new work on the image of God–yes, on the image of God–in humanity is typical: it contains no reference to children, even in the index."[82] In response to this significant gap, the mantra of the Child Theology Movement became, "No child related activity without theological reflection; no theology without the child in the midst."[83] This took the movement past its initial theological questions about children at risk–a theology of childhood seeking to understand particular children–towards setting the child in the midst of theological discussions having seemingly very little to do with children at all. Because of this, Child Theology can address not just the spiritual needs of the child, but those of the entire ecological system on which the child depends.

Corrective

Sunny Tan sees the primary task of Child Theology as being "corrective in nature: to re-visit theologies and practices which did not include children in their formulation process."[84] This correction purposefully places the child in the midst of adult theologizing, but unlike other contextual theologies such as liberation theology or feminist theology, hearing the voice of the child is not the essential goal. As expressed by

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[81] John Collier and Marcia J. Bunge, *Toddling to the Kingdom* (London: Child Theology Movement, 2009), 34.

[82] Adrian Thatcher, "Theology and Children: Towards a Theology of Childhood," *Transformation: An International Journal of Holistic Mission Studies* 23, no. 4 (2006): 194, https://doi.org/10.1177/026537880602300402.

[83] Haddon Willmer and Keith J. White, *Entry Point: Towards Child Theology with Matthew 18* (London: WTL Publications, 2013), 13.

[84] Sunny Tan, *Child Theology for the Churches in Asia: An Invitation* (London: Child Theology Movement, 2007), 3.

Frances Young, "The child is not in the same way its own protagonist."[85] The child could not be expected to advocate for itself. Instead, it is the presence of the child, welcoming of the child, and identification with the child that gives theology needed correction.

If the theologies that need to be re-visited are those that did not include children in their formulation process, then not just theologies of childhood, or even theological anthropology, need to be reformed, but the rest of theology as a whole. This is the method that Jesus uses in Matthew 18 when He places a child in the midst of the disciples. They are having a theological argument about the kingdom of God and their own place within it, a topic with seemingly no obvious connection to children. The child is not recorded as saying anything in any of the three Synoptic accounts. What the child has to say has no bearing on the theological question being debated. It is the presence of the child, whether the child is welcomed, and if the disciples will become like the child, that Jesus uses to correct the theological assumptions of the disciples. "Just as Jesus invented parables to get under the defenses of resistant hearers, so he placed a child to get through a theological blockage.[86]

Matthew 18 and the Methodology of Child Theology

Child Theology corrects theology through the presence of children as a sign of the kingdom of God. The core biblical passage of the Child Theology Movement is Matthew 18:1-5 and its parallel versions in the Synoptic Gospels, Mark 9:33-37 and Luke 9:46-48. As CT seeks to bring a corrective to theology, it uses the method Jesus employed to correct the theology of His disciples. Willmer and White describe Jesus setting the child

[85] Frances Young, "Child Theology: A Theological Response," *Anvil: Journal of Theology and Mission* 35, no. 1 (2019): 7.

[86] Willmer and White, *Entry Point*, 50

in the midst as "a positive signing of the kingdom of God."[87] The presence of the child makes a significant impact on the theology of the disciples as "a clue to the way by which they might enter the kingdom of God."[88]

The way into the kingdom of God is through receiving the child. "Human reception earths and incarnates the heart of the kingdom of God. It opens our eyes to the generous reception of the welcoming God; Father, Son and Spirit."[89] Willmer and White are careful to point out that the receiving of the child is not a tool for personal self-development but is rather "a social act which entails turning towards an Other."[90]

This social act of receiving the child allows the disciples to follow Jesus's instructions to "become like a child."[91] Jesus explicitly links becoming like the child to humility.[92]" The child serves to sign humility because in the culture which Jesus shared with his disciples, it was accepted as normal that the child was lowly, a servant, near the margins."[93]

The methodology of Child Theology is not in seeking out authentic voices to represent children who have been neglected in much of theology to date as other contextual theologies might; rather, it is allowing children to impact theology by their presence as a sign of the kingdom of God that is very different from the status quo. The test of whether theology has successfully understood the kingdom of God is then whether it is welcoming to the child and receives the child in the same way that God receives His

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[87] Willmer and White, *Entry Point*, 68.
[88] Willmer and White, *Entry Point*, 71.
[89] Willmer and White, *Entry Point*, 160.
[90] Willmer and White, *Entry Point*, 151.
[91] Matthew 18:3.
[92] Matthew 18:4
[93] Willmer and White, *Entry Point*, 128.

children into the kingdom. The method of Child Theology is different from liberation or feminist theology in that it is not protesting so that the voiceless can be heard. Instead, it is emulating the humility of those who truly have no voice, no power, and are the most vulnerable to injustice.

Using a Child Theology Methodology as a Corrective to the "Theology of Community" of Stanley Grenz

To support the development of a holistic approach to screening post traumatic stress symptoms in children it is essential to "place them in the midst" of their ecological system. This community in which the child is placed includes the local church and extends even to the community of God. In the rest of this section I use the Child Theology methodology of Matthew 18 as a corrective to Stanly Grenz's *Theology for the Community of God*, which Keith White also does briefly in *The Growth of Love* when he talks about Grenz's concept of sin disrupting communities with "children in our minds," explaining how human sin creates conditions such as famine, war, and poverty that affect children disproportionately as their communities fall apart.[94] D. J. Konz calls this approach "child-attentive" and applies it to the work of Karl Barth, asking, "What fresh insights into God, God's creatures and God's work in the economy are discovered in Barth's theology by approaching his writing with the child in mind?"[95] This approach is not just asking what Grenz says about children, i.e. a theology of children, but also what the child in the midst helps us to see more clearly about God in Grenz's theology.

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[94] White, *The Growth of Love*, 143.

[95] D. J. Konz, "Child Theology and Its Theological Method, Past and Future," *Anvil Journal of Theology and Mission* 35, no. 1 (2019): 25.

The Social Trinity

The child fits quite comfortably in the midst of the social Trinity as a primarily relational being. At the center of Grenz's theology of community is the social Trinity, where the essential nature of the Trinity is relational love. "The one, true God is the social Trinity — Father, Son, and Spirit."[96] Moltmann describes the sociality of God as being perichoretic, where each person in the Trinity is giving and receiving from the others, not as individuals in the modern concept of a personality, but as persons "existing in relationship."[97]

Grenz takes a doxological position regarding the attributes of God. What we know about God only describes what arises "out of our experience of the God who stands in relationship to humans and the world."[98] So, knowing God is not knowledge about His attributes, but comes only "through personal encounter."[99]

Grenz states that "the goal of the work of the triune God in salvation history is the establishment of the eschatological community."[100] In this community, the relational love that the social Trinity share with each other has been extended to include the redeemed living in harmony with their God, one another, and with all creation.

Setting the child in the midst of a social trinitarian vision of God as relational love yields some fresh insights. The first is that children can also perhaps be most accurately described as "existing in relationship." Children are, of course, conceived through

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[96] Stanley Grenz, *Theology for the Community of God* (Grand Rapids, MI: William B. Eerdmans, 2000), 77.

[97] Johannes P. Deetlefs, "Political Implications of the Trinity: Two Approaches," *HTS Teologiese Studies/Theological Studies* 75, no. 1 (May 23, 2019): 3, https://doi.org/10.4102/hts.v75i1.5396.

[98] Grenz, *Theology for the Community of God*, 89.

[99] Grenz, *Theology for the Community of God*, 90.

[100] Grenz, *Theology for the Community of God*, 115.

relationship, but more importantly, are dependent upon their caregivers for longer than any other animal species.

If "knowing God" is moved away from intellectual knowledge about God to a personal relationship with God, then children are moved from the end of the line to the front. Instead of waiting until they reach an "age of accountability" when they are mature enough to understand doctrines intellectually, an emphasis can be placed on enriching the existing relationship that children already enjoy. This removal of artificial barriers should make children more welcome. The essentially relational nature of the child ought to be something that disciples should try to be more like.

God's final goal of being community is also greatly impacted by the presence of the child. If the child is the sign of the kingdom of God and the clue to how it is entered, then to a large degree, the community that the Scripture envisions can best be understood by comparing it to the relational nature of the child.

The Image of God

The child is a sign that God is relational and carries the image of the social God as dependent on community, even as the Father, Son, and Holy Spirit depend on one another in community. Grenz moves next to theological anthropology and the image of God in humanity. Echoing Karl Barth, he says, "The image of God is a social rather than an individual concept."[101] For Grenz, human beings are created in the image of God by design to mirror the nature of the Creator for the sake of creation. It is only in community that the divine image is fully present, as human beings express the divine nature of

[101] Grenz, *Theology for the Community of God*, 174.

relational love. Miroslav Volf admits, “Because humans are creatures, they can reflect the image of God only in a creaturely manner.”[102] But the design of God was for Jesus Christ to represent the image of God in human form perfectly, and the church of Jesus Christ as His body is, “the prolepsis, the historical foretaste and sign, of the image of God.”[103]

As we have already seen, the social trinitarian view of the essentially relational nature of God is peculiarly similar to the relational nature of the child. In truth, without relationship the child is unable to survive. It is only with development into adulthood that the child is truly independent. Judith Gundry-Volf makes the case that Jesus’s rebuke of the disciples for not welcoming the little children for His blessing was precisely because of the children’s dependence. “Jesus replaces a conventional hierarchy with one based on need: in his kingdom the most dependent have the highest priority.”[104] Children as bearers of the image of God point back to the perichoretic nature of the relational Trinity, with each person in community not only having something to offer to others, but also dependent upon and needing the others. They are the clue to the upside-down nature of the kingdom of God where those who are dependent are the greatest and those who are independent exclude themselves out of community.

Sin

Sin is described by Grenz as a failure to reflect the image of God as relational love in community. He writes, “Sin is ultimately our human failure to live in community

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[102] Miroslav Volf, “‘The Trinity Is Our Social Program:’ The Doctrine of the Trinity and the Shape of Social Engagement,” *Modern Theology* 14, no. 3 (1998): 403-423, https://doi.org/10.1111/1468-0025.00072.

[103] Grenz, *Theology for the Community of God*, 179.

[104] Marcia J. Bunge and Judith Gundry, “Children in the Gospel of Mark, with Special Attention to Jesus’ Blessing of the Children (Mark 10:13-16) and the Purpose of Mark,” in *The Child in the Bible* (Johanneshov: MTM, 2015), 2054.

with God, each other, and the natural environment."[105] Anything that disrupts community can be categorized as being in opposition to the relational nature of God. "In its essence, sin is also whatever disrupts and seeks to destroy the community God intends to establish. Summarily stated, sin is the destruction of community."[106]

While the sin of Adam and Eve in Genesis was a disruption of community, Grenz says that our condition, of being "dead in trespasses and sins" is different because, "We sin in the context of the prior loss of community."[107] He says, "We begin life in the state of alienation. And each of us becomes involved in the primordial sin of destroying community."[108] Grenz touches upon original sin by asking when a child begins to participate in the common human failure. His answer is that the depraved nature comes both through human genetics and through being taught by society, but that the potential for sin is already present in infancy with the child's self-absorption and lack of awareness of others beyond themselves that develops into "a community-destructive force."[109]

With children bearing the purest form of the image of God and being the clue for how to enter His kingdom in relational love, they also show us most dramatically the destruction of community that is sin. Because children are completely dependent and cannot survive without relationship, when they are excluded, it is a frontal attack on the kingdom of God. Walter Brueggemann asserts that in John 14:18, when Jesus says, "I

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[105] Grenz, *Theology for the Community of God*, 187.
[106] Grenz, *Theology for the Community of God*, 187.
[107] Grenz, *Theology for the Community of God*, 196.
[108] Grenz, *Theology for the Community of God*, 198.
[109] Grenz, *Theology for the Community of God*, 206.

will not leave you orphaned; I am coming to you," He "intends none to be orphaned, none to be defenseless, none to be uncared for, unprotected, unloved, unembraced."[110]

The Church

Grenz's ecclesiology develops from the social nature of the Trinity, and God's desire to extend that divine community to all of creation. He details in his Christology how Jesus is the exemplar of life-in-community, and the originator of a new fellowship of humans, with salvation being the healing of relationships: with God, ourselves, one another, and nature. Salvation is moved from being an individual reconciliation to God, to the church becoming the community of salvation. "The community God is creating is a reconciled people who are concerned about compassion, justice, righteousness, and above all, love."[111]

Children are greatly in need of this salvation, because from birth they are already alienated and excluded from community by both genetics and society. Their dependence and vulnerability, the very things that make them the image of God, are also what leaves them helpless and defenseless. The alienation and exclusion of sin affects their development, making them part of the breakdown of the community that they so desperately need. Gundry-Volf claims that the hugs and the blessings that Jesus gave to the little children "can be seen as an adoptive embrace," where Jesus claims them as his own and passes on the inheritance of salvation.[112] This is a crucial role for the church, the body of Christ, to understand. If the church is to be the primary vehicle for mirroring the

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[110] Walter Brueggemann, "Vulnerable Children, Divine Passion, and Human Obligation," in *The Child in the Bible*, ed. Marcia J. Bunge, Terence E. Fretheim, and Beverly Roberts Gaventa (Grand Rapids, MI: Eerdmans, 2008), 5092.

[111] Grenz, *Theology for the Community of God*, 508.

[112] Gundry, "Children in the Gospel of Mark," 1910.

divine image, healing all relationships, it must pay special attention to welcoming children. This welcome must go further than simply avoiding causing "little ones to stumble," going on to actively seeking and saving the lost. In much of the church, childhood is considered to be innocent, if not technically because of original sin, practically due to the "age of accountability." Because of this, little effort is given to the reconciliation of children. However, children are affected greatly by the destruction of community even though they might not yet be held accountable for their part in it. As we have seen, children also are not limited by intellect from being received by God and are greatly benefitted by being welcomed into community.

Holistic Child Development

This discussion of theology began with the need of those ministering to children-at-risk for more theological reflection. The result of that conversation has been the development of the Child Theology Movement. Now that I have used it as a corrective for Grenz's theology of community, it needs to be applied to the children-at-risk with which we started this thesis, namely those children who have been exposed to mass trauma because of disasters.

Holistic Child Development (HCD) and Transformational Development (TD) (sometimes known as Integral Mission) can be described as two ways to approach the problem of Hiebert's 'excluded middle. dualistic a hold societies modern Whereas [113]' worldview with a high transcendent God distinct from a materialistic world, many of the societies where children-at-risk are most prevalent are more comfortable with a view

[113] Bryant L. Myers, *Walking with the Poor: Principles and Practices of Transformational Development* (Maryknoll, NY: Orbis Books, 2014), 643.

where the spiritual and material are mixed. The result of this difference is that many missions have had difficulty finding a balance between the spiritual salvation offered in evangelism and the material salvation achieved through social action. TD has taken a 'top-down 'approach to unite the two by seeking to change the community that the child lives in, in essence asserting that development is essentially equal to evangelism. HCD has taken a 'bottom-up 'approach that seeks to benefit the child directly and through the child bringing change to their community. "Ultimately, changed children change families and changed families change communities."[114] The assumption of HCD is that holistic (spiritual) care of the child is in fact equal to development.

As we have looked at Child Theology and Grenz's theology of community, the social trinitarian view seems to commend starting at the bottom with the child being the purest reflection of the image of God as relational love. The beginning of change in the community, or to put it in Willmer and White's language, the "entry point" to the kingdom of God, is the little child. Expressed another way, any exclusion of the child from the community does violence to both the child and the community. The community needs the reflection of the image of God that only the child can provide, and unless they have it, they will not see the kingdom of God. Receiving the child as the clue to the kingdom begins the development of the kingdom in the community.

This start at the bottom aligns with the upside-down kingdom where the greatest are those who humble themselves in imitation of the little child. It also gives priority to the ones with the greatest need, instead of allowing them to be once again neglected

[114] Brad Watson and Matthew Clarke, *Child Sponsorship: Exploring Pathways to a Brighter Future (Basingstoke*, Hampshire: Palgrave Macmillan, 2014). 168.

while community development "trickles down." The understanding of sin as the "destruction of community" makes it clear that children are already alienated, excluded, and the most vulnerable, and so the church must go beyond mere protection to bringing reconciliation and restoration.

Holistic Child Development's next steps should be to build on Child Theology's "setting the child in the midst," ensuring that the child is actually in the midst of their community. The first way it can do this is by making sure that no children are excluded, and that their community is not disrupted or destroyed. In the aftermath of disaster, displaced communities are an often-ignored casualty, as people evacuate haphazardly and end up in evacuation shelters with strangers. Some children are separated from family and relatives or are orphaned. HCD can work harder to reunite families and build community after disaster. The second way is to insist on children being considered not in isolation as individuals but as coexisting with their community. Treated as individuals apart from their community, children are 'less' than whole and not fully the image of God that they were created to be. This means that to holistically assess the risk of pathology from exposure to mass trauma, it is not enough to simply measure the symptoms of the individual child, but we must view them as both dependent on their community and also as part of their community's resilience.

In the introduction to his book "*Collateral Damage*," Polish sociologist Zygmunt Bauman draws attention to the importance of the weakest. He points out that in electronics, a fuse will fail first before other parts are damaged. Likewise, in structural design, the most important consideration is not the average load of all the pillars but that which the weakest one can bear alone. Bauman laments the shortsightedness of looking at

society any differently. “In the case of society, it is widely, though wrongly, assumed that the quality of the whole can and ought to be measured by the average quality of its parts– and that if any of its parts falls below the average it might badly affect that particular part, but hardly the quality, viability and operational capacity of the whole.”[115]

Churches also fall into the same error, thinking that the quality and viability of Christian life and worship as a whole is largely unaffected by the suffering of a few. But “the least of these” are crucial in a Christian context and should be looked at first to gauge the health of the body.[116] Accurate assessment of the “fuse,” the weakest parts, can also be theologically instructive. Systematic theology often makes the mistake of looking at the whole and missing the parts. By presuming complete understanding of Scripture to describe it as a system, it ignores its own biases and blind spots. Post-modernism brought needed correction by pointing out limitations of interpretation, hermeneutics, and reason, but its critique comes with the risk of losing certainty altogether. Paying attention to the weakest seeks to get past the blind spots and presumption of systematic theology by asking pointed questions in order to better understand context and gain a correct theology.

Recent research points to the prevalence of adverse childhood experiences (ACES) and their effects on the weakest and most vulnerable, i.e., children and adolescents. The pervasiveness of exposure to trauma means that the church is encountering a generation where being broken has become normal. Both inside and

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[115] Zygmunt Bauman, *Collateral Damage: Social Inequalities in a Global Age* (Cambridge: Polity, 2014), 2.

[116] Matthew 25:40

outside of churches people are hurting and in need of compassion. And yet Evangelical churches are often seen as uncaring, judgmental and hypocritical.[117]

In a groundbreaking study conducted from 1995 to 1997, Vincent Felitti, Robert Anda, and their colleagues surveyed over 17,000 people enrolled in a California hospital system about their exposure to adverse childhood experiences such as abuse, neglect, and household challenges including parental substance abuse or separation.[118] This data was then compared with later life health and well-being. Their research conclusively linked childhood trauma and a wide range of physical, mental, and social problems and has since been repeated widely. A longitudinal study was completed in 2018 and found that "childhood trauma exposure is a normative experience, statistically speaking, that affects the majority of children at some point."[119]

The same study confirmed the association of cumulative lifetime trauma exposure during childhood and negative adult outcomes for health, risky and/or criminal behavior, financial, educational, and social disfunction, and psychological disorders. Even more disconcerting is the cycle where trauma experienced in childhood and resulting risky behavior leads to exposing the following generation to trauma as well. While there is a direct correlation between cumulative trauma and long-term negative life outcomes, it has also been found that trauma affects each child differently. Protective factors such as a warm and responsive adult caregiver, shared family activities, safe and supportive home

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[117] David Kinnaman and Gabe Lyons, *Unchristian: What a New Generation Really Thinks about Christianity-- and Why It Matters* (Grand Rapids, MI: Baker Books, 2012), 29.

[118] Maxia Dong et al., "The Relationship of Exposure to Childhood Sexual Abuse to Other Forms of Abuse, Neglect, and Household Dysfunction during Childhood," *Child Abuse & Neglect* 27, no. 6 (June 2003): 625–39, https://doi.org/10.1016/s0145-2134(03)00105-4.

[119] William E. Copeland et al., "Association of Childhood Trauma Exposure with Adult Psychiatric Disorders and Functional Outcomes," *JAMA Network Open* 1, no. 7 (November 9, 2018): e184493, https://doi.org/10.1001/jamanetworkopen.2018.4493.

environment, and safe and healthy schools can help mitigate trauma exposure that otherwise would be debilitating.[120]

Churches are one of these protective factors that can help children cope and thrive even though they experience trauma. By providing a safe place, listening ears, and hope, churches can make a difference in a child's resilience. Nevertheless, the fact remains that as trauma has become normative in modern society, more people approach life primarily out of their brokenness. How are trauma and brokenness different from the biblical concept of sin?

Christians understand that God hates sin and that willful disobedience deserves judgment. But at the same time, the Bible teaches that sinners are loved and offered God's mercy. Indeed, "all have sinned and fallen short of the glory of God."[121] It is not a dualistic world of good vs. evil with saints and sinners, but a complex one where saints are yet sinners and sinners are becoming saints. I define "brokenness" as an increased likelihood towards sinful actions because of experienced trauma and its lasting effects. A well-worn phrase in caring ministries is that "Hurt people, hurt people." The idea is that people who are broken are more likely to act in ways that hurt others. This aligns with the findings of the vicious cycle in trauma studies. Of course it does not excuse sinful choices, but perhaps it can lead to a better understanding of God's mercy and continued love to sinners even though they persist in their sin.

With the prevalence of trauma, each person to whom the church ministers is hurting in some way. They have been exposed to violence, neglect, abuse, exploitation,

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[120] National Scientific Council on the Developing Child, "Young Children Develop in an Environment of Relationships," (working paper no. 1, 2004), retrieved from http://www.developingchild.net.

[121] Romans 3:23

separation, and loss. They are in some way broken, having a greater propensity to sin in certain ways because of the way they have been hurt. It is therefore not enough simply to call people to turn away from sin in repentance while brokenness continues. The church must become a place of comfort and compassion where broken people are welcomed and safe from being hurt again. The church must be a place where forgiveness is experienced and practiced not once but repeatedly and often. The church must be the place where lives that are broken can be transformed into wholeness again.

With the experience of trauma in childhood widespread, it would seem that more people would seek out the compassionate ministry of the church to find comfort and healing in their brokenness. But instead, Evangelical churches are declining. Pew Research Center describes Millennials, those born between 1981 and 1996, as the fastest group turning away from church and Christianity.[122] In the midst of declines in every generation in the last decade, Millennials stand out with 16% fewer identifying themselves as Christian. Barna Group's David Kinnaman described why in 2012. "Like a corrupted computer file or a bad photocopy, Christianity, they say, is no longer in pure form, and so they reject it."[123] Kinnaman points to six themes that are driving away the next generation: to them Christians are hypocritical, too focused on getting converts, antihomosexual, out of touch, too motivated by politics, and judgmental. To a generation that has grown up broken, the church is viewed as a source of more pain rather than a

[122] Pew Research Center's Religion and Public Life Project, "In U.S., Decline of Christianity Continues at Rapid Pace," last modified June 9, 2020, https://www.pewforum.org/2019/10/17/in-u-s-decline-of-christianity-continues-at-rapid-pace/,7.

[123] David Kinnaman and Gabe Lyons, *Unchristian: What a New Generation Really Thinks about Christianity-- and Why It Matters* (Grand Rapids, MI.: Baker Book House, 2012), 29.

place of healing and comfort. The church no longer acts Christian. What is missing is compassion.

Exposure of children to traumatic events is nothing new. Indeed, from the earliest pages of the Bible, violence, family conflict, disaster, plague, and famine have all been part of the human condition of living in a fallen world. And yet even the outcast son Ishmael, left to die in the desert, is not abandoned by the God who is the 'helper of the fatherless. recent However, vulnerable. most the for concerned ultimately is God [124]' times are seeing a dramatic increase in the number of people and children affected by crises, with both disasters and violent conflict affecting millions of children worldwide. "Out of all the children in the world, about 468 million children (18.8%, or more than 1 out of 6) were living in a conflict zone in 2022,"[125] and 175 million children globally are annually affected by disasters, including floods, cyclones, droughts, heatwaves, severe storms, and earthquakes.[126]

Mass trauma is unfortunately only the most visible threat to the children of the world. Like much sin, trauma is also hidden in communities worldwide, as children are subjected to physical, emotional, and sexual abuse, and forms of neglect and exploitation unseen by those around them. For many children, these stressors exist within their own families on whom they also depend for survival.

Research has shown that multiple adverse childhood experiences can lead to profound changes in the development of the child's brain, limiting their ability to cope with stresses of life and leading to a propensity towards at-risk behavior in adolescence,

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[124] Psalm 68:5.

[125] Gudrun Østby, Siri Aas Rustad, and Andreas Forø Tollefsen, "Children Affected by Armed Conflict, 1990–2017," *Conflict Trends* 10 (2018): 8.

[126] Lai and Greca, "Understanding the Impacts of Natural Disasters on Children."

anti-social conduct in adulthood, and a host of physical ailments.[127] As they become parents themselves, they are more likely to abuse their own children. In fact, genetic research is pointing to the possibility of those who have experienced trauma passing down susceptibility to trauma through their genes.

Yet even with greater threats of trauma exposure, the vast majority of children still come through adversity unscathed and even grow stronger through it. There are protective factors that help to guard children from trauma. However, these are also under attack as communities and extended families are becoming fragmented and their children more isolated. The church as the body of Christ has a responsibility to care for the "least of these."[128] What can the church do to protect children from trauma, i.e., preventing exposure, reducing vulnerability, and enhancing resilience?

As local churches are trained in the OperationSAFE child mental health psychosocial intervention, they become more aware of trauma and its potential effects on children. With this training, they can play an important role in bringing comfort and relief to children who are hurting and, through the children, begin the process of rebuilding community. A frequent companion of trauma is broken communities that have been displaced by violence, beaten down by disaster, or divided by hatred and fear. Rebuilding community gives children connectedness that helps them recover more quickly. The church itself needs to model that community in a trauma-informed way, understanding the needs of children to be safe and valued, and to be offered hope and love.

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[127] Copeland et al., 8.
[128] Matthew 25:40

The role of the church in building a trauma resilient community goes far beyond disaster response and can be an integral part of the ongoing ministry of the church to support children. For children to not only come through exposure to traumatic experiences undamaged but stronger and more resilient requires processing the event in such a way that their internal resources to cope with stress are strengthened. Such post-traumatic growth relies on a number of factors among which the church is especially significant. Including children as part of the solution and giving them important tasks in recovery helps them to gain a greater sense of self and community efficacy. "Meaning-making" within a supportive community of faith brings hope and purpose to what would otherwise be senseless. Overcoming adversity through prayer and faith leads to mastery and increased confidence in God's help when facing difficult situations in the future.

Scripture is replete with stories of children whose faith helps them overcome traumatic events to go on to be used mightily by God. David had been through multiple wild animal attacks and seen God's faithfulness before he fought Goliath.[129] Joseph was sold into slavery by his brothers but kept his faith in the promises of God.[130] Daniel and his three friends were carried away into captivity in Babylon as youth, but even though they were isolated from their community, they had the inward convictions necessary to endure opposition.[131]

The church has unique resources to help children with every aspect of trauma, protecting children and preventing traumatic exposure, standing with children who have

[129] 1 Samuel 17:34
[130] Genesis 45:5
[131] Daniel 1:8

been hurt to bring comfort, and rebuilding community. The church is crucial in empowering children to become survivors with a God-given purpose.

Exposure

Although it is only one part of a dynamic system in which each part influences each of the others, exposure to trauma is perhaps the most easily understood. It is not limited to events such as disasters and conflict but includes direct and indirect exposure to life-threatening hazards, personal or family injury, damage to homes and property, and loss of those close to the child. The list of possibly traumatic experiences is long and includes things like industrial accidents and terrorist attacks but also more personal tragedies such as automobile accidents or the sudden death of a family member.

While acute traumatic stressors are usually readily identifiable, another class of stressors is largely hidden from view and leaves children both chronically stressed but also often without resources to cope with the stress that they are enduring. These chronic traumatic stressors are things like ongoing violence in the home, parental drug or alcohol addictions, physical, emotional, or sexual abuse, neglect, and exploitation.

Acute Traumatic Stressors

While it may seem that certain acute traumatic stressors are “acts of God” that cannot be avoided, there is in fact a large discrepancy between how different groups of people are affected by events such as disasters and conflict and even personal tragedies. Risk is disproportionately carried by those who are vulnerable: the poor, disabled or sick, very old, very young, and marginalized. Faced with a similar traumatic event such as the landfall of a typhoon, a child living in an urban informal settlement is more likely to

experience loss, injury, or damage than a child of a family of a higher socio-economic level. The poor child is more vulnerable. There are two reasons why poor children are vulnerable and must be protected. As children they are still developing, so the impact of acute traumatic stressors is magnified. As poor, they are more exposed to the hazard. "If society has failed in its task, then so has the church in not speaking out and taking action to correct the situation."[132] The church has a responsibility to advocate for children who are more vulnerable to exposure to acute traumatic stressors.

The importance of the local church in advocating for vulnerable children cannot be emphasized enough. First and foremost, "Our love and concern for suffering children is a reflection of God's love and concern for those children."[133] If the witness of the church to the gospel is to be authentic, it must be demonstrated by the church taking up as her own passion the things that God cares about the most. The second reason for the local church to advocate is that they occupy a unique place with regard to the children in their own community. They are mediators who stand between the larger resources of the global Church and those in need. "We also see the local church as one of our greatest resources, as they are insiders in their communities and have a greater understanding of the needs of their communities."[134] Whereas representatives of the global Church, often through NGOs and relief and development ministries, can advocate "for" a local community, the local church is actually part of that community and can more sustainably continue raising their voice on behalf of suffering children after outside resources have

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[132] Ravi Jayakaran and Paul Stockley, "Society Has a God-Given Responsibility for the Well-Being of Children and Families," in *Understanding God's Heart for Children: Toward a Biblical Framework*, ed. Douglas McConnell, Jennifer Orona, and Paul Stockley (Colorado Springs: Authentic, 2007), 135.

[133] Brewster, *Future Impact*, 136.

[134] Wilson, *How Christian Volunteers Can Respond to Disasters*, 142.

left.[135]“ Advocacy work varies in complexity and urgency, but the key stages are generally the same and include: identifying the problem, gathering accurate information, developing a strategy, determining goals and objectives, and deciding how these will be monitored and evaluated.”[136] In each of these stages, it is the local church that is closest to the problem and most interested in finding solutions.

Chronic Traumatic Stressors

While seldom life-threatening in itself, the effect of chronic trauma on a child is the ongoing stress of seeking to protect oneself or one’s family members from various kinds of abuse, neglect and exploitation. Most often these kinds of situations are based within the family unit itself or are perpetrated by individuals whom the family trusts. Children who are experiencing chronic trauma are typically more vulnerable towards acute trauma, with the resulting complex trauma compounding what would already be a difficult experience. The church has three important tasks to protect children from complex trauma. The first is in instructing families on appropriate discipline of children. The second is exposing hidden abuse. The third is the responsibility of the church itself to be a safe place where there is no tolerance for maltreatment of children.

Preventing Abuse

All children need adults in their lives to provide for them, protect them from harm, and guide them as they grow. Usually this task falls to parents, but when they are not capable, it can also be done by other adult caregivers. When these roles are

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[135] Gordon, *Understanding Advocacy*, 2002.

[136] Joanna Watson, “Advocacy: A Challenging Issue?,” in *Understanding God’s Heart for Children: Toward a Biblical Framework*, ed. Douglas McConnell, Jennifer Orona, and Paul Stockley (Colorado Springs: Authentic, 2007), 145.

unfulfilled or done inappropriately, resulting in harm to the child, it is considered abuse. Typically, most parents love their children and want to perform these roles in their lives. However, there are many instances where parenting itself can become abusive. The church needs to teach and model for parents how to appropriately discipline children and provide accountability as they do the difficult work of raising children.

The basic task of disciplining children is keeping them safe from harm while allowing them to experientially learn how to choose right over wrong. The methods of doing this typically involve reinforcement of appropriate behavior and discouragement of inappropriate behavior. "The conviction is that discipline, if administered rightly, is truly in the child's best interest, not just the parent's or the family's. Discipline is an essential investment in the child's future; it is the means to his maturity and moral integrity."[137] In actual life, discipline can be complicated by a number of factors, including the receptivity of the child, the needs of the parents or family, the capacity of the parent, and the stresses the family is under. When any form of discipline disregards the needs of the child in favor of these other factors, it risks becoming abusive, whether physically or otherwise. "These days when so many in our society do not seem to be able to make the careful distinctions that prevent discipline, which children thoroughly need, from becoming violent, the result is often that their offspring are either abused or overindulged."[138] Keith J. White uses the term "boundaries" to describe parental guidance that protects the child from chaos and danger while providing a safe place for the child to grow in maturity.

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[137] William P. Brown, "To Discipline without Destruction: The Multifaceted Profile of the Child in Proverbs," in *The Child in the Bible*, ed. Marcia J. Bunge, Terence E. Fretheim, and Beverly Roberts Gaventa (Grand Rapids, MI: Eerdmans, 2008), 198.

[138] Marva J. Dawn, *Is It a Lost Cause?: Having the Heart of God for the Church's Children* (Grand Rapids, MI: W. B. Eerdmans, 1997), 2168.

"Boundaries that are reasonable can be defended if necessary in a logical and consistent way. They were sensitive to contemporary changes and needs and to the growing child, and may well be chosen by the child for his or her own children because they have been experienced as appropriate, proportionate, just and nurturing."[139] The church needs to teach families that discipline is "meant to edify, not punish. Whenever malice enters into the act, discipline becomes abusive."[140]

Most child protection advocates discourage using any kind of physical discipline whatsoever because it is often misused and results in the abuse of children. But physical abuse is but one variety of many. Indeed the lack of discipline altogether is a form of neglect, exposing the child to danger and hindering the development of a moral code. The church needs to instruct parents in how to discipline their children in such a way that they are not hurt, shamed, belittled, or in fear of abandonment. Harsh words and cruel punishments are just as abusive as physical blows which leave marks on the skin, only much more difficult to detect.

Hidden Trauma

Chronic trauma is often a secret that is kept between the perpetrator and their victim or behind closed doors in the family. Because children are utterly dependent on their caregivers and lack the mental sophistication to explain maltreatment, their suffering can go unseen. As the church responds to crises in the community, it is often witness to these secrets being revealed. Disasters and tragedies have the effect of breaking down things that lack structural integrity. In much the same way that a building that is unsound

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[139] White, *The Growth of Love*, 75.
[140] Brown, "To Discipline without Destruction," 1014.

will collapse under an unusual amount of stress, so too will dysfunctional families and relationships. In cases of complex trauma where a child who is under chronic traumatic stress is exposed to an acute stressor, they are much more vulnerable than other children exposed to the same event. This can be the point where the chronic trauma is revealed, and help can be brought to the child.

Because the church itself has ministries to children and is entrusted with their care, it also has the potential to be a place where children are exposed to abuse, whether physical, sexual, or emotional. It is essential for churches to have a written child protection plan that ensures that the local church is a safe place where there is no opportunity for a child to be abused. As the church ministers to children when hidden chronic trauma is revealed, there needs to be a plan to help the child access appropriate child protection services and support.

Vulnerability

As we have seen, the first part of the dynamic system of child trauma risk is exposure to both acute and chronic trauma. The church can reduce the exposure of the most vulnerable children--the poor--through advocacy on their behalf. In regard to chronic trauma, the church has a responsibility to teach and model appropriate discipline and to be ready to respond when hidden trauma is exposed. But there is more to vulnerability than just socioeconomics. Some children in the same situations are more resilient than others. The total picture of vulnerability is a combination of mediating factors of susceptibility and moderating protective and supporting factors. The ministry of the church is once again necessary in each of these systems to bring help and healing into the lives of hurting children.

Susceptibility

There is a broad range of factors that mediate traumatic stress, making the same stress worse for an individual child. The most recent research is in epigenetics, showing how trauma experienced in one generation makes changes to genes passed on to the next.[141] These changes give the child an advantage for survival in a dangerous environment but come at the cost of less stable overall mental health. Other susceptibility factors are prior exposure to trauma, environmental stressors, and pre-existing psychological sensitivities.

Environmental Stressors

As we have seen, the poor are often the most vulnerable when it comes to exposure to hazards. But many times they are also more vulnerable to the trauma caused by those hazards because they are living in an environment that is chronically stressed. "At the parental and familial levels, parents in chronically stressed environments are often overwhelmed, distressed, and fearful, which can make it difficult for them to establish a secure relationship and bond with young children."[142] These chronically stressed environments are communities where crime, drug use, unemployment, and marginalization undermine the function of the family and limit opportunities for effective schooling.

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[141] Hyeonseok Jeong et al., "Diverging Roles of the Anterior Insula in Trauma-Exposed Individuals Vulnerable or Resilient to Posttraumatic Stress Disorder," Scientific Reports 9, no. 1 (2019). https://doi.org/10.1038/s41598-019-51727-3.

[142] Katharine Meese Putnam, "Children's Needs for Parental Love in a Systemically Broken World," in Understanding God's Heart for Children: toward a Biblical Framework, ed. Douglas McConnell, Jennifer Orona, and Paul Stockley (Colorado Springs: Authentic, 2007), 57-64, 59.

Once again the church has an important role to play in advocating for the children who live in these chronically stressed environments. Many secular groups are concerned about the well-being of these children but "leave out the crucial component of the essential spiritual needs of the individual."[143] Christians also need to be aware of the spiritual nature of these threats to children. "Powers of evil turn human beings, institutions, laws, rulers, cultural elements, or authorities away from their God-given roles into functioning for harm."[144] The church must resist the urge to point out the sins of those who are living in these chronically stressed environments and instead expose the devices of the devil. "Neglect of the biblical teaching on structural injustice or institutionalized evil is one of the most deadly omissions in many parts of the church today."[145]

Another factor that increases vulnerability is pre-existing psychological sensitivities and intellectual and physical handicaps. The church regularly ministers to those with mental health problems, developmental disabilities, intellectual disabilities, and physical disabilities. All of these can compound exposure to acute trauma to make it more severe. Part of the advocacy work of the church needs to be raising awareness of the special needs of these children and cultivating compassion to care for them.

Protective Factors

While there are certain children who are more vulnerable than others both to exposure to traumatic events and to the effects of trauma, the vast majority of children

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[143] Brewster, "Future Impact," 60.
[144] Dawn, *Is It a Lost Cause?,* 186.
[145] Ronald J. Sider, *Rich Christians in an Age of Hunger: Moving from Affluence to Generosity* (Nashville, TN: W Publishing Group, an imprint of Thomas Nelson, 2015), 116.

even in these situations are still resilient. This resiliency is "considered to be the 'ordinary magic 'of development. In the most overwhelming of situations, children have the ready potential to adapt and achieve."[146] Counteracting the systems of exposure and susceptibility are dynamic systems of coping and adaptation that protect a child from trauma. The coping system starts to develop from birth as the child immediately cries out for help from a parent, building an attachment system, and then rapidly learns how to do things on their own, developing internal resources within themselves. The church can and should have a profound impact on both aspects of this coping system from the earliest days of the child's development.

Attachment System

With reasonable boundaries set by caring adults, children are free to explore their world without fear of danger. As the child develops, these boundaries are pushed further out and the child experiences more risk, but always with the caring adult at the center providing both a sense of security and real protection. When a child is exposed to an acute traumatic event, their first defense is to seek the comfort and protection provided by their parents. For the majority of children, even in more vulnerable situations, this attachment is sufficient to shield them from long-term mental health problems. As the child enters into school and progresses into adolescence, the attachment system also develops past the initial care and support received from the immediate family to include teachers, peers, and the greater community, including the church. All of these serve to equip the child with a more robust coping system to deal with traumatic events.

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[146] Linda Wagner, "Hope for Every Generation," in *Understanding God's Heart for Children: Toward a Biblical Framework*, ed. Douglas McConnell, Jennifer Orona, and Paul Stockley (Colorado Springs: Authentic, 2007), 174.

However, “The absence of a secure, warm, and stable parent-infant attachment during a child’s early life, whether because a parent is overly stressed or absent, makes it difficult for children to form intimate, lasting relationships later in life, including a relationship with God.”[147] The most insidious aspect of chronic trauma is that it often compromises the integrity of the family, leaving the child either without a parent, or with a parent who is struggling with their own mental health. Likewise, even for children who have stable attachment with their parents, acute trauma might bereave them of the parents that they depend upon. The role of the church in promoting resilience is to be indefatigably pro-family. This should be seen in efforts to support marriages, educate parents, facilitate personal over institutional care, and defending the integrity of the family unit in situations of crisis, keeping children with their parents if at all possible. “Despite the fact that international legislation repeatedly refers to the right of children to ‘grow up in a family environment, in an atmosphere of happiness, love and understanding, ’it is not possible to legislate for loving relationships.”[148] The church has a continuous responsibility to model these loving relationships to families. The strength of the local church is that instead of promoting an ideal but unachievable family, they are able to show concrete examples of families living in the exact same environment and facing the same difficulties as others in their community with the grace and love of Christ.

[147] Putnam, “Broken World,” 60.
[148] Ennew, “God Intends for Children in Thrive in Stable and Loving Relationships,” 99.

Internal resources

As the child develops a strong attachment to their caregivers and is emboldened to venture further from them, a second system is also growing. This is the child's own sense of confidence to handle things on their own. These internal resources develop concurrently, giving the child the ability to solve problems, regulate their own emotions, accomplish tasks, and have a sense of purpose and hope. They no longer have to cry out for a parent to come and help them but can help themselves.

This growth of internal resources accelerates as the child enters school, learning how to think, solve problems, and navigate social situations. It is also augmented by participation in the church, where they gain more resources of faith, prayer, and scriptural wisdom. In combination with the attachment system, these internal resources give the child greater resilience to be able to cope with adverse events.

The great advantage of this dynamic system is that the child's resilience is not totally contingent upon one factor. Although the attachment between the mother and infant is ideal, the same role can be taken up by other caring adults when the mother is no longer available. While a supportive, loving, two-parent family is most desirable, when this is unattainable, the dynamic system seeks to expand to include others to fill the gap or strengthen the child's internal resources to compensate. One way the church can "support both parents and children is by articulating sound theological and biblically informed understandings of parenting."[149] As the church encourages children to grow in their faith and be an active part of its community, they are developing trauma resilience.

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[149] Marcia Bunge, "The Vocation of Parenting: A Biblically and Theologically Informed Perspective," in *Understanding God's Heart for Children: Toward a Biblical Framework*, ed. Douglas McConnell, Jennifer Orona, and Paul Stockley (Colorado Springs: Authentic, 2007), 46.

Connection and Comfort: Support

God has given children a dynamic system of resilience that grows and develops with the child to meet the child's need to cope with stressors in this world. And yet, "the impact of the Fall presents risks in children's families and environments that systemically undermine the network of relationships on which they depend."[150] And so God has not designed a perfect rigid system but a dynamic system that adapts to meet the demands placed upon it. How does this dynamic system adapt to make children more resilient to trauma and how can the church make this adaptation more effective in protecting children?

The coping system built of the child's attachment system and internal resources is what the child must rely on during and in the immediate aftermath of a traumatic event. The adaptation system is the mechanism by which the child's coping system is strengthened to handle greater amounts of stress in the mid- to long-term future. By expanding the child's attachment system to include outside sources of support and restoring broken community, interventions can build connectedness that sustain and comfort a child. As the child moves from being a victim to a survivor and is supported in that journey, they grow in internal resources to succeed. In much the same way that prompt first aid can sustain life that would otherwise be overwhelmed, timely help from others can cover for a child's otherwise inadequate coping system.

[150] Putnam, "Broken World," 59.

Connectedness

For better or for worse, a child is always part of a multi-layered environment of which they may or may not be aware. The first layer is the micro-system that is composed of the child and those in their immediate proximity-- family, teachers and peers. This micro-system is in turn part of a greater community which is the macro-system. The macro-system is made up of many components on which the child is dependent but not necessarily directly affected by, such as local government, laws, institutions, and services. All of this is also influenced by an exo-system that includes such factors as national policy, economics, culture, climate, and international affairs.[151] In the dynamic system of resilience, it is usually unnecessary to access additional resources from the larger systems, as the micro-system is adequate to meet the child's needs. It is when the micro-system is overwhelmed that the child needs to be connected to support and services that they might not have been aware of previously. This connectedness bolsters the attachment system, giving extra resilience to the child.

Rebuilding Community

The community is the safety-net for the mental health of the child when facing trauma. The first defense is the child's coping system, a strong attachment to adults who can help them regulate difficult emotions and internal resources to deal with the trauma themselves. The second defense is made up of the remaining elements of the micro-system as they seek comfort from extended family, teachers, and peers. The third defense is the child's connections with support and help in the community when all else fails.

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[151] Bronfenbrenner, Urie, *The Ecology of Human Development: Experiments by Nature and Design*. Cambridge: Harvard University Press, 1979, 8.

However, there are times when the greater community itself is overwhelmed through disaster, conflict, or the breakdown of society in chronically stressed environments. “Sin causes ‘the destruction of community ’because of its outward-rippling consequences.”[152] Displacement that occurs as people flee dangerous environments also breaks down community because people who once lived in proximity are dispersed. One of the most effective things that the church can do to support children in the aftermath of crisis is rebuild community. Typically, governments move rapidly to restore basic services and institutions that people need to survive. But community is more than just these functions. Crucially, community is the connection between people who understand and support one another. It is an expanded attachment system. Once again local churches are vital for restoring these connections that undergird mental health because they are already part of that community.

True Comfort in the Church

One realization that the church needs to make is that it has a role in community to extend the comfort of Christ to those who are in anguish. As coping systems are overwhelmed, people need to be comforted with the comfort that Christians have received. The church needs to regard itself as a mental health first aid station for all those who are suffering in crisis, and as mental health first responders for children and families. Crisis ministry is distinct from other kinds of counseling; it seeks to bring immediate relief to symptoms of distress and increase coping through connection with local support. One effective model for crisis ministry is Psychological First Aid (PFA), which “focuses

[152] Jennifer Orona, “The Roles and Responsibilities of Children and Their Communities,” in *Understanding God’s Heart for Children: Toward a Biblical Framework*, ed. Douglas McConnell, Jennifer Orona, and Paul Stockley (Colorado Springs: Authentic, 2007), 84.

on providing practical assistance and promoting a sense of safety, calming, connectedness, self-efficacy and community efficacy, and hope amongst disaster victims."[153]

As part of the extended attachment system for a child, the church in an emergency must first seek to make sure that the child feels safe. For young children, safety usually means that they are not alone, and someone is protecting them. In the sense of rebuilding community, it also means that they understand that they are not the only one going through the crisis. They are part of micro and macro systems that understand what is happening and are helping one another. The church needs to actively seek out those who are isolated and counteract forces that isolate individuals, such as disability and marginalization. For youth, a sense of safety is not just that they are not alone but also that they are accepted. Unfortunately, the church can be seen by youth as judgmental, and young people may fear that they will be rejected if they come to church. Christians need to receive young people as they are without seeking to change them, but instead bringing comfort to them so that they can heal and be transformed by the work of Christ. "Can the Christian community be a safe place where children can freely talk to adults, find mentors, relate openly, play securely?"[154]

Calming hyper-aroused emotions is one of the basic functions of the attachment system. As a community extension of this, one of the best ways that the church can help children regulate their emotions is by listening to them. When children (and adults) feel that they are not being listened to, they naturally repeat what they have just said, only

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[153] Bonanno et al., "Weighing the Costs of Disaster," 43.
[154] Dawn, *Is It a Lost Cause?,* 2300.

louder. Whether this is crying, screaming, or shouting, strong emotions can rapidly cascade out of control. By listening, the listener affirms the worth and importance of the one being listened to and validates the emotions that they are experiencing. The result is a decrease in arousal and a greater feeling of calm. churches can often make the same mistake as the disciples when they forbade the little children to come to Jesus, thinking that they were unimportant and would waste His time. Much violence and division in communities stems from marginalization, from people angry and upset because they do not have a voice and no one is listening. "When churches welcome children, they are learning to be attentive also to each other as adults."[155]

For children who lack perspective and context, a sudden traumatic event can seem like it is much larger and has a deeper impact than it does. Media exposure can compound this when pictures and details are seen repeatedly and in overwhelming detail. Children need adults to guide them through life. In situations that they have never experienced before, children look to adults to tell them what to do. But in times of extreme crisis, adults can also be overwhelmed and hopeless, and they may cease to give children the direction that they need. An important function of the church in crisis ministry is to help restore a sense of hope. Hope is the belief that things will get better. As help arrives from outside of the child's microsystem, it bolsters hope. But as setbacks and reversals happen, hope can fade. Christians have the hope inside of them that God keeps His promises and works through even the most distressing events to accomplish good. This hope affects the way that Christians approach hardship, and as this is

[155] Kristin Herzog, *Children and Our Global Future: Theological and Social Challenges* (Cleveland, OH: Pilgrim Press, 2005), 122.

modeled, it is caught by those who witness it. As children see Christians with hope, they can regain confidence to trust that, although adults are also scared, they have a plan and can be trusted to give them direction.

Christian compassion is not just sympathy or pity that acknowledges the other person's pain but is ineffective to relieve it. Christian love is willing to sacrifice one's own well-being to relieve the suffering of someone else. Times of crisis are a perfect opportunity to demonstrate the sacrificial love of Christ as Christians take other people's burdens as their own. For most children, a sudden acute traumatic event might upset their coping system for a brief time. But the dynamic system seeks out help for the portions that are overwhelmed. Christian compassion comes alongside the child, augmenting the resources that already exist until their own coping system is once again able to handle the trauma. For some children, those who have experienced extreme, compounded, or complex trauma, or who are more susceptible to trauma, their coping system is compromised, and they need a greater amount of help. Christian compassion comes alongside these children, recognizes their need, and makes sacrifices in order to get them the protection and interventions necessary.

Empowerment towards Resilience: Adaptation

Just as the church acts as an extension of the attachment system to help comfort children experiencing overwhelming emotions, it also functions to strengthen the internal resources of the child so that they are more capable to face future traumatic events. This adaptation makes the child more resilient. Conversely, maladaptation is what happens when the child lacks sufficient internal resources or attachment and resorts to using

means to comfort themselves that are ultimately detrimental to their well-being. The three areas where the church most strengthens the internal resources of children to cope with trauma are in self-efficacy, meaning making, and the growth of faith.

Self and Community Efficacy

A final component of psychological first aid is promoting self and community efficacy. This is the difference between viewing oneself or one's community as victims or as survivors. A victim is simply the hapless object of unfortunate events. But the survivor has efficacy, the ability to make a difference in the outcome. Children are continually growing in self-efficacy, learning how to do new things for themselves and becoming more independent. But it is also possible for children to learn inefficacy if they repeatedly experience failure. They give up without trying, assuming that they will not be able to anything. In situations of acute or chronic trauma, children can learn inefficacy when their actions are unable to stop unwanted events from happening. Sometimes children lacking context blame traumatic events on themselves, thinking that their actions caused the misfortune. Sometimes outsiders responding to a crisis completely remove agency from locals, who then feel they can do nothing but wait for relief. If outside relief organizations do everything for those who have been through a traumatic event, they can be left without a sense of efficacy both as individuals and as a community. They become victims rather than survivors. The local church occupies a unique role as both a representative of those affected by a crisis and a conduit for the resources of the Church as a whole. It is imperative for Christian relief organizations and ministries not to bypass the local church, even though they might be weakened by the event and initially provide little help themselves. The local church must be strengthened and empowered so that they

can become an ongoing source of hope and comfort to their own community. In the same way, as the local church ministers to children, they too must not simply do everything for the children as if they were helpless. Rather, the child needs to develop a sense of self-efficacy even in the face of traumatic circumstances.

Welcoming children to be part of the solution even though they are the ones who need help is building self-efficacy. It is also an essential part of Christianity, where all are sinners saved by grace. Including children as partners and serving alongside them, letting them express themselves while giving guidance, "provides the best context for engagement and empowerment."[156]

Meaning Making

Each child is the protagonist of their own story. They have an internal narrative that assigns meaning to what they have experienced and their role in it. In much the same way that the attachment system helps a child to regulate emotions until they develop the internal resources necessary to do it themselves, so also, much of the narrative of the child is provided at first by the family. As the child grows, one part of their internal resources is the ability to maintain the narrative and their part in it as events take place. Traumatic events can endanger the narrative, leaving the child without a role and without a way to make sense of life. "For life and identity of a particular kind are of course in. The first layer is the micro-system that is composed of the child and those in their immediate proximity-- family, teachers and peers. This micro-system is in turn part of a

[156] Perry W. H. Shaw and Corneliu Constantineanu, "Space and Community, Engagement and Empowerment: Missiological Equipping for a New Mission Era," in *Children and Youth as Partners in Mission*, ed. Dan Brewster and John Baxter-Brown (Seoul: 4/14 Window, 2013), 131.

greater community which is the macro-system jeopardy if children fall out of the lore of the family, whether by negligence, resistance, or seduction to other versions of reality."[157]

As community is rebuilt after a crisis, shared experiences are related to one another, and a new narrative forms. The church--and specifically, the local church--are major influences on this narrative, as people with questions seek ways to make meaning out of tragedy. "The more that we can surround children with a developmental infrastructure that provides these resources, the more likely it is that they will be able to hold on to the hope that God will keep his promises to them, even under devastating circumstances."[158] The local church as part of the community of survivors is qualified to help shape the narrative as one that includes God's faithfulness and grace.

The Growth of Faith

Belief systems help give meaning to life in devastating circumstances, resulting in greater resiliency. "Faith, hope, and spiritual beliefs or religious practices have been implicated in the broad resilience literature."[159] It is likely that faith is more than just the support of the religious community in a time of distress or meaning-making after the event, but also an actual internal resource that is built up in the child, strengthening resilience. In Scripture there are examples of children whose faith contributes to their ability to withstand traumatic events.

David's experience guarding his father's flocks gave him a sense of mastery, giving him confidence that he could trust God to deliver him yet again. When he went up

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[157] Walter Brueggemann, "Vulnerable Children, Divine Passion, and Human Obligation," in *The Child in the Bible*, edited by Marcia J. Bunge, Terence E. Fretheim, and Beverly Roberts Gaventa (Grand Rapids, MI: Eerdmans, 2008), 4960.

[158] Wagner, "Hope for Every Generation," 175.

[159] Masten, "Child Development."

against Goliath, he was able to boldly say, "The Lord, who delivered me from the paw of the lion and from the paw of the bear, He will deliver me from the hand of this Philistine."[160] David's faith grew through multiple experiences of God's providence making him more resilient to face the verbal and physical threats made by the giant armored warrior. Children who grow up in a community of faith where God is trusted and depended on in practical life situations, prayed unto, and given gratitude regularly have built up an inner resource which will serve as a protective factor even when they must face difficulties alone.

Joseph is a second example from Scripture of a child who builds up faith that sustains him later after traumatic events. Joseph's repeated dreams instill in him a sense of destiny and an awareness that God has a greater purpose for his life. When his brothers attempt to kill him and then sell him into slavery, Joseph's faith sustains him, and he is able to avoid maladaptations and continue to rely on God. Children who have high self-esteem and a sense of life purpose are more resilient than children who do not. Joseph's faith is able to sustain him through multiple circumstances of great difficulty, even in complete isolation from his faith community.

A third example from Scripture is Daniel and his three friends, who were exposed to the traumatic experiences of the siege of Jerusalem and being carried away captive by the Babylonians. Exiled from their faith community in a foreign land and under pressure to conform to local custom, Daniel and his friends have enough internal fortitude of faith to resist eating the king's food and to keep to a religiously lawful diet. A third way in which faith can serve as a factor in resiliency is by establishing boundaries that can

[160] 1 Samuel 17:37 NKV.

effectively reestablish order even in the midst of chaos. Religious traditions and observances can be carried within and function as a guardrail for the child keeping them from losing their way despite the loss of family and community.

Twelve Holistic Roles for the Church

Reducing Exposure

The church is able to help reduce the exposure of children to traumatic stress, and it is part of its mission to do so.

1. Advocating for the children of the poor and marginalized who are more vulnerable to acute exposure.

In advocating for the children of the poor the church is simply echoing God's heart for the most vulnerable. The local church is capable of advocating effectively for these children by developing a clear understanding of what the vulnerable in their community struggle with, including them in developing solutions, and amplifying their voice.

2. Instructing families on appropriate discipline of children to reduce chronic abuse and neglect.

Unfortunately, Scripture is sometimes used to justify abusive behavior in disciplining children. The church needs to clarify the appropriate use of all means to encourage right behavior and discourage those which will be detrimental to the well-being of the child. The church needs to model appropriate parenting so that children are not neglected and left undisciplined out of ignorance.

3. Preparing to bring help to children with hidden trauma with a plan for when abuse is revealed.

Since much abuse and neglect happens in private and is therefore hidden, the church needs to be a place where children who are suffering feel safe revealing their needs. Local churches need to plan for how to access needed services in their community when such abuse is revealed.

4. **Ensuring that churches are safe for children, with a written child protection policy.**

As in all institutions that care for children, there is a possibility of abuse happening within the church itself. Having a written child protection policy and implementing measures to ensure the safety of children makes that less likely to happen.

Reducing Vulnerability

The church can also help reduce vulnerability to trauma by raising awareness of factors that cause certain children to be more drastically impacted than others.

5. **Raising awareness of structural injustices and institutionalized evil that increase susceptibility.**

The church rightly should make a clear stand against sin in all of its forms. However, the tendency is to point out the sins of individuals and neglect to expose sin on a larger scale that contributes to chronically stressed environments in some communities. The church can reduce vulnerability by raising awareness of structural injustices and institutionalized evil.

6. **Raising awareness of special needs of children with disabilities during crisis.**

Children with pre-existing conditions are more susceptible to trauma than others. The church needs to be aware and raise awareness of the special needs that these children have during periods of crisis when they might be more vulnerable.

Promoting Protective Factors

7. **Pro-family activities supporting marriages, parenting, and the integrity of the family.**

As the family is perhaps the most influential protective factor in a child's life, the church needs to tirelessly strive to build up families. The church should be a strong voice encouraging families to stay together and speaking up against any attempts to separate children from families.

8. **Modeling loving relationships at the local level.**

The local church has a role in providing actual examples of loving family relationships that people can emulate in their own context. It is not enough to declare that every child has a right to have a loving family. It needs to be modeled in a wide variety of contexts, leaving no excuse for any child to be lacking one no matter what their situation.

Promoting Adaptation

Finally, the church has a powerful role in promoting adaptation, coming alongside the child's natural coping system to bring aid, comfort, and meaning. Faith is also an essential component to resilience. The church is not just a relief organization that is "faith-based" but brings unique spiritual resources that are necessary to protect children's mental health.

9. **Rebuilding community and connections between people who understand and support one another.**

Local churches are part of the community and should play a vital role in reestablishing community when it is threatened. As the extended attachment system, the community functions as the last line of defense in times of chaos. Activities that bring people together, allow them to share their experiences, and encourage mutual support build community.

10. **Psychological First Aid interventions to promote a sense of safety, calming, self-efficacy, hope and connectedness.**

The church has had a long history of providing emotional and spiritual support for those who have suffered crises. This has been known as chaplaincy, crisis ministry, and now, psychological first aid. Many of the elements of psychological first aid are very familiar to churches that minister to those going through personal tragedies: coming alongside those who are hurting, letting them know they are not alone, listening to their stories, helping them to have peace and regain hope.

The benefit of psychological first aid is that it is evidence-informed and has been demonstrated to help children recover. Another advantage to psychological first aid is that it can be done by trained volunteers, vastly increasing the number of people who can respond in such a way to help children after a crisis.

11. **Meaning-making activities that help the community and children to make sense out of the crisis.**

The local church interprets events for its community not just in terms of science, politics, and socio-economics, but through the lens of faith and Scripture. These

churches, as fellow survivors, need to struggle with the issues that concern their community, addressing pain, fear, grief, and frustrations with the truth of a compassionate and loving God.

12. Encouraging growth of faith, trust in God, sense of purpose, and supportive boundaries instilled through internalized religious practices.

The church has as a primary mission the propagation of the faith, ensuring that each new generation continues in it. In a sense, religious faith can be the ultimate safety net. The research done thus far suggests that most children are naturally resilient. Even though they are exposed to traumatic events, they are far more likely to recover than to suffer permanent mental health problems. This is because they are protected by a dynamic system of resilience. Exposure to extreme trauma, the effects of compounded or complex trauma, and increased susceptibility due to environment, genetics or prior conditions all can contribute to make things worse, and yet there is still a greater probability for the child to be resilient than not. It is only when the protective factors are removed or weakened that children become truly vulnerable. If children are separated from caretakers, schools are closed, and communities displaced and scattered, then they are most at risk for long-term mental health consequences. And yet, even when isolated from other protective factors, religious faith can be an internal resource that connects a child to support from which they can never be separated.

These twelve roles of the church in reducing exposure and susceptibility to trauma in children in their community, as well as promoting protective factors and adaptation, are stated succinctly in the following table (see table 1).

Table 1. Twelve Roles of the Church in Holistically Protecting, Comforting and Empowering Children in Response to Exposure to Traumatic Stress

	Reducing Exposure
1	Advocating for the children of the poor and marginalized who are more vulnerable to acute exposure
2	Instructing families on appropriate discipline of children to reduce chronic abuse and neglect
3	Preparing to bring help to children with hidden trauma when abuse is revealed
4	Ensuring that churches are safe for children with a written child protection policy
	Reducing Susceptibility
5	Raising awareness of structural injustices and institutionalized evil that increase susceptibility
6	Raising awareness of special needs of children with disabilities during crisis
	Promoting Protective Factors
7	Pro-family activities supporting marriages, parenting and the integrity of the family
8	Modeling loving relationships at the local level
	Promoting Adaptation
9	Rebuilding community and connections between people who understand and support one another
10	Psychological First-Aid interventions to promote a sense of safety, calming, self-efficacy, hope and connectedness
11	Meaning-making activities that help the community and children to make sense out of the crisis
12	Encouraging growth of faith, trust in God, sense of purpose and supportive boundaries instilled through internalized religious practices

Before, during, and after crises, the local church is a vital part of its community and plays an important role in how that community prepares for crisis, survives the event,

and rebuilds afterwards. If the church neglects to welcome children by failing to consider them in a developmentally appropriate way as part of their community, it misses an opportunity to more fully experience the kingdom of God, of which children are a sign and an entry point. As the church works to reduce the exposure children in their community have to trauma, it becomes known as a safe place. The work the church does to reduce susceptibility marks it out as a place of compassion. The work done to promote protective factors in children's lives allows the community to see the kingdom of God in the church as relationships are strengthened. The work the church does in promoting adaptation helps not only the children but the entire community grow stronger in resilience and grow in faith. Millennials have been leaving the evangelical church in record numbers, largely due to what they see as a lack of love and compassion. Oliver Davies defines compassion as a "volitional act to embrace the suffering of the other and to intervene on their behalf."[161] Compassion is not simply being aware of the suffering of others but a willingness to sacrifice oneself for them. This is a crucial element of the doctrine of the cross that evangelicals have neglected. Millennials have not found room for their brokenness in evangelicalism and have turned to a post-modern rejection of the Church outright. But by looking at the context of brokenness, we are able to identify a blind spot in evangelical theology that does not do justice to the infinite compassion of God. Much like the present broken generation, post-war German Christians wrestled with how to believe in God after the horrors of Auschwitz. Jürgenn Moltmann wrote in "The Crucified God" that "a theology which did not speak of God in the sight of one who was

[161] Oliver Davies. *A Theology of Compassion: Metaphysics of Difference and the Renewal of Tradition* (Kindle Edition), 3840-3841.

abandoned and crucified would have nothing to say to us."[162] For Moltmann, what made God relevant for his own broken world was that God also suffered. It is this God of the cross, not the glorious perfect heavenly God, that connects with those who have themselves been broken. This is the connection that the church can make with Millennials and younger generations who have been broken as well.

The Apostle Paul wrote to the Corinthians about the "Father of mercies and God of all comfort"[163] and the solidarity of compassion, where those who suffer are comforted so that they can comfort others. The assumption is that this comfort begins with God's own suffering, which in turn allows Him to comfort us. Moltmann asserts that it is Christ's suffering that allows Him to "come into true experiential solidarity with the god-forsaken, oppressed, mortal, powerless humanity he assumed to save."[164]

The task for evangelicals then who wish to meaningfully engage with the broken is to "comfort those who are in any trouble, with the comfort with which we ourselves are comforted by God." In just the last few decades, trauma and its effects on children have become more well known; however, there has never been a shortage of traumatic events, and each generation has been broken in its own context. Welcoming the child then also means for the church that we welcome those who were broken as children and still retain the negative effects, psychopathologies that were maladaptations to traumatic events such as PTSD, anxiety, depression, disruptive behavior, and addictions. The key to welcoming these hurt people who also hurt others, is much the same as working with children who

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[162] Jürgen Moltmann, *The Crucified God* (London: SCM Press, 2015).

[163] 2 Corinthians 1:3

[164] C. M. Smith, "The Protest of Christ and the Death within God: An Analysis of Moltmann's Departure from Classical Theism in The Crucified God," *Perspectives in Religious Studies* 45, no. 1 (2018): 15–26.

have been through traumatic experiences—the foundation of all healing from trauma begins with a visceral feeling of safety. Hurt people need to know that they are entering a safe, shared community, so that their autonomic system can come down from a state that is supporting defense, begin to activate their social engagement system, and pick up on social cues of safety. The second most important step is to help them regain calm, which occurs when they realize that they are being heard and are considered to be important. The third step is to introduce hope that things will be better, a hope that can best be received from the truth of God's word. The fourth step is for them to realize that they are not just a victim but are a survivor and have the power to help others who are going through similar things. The fifth step is to rebuild community with loving relationships and connections to those around them.

In the four Gospels, we see Jesus addressing the religious community of the Jews, who had a very rigid definition of who was accepted and who was not. Jesus starts by calling disciples--but not from the educated, socially respectable, or wealthy. Jesus chooses his inner circle from the working class, uneducated, despised, and marginal. Each time the religious leaders would push back, Jesus would welcome in more undesirables--women, sinners, children, the unclean. In the book of Acts, Jesus continues expanding who is accepted in His kingdom by extending the gospel to the persecutor, the enemy, the jailer, and the Gentiles. Isolation is the opposite of community. When people are hurt, isolating oneself from others can be a natural defensive response. However, isolation makes hurt people even more vulnerable. The church needs to be a safe place where those who are hurting can come to be part of community without condemnation or accusation--a place where they can feel safe to begin.

Many people feel unimportant because no one listens to them. These people don't bother to speak up at all because they think that no one is listening anyway, or sometimes they get even more angry for the same reason. This was one of the most radical departures from business as usual that Jesus demonstrated. Jesus declared the poor, the powerless, the needy, and even those who grieve "blessed." Jesus ate and drank with the tax collectors and sinners. Jesus talked to and touched the unclean, untouchable lepers. Jesus forbade his disciples from preventing the little children from coming to Him. Jesus clearly decided who was important based on something other than power and prestige. Their importance is not based on what they have to offer but on who God created them to be.

What is most appealing about this vision of a compassionate church that welcomes children and those who were broken as children is that these broken lives can heal, and the cycle of hurting people hurting the next generation can be reversed. This reversal is how the little children can lead their community back to recovery after traumatic events. As the children recover, adults are also influenced by their social engagement systems. Seeing the children once again smile and play, they also smile and begin to believe that there might be some hope after all.

Theological Discussion

In much the same way as when Jesus placed a child in the midst of the disciples it changed the theological discussion, so too has placing the child in the midst of Grenz's *Theology for the Community of God.* The presence of the child has revealed that since children are essentially relational beings, the purest earthly form of the *imago Dei,* children are also key to restoring relationships in broken and disrupted communities.

PTSS are normal responses to abnormal conditions as the child attempts to cope with traumatic disruption. The persistence of these symptoms points not only to psychological conditions but to the breakdown of the community that would normally help the child recover. Elevated PTSS scores indicate that the child is in some way not being sufficiently welcomed and invite the church to look more closely at how they can receive poor, marginalized, or different.

Holistic Child Development operationalizes these revelations gained by placing the child in the midst, by seeing the child not only as the object of ministry or relief, but as a catalyst for community transformation. The exclusion of children—whether through sin, disaster, or neglect—damages both the child and the community. HCD can emphasize equipping the church to play an active role in protecting, empowering, and providing comfort for children who have been exposed to mass trauma.

By holistically screening PTSS HCD practitioners can identify those children who are being excluded and work to welcome them into the community that needs them as much as they need help.

Resilience Theory

In contrast to the long history of neglect to consider children in both the fields of disaster response and theology, psychology has paid more attention to the child with a majority of studies on resilience being "completed by psychologists working with populations of children and adolescents."[165] However, despite the attention that resilience

[165] Gemma Aburn, Merryn Gott, and Karen Hoare, "What Is Resilience? An Integrative Review of the Empirical Literature," *Journal of Advanced Nursing* 72, no. 5 (July 2016): 980-1000, https://doi.org/10.1111/jan.12888.

has received in the 21st century, the field is still new, and there is as yet no universal definition of what resilience is.[166]

There are long-standing challenges that make research with children in disasters difficult, but a consensus is developing that there is a heterogeneity of responses to exposure to trauma which can be described by several post-traumatic stress symptom (PTSS) trajectories.

In this section I have chosen the resilience framework of Ann Masten as a 'dynamic system 'which allows resilience to be compared across fields and not just in psychology, looking at the child in a mass trauma setting as being part of a dynamic relational system of resilience set in a larger ecological systems context.

While the types of trauma exposure that put a population more at risk and protective factors in general are more clearly understood now, there are still struggles in rapidly and accurately assessing and identifying individual children with the most risk of pathology.

The Definition of Resilience

As researchers have looked at the effect of trauma on children, most studies have focused on what kinds of exposure led to psychopathology. The work of Norman Garmezy,[167] starting in the 1970s, and then that of Michael Rutter in the 1980s,[168] showed that even in high-risk groups, certain individuals did not develop

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[166] Aburn, Gott, and Hoare, 986.

[167] Norman Garmezy, "Vulnerable and Invulnerable Children: Theory Research and Intervention," *Catalogue of Selected Documents in Psychology*, no. 96 (June 1976).

[168] Michael Rutter, "Resilience in the Face of Adversity: Protective Factors and Resistance to Psychiatric Disorder," *The British Journal of Psychiatry* 147, no. 6 (December 1, 1985): 598–611, https://doi.org/10.1192/bjp.147.6.598.

psychopathology but were instead able to adapt and function in society. They defined resilience as "reduced vulnerability to environmental risk experiences, the overcoming of a stress or adversity, or a relatively good outcome despite risk experience."[169] This heterogeneity of responses led to a search for resiliency 'traits 'that would explain why some children were able to overcome adversity while others could not.

Up until the early 2000s, the research on resilience was largely focused on "identifying the unique characteristics of persons who cope well in the face of adversity,"[170] and resilience was thought of as a function of character, personality, and coping ability. Much of the research looked at things such as parenting, increasing self-efficacy, secure attachment, and the growth of intellectual and social skills as protective factors within the individual child.

From the early 2000s, studies started to show that resilience, rather than being the exception when children are exposed to traumatic situations, was instead the majority outcome. Most children were in fact found to be resilient.[171] With this, attention started to shift in resilience research to factors of vulnerability or protection that were not an attribute of the individual.[172] Ann Masten's enormously influential book of that name called resilience "Ordinary Magic." She suggested that if most children were resilient, it was based upon common factors available to children such as family, love, and close

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[169] Michael Rutter, "Resilience as a Dynamic Concept," *Development and Psychopathology* 24, no. 2 (2012): 336, https://doi.org/10.1017/s0954579412000028.

[170] Christine E. Agaibi and John P. Wilson, "Trauma, PTSD, and Resilience," *Trauma, Violence, and Abuse* 6, no. 3 (2005): 197, https://doi.org/10.1177/1524838005277438.

[171] George A. Bonanno and Anthony D. Mancini, "Beyond Resilience and PTSD: Mapping the Heterogeneity of Responses to Potential Trauma," *Psychological Trauma: Theory, Research, Practice, and Policy* 4, no. 1 (2012): 77, https://doi.org/10.1037/a0017829.

[172] Suniya S. Luthar, Dante Cicchetti, and Bronwyn Becker, "The Construct of Resilience: A Critical Evaluation and Guidelines for Future Work," *Child Development* 71, no. 3 (2000): 547, https://doi.org/10.1111/1467-8624.00164.

friendships. Masten used a relational developmental systems framework to define resilience as, "the capacity of a dynamic system to adapt successfully to disturbances that threaten system function, viability, or development."[173]

The Measurement of Resilience

Many of the studies since the 2000s have measured post-traumatic stress symptoms (PTSS), and, beginning with George Bonanno, they began to track the heterogeneity of responses to trauma and categorize the trajectories of those responses. Bonanno presented four pathways: Chronic, Delayed, Recovery, and Resilience. The Chronic pathway exhibits severe symptoms that persist over time. Delayed and Recovery pathways both have moderate symptoms, but while the latter improves, the former grows worse over time. The Resilient pathway starts with mild symptoms that continue to be mild.[174]

While Bonanno's original research was conducted with adults recovering from grief, many studies with children in disaster have followed. A survey of these types of studies has found that the resilience trajectory tends to be the largest trajectory group among children, followed by the recovery trajectory, and that only a very small proportion of children are likely to exhibit chronic trajectories. The survey concluded that there was not enough evidence to support a delayed trajectory in children.[175]

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[173] Ann S. Masten, *Ordinary Magic: Resilience in Development* (New York: The Guilford Press, 2015), 3.

[174] George A. Bonanno, "Loss, Trauma, and Human Resilience: Have We Underestimated the Human Capacity to Thrive after Extremely Aversive Events?" *American Psychologist* 59, no. 1 (2004): 21, https://doi.org/10.1037/0003-066x.59.1.20.

[175] Betty S. Lai et al., "Posttraumatic Stress Symptom Trajectories among Children after Disaster Exposure: A Review," *Journal of Traumatic Stress* 30, no. 6 (2017): 581, https://doi.org/10.1002/jts.22242.

Using the trajectory modeling approach also brought to light risk factors that "distinguished between the chronic and recovery trajectories across studies, including perceived life threat, perceived threat to parents, experience of evacuation, housing disruption, violence exposure, and low social support or family connectedness."[176]

Conducting research with children in disaster settings is notoriously challenging because of the necessity of dealing with multiple stakeholders, transient survivors, difficulty in obtaining consent, and ethical and practical issues in conducting rigorous research designs.[177] Not only is conducting research in disaster difficult, but Bonanno writes as late as 2021, "We know that a resilient outcome following potential trauma is common, and we know the characteristics that correlate with a resilient outcome, but, paradoxically, we still can't predict that resilient outcome with much accuracy."[178] He describes what he calls a "paradox," namely, that going from predictors to predictions is stymied by each of the correlates only having a modest effect on the outcome.

Sources of Risk and Resilience

Perhaps Bonanno's paradox can best be explained by use of Masten's definition of resilience as a "dynamic system," a definition which she builds off of Relational-Developmental-Systems (RDS) metatheory. Overton sets RDS in opposition to cognitivism, which holds a computational model of the mind based on the Cartesian worldview. In contrast to this machine-like development of the mind, RDS sees factors such as genetics, neurobiology, culture, parenting, friendships, and community not as

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[176] Lai et al., 582.

[177] Wendy S. Grolnick et al., "Improving Adjustment and Resilience in Children Following a Disaster: Addressing Research Challenges," *American Psychologist* 73, no. 3 (2018): 215-229, https://doi.org/10.1037/amp0000181.

[178] George A. Bonanno, *The End of Trauma* (Basic Books, 2021), 83.

mechanical causes that can be added or subtracted, but as "resources and conditions that the relational developmental system itself uses to develop."[179] A key concept in RDS is that of "equifinality," or, that there are multiple ways of achieving the same ends. So, rather than becoming broken like a machine that lacks a certain part, chemical, or condition to function, the system seeks to make a way given the available material. In other words, the "modest effect" that Bonanno's data attributes to each factor is to be expected as the system seeks equilibrium using the resources and conditions available to it. Rather than searching for a dominant factor around which to build an intervention, the systems approach requires a synthesis. Masten describes current resilience research as a fourth wave, "as scholars tackle multi system questions and attempt to integrate concepts and findings about resilience across disciplines and levels of analysis."[180]

A key component of developmental science has been Bronfenbrenner's ecological systems theory which sets the developing child in a context of overlapping and nesting systems, from the microsystem of the child and immediate family all the way up to the macrosystems of culture and government. Between these lie multiple systems that affect the child either directly or indirectly such as schools, institutions, and community,[181] as well as systems within the body such as the immune, neural, and neuroendocrine systems.[182]

Masten points to another reason beyond developmental systems theory for her turn towards fully embracing the systems approach, namely, "the growing threat of mass-

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[179] Lerner and Overton, "Processes, Relations and Relational-Developmenal Systems," 52.

[180] Ann S. Masten, "Resilience in Developmental Systems," *Multisystemic Resilience* (2021): 114, https://doi.org/10.1093/oso/9780190095888.003.0007.

[181] Bronfenbrenner, *The Ecology of Human Development*, 1979.

[182] Masten, "Resilience in Developmental Systems," 116.

trauma global adversities in the form of terror attacks, disasters, and pandemics," when many of the systems that human beings depend upon simultaneously stop working.[183] Indeed, the field of disaster response has also had a long interest in resilience and approaches it in a more systems-aware manner than has psychology, with its preoccupation with the individual. Disaster researchers have also been aware that, faced with the same disaster, certain groups are more vulnerable than others. "Vulnerable groups are those groups that are more likely to experience a range of negative impacts when disasters strike and less likely to experience positive outcomes in the aftermath of disasters."[184] The World Risk Index has calculated a global listing of national risk scores based off of the formula that risk equals exposure times vulnerability, where vulnerability is a factor of susceptibility mitigated by coping and adaptation.[185] The result shows a heterogeneity of risk based on a complex dynamic system where a nation that is highly exposed to disaster on the "Ring of Fire" such as Japan still enjoys a comparatively modest risk factor due to its stringent building codes and abundant economic resources while the Philippines on the same "Ring of Fire" has one of the world's highest risk ratings because of the combination of vulnerability factors. Comparing risk at such an extreme macro-system level to individual risk of psychological trauma from exposure to mass disaster is possible with the relational developmental systems approach that Masten has adopted.

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[183] Masten, "Developmental Systems," 115.

[184] Kathleen Tierney, *Disasters: A Sociological Approach* (Cambridge: Polity Press, 2019), 125.

[185] "World Risk Report 2021." Bündnis Entwicklung Hilft, Ruhr University Bochum – Institute for International Law of Peace and Conflict, 2021. https://weltrisikobericht.de/weltrisikobericht-2021-e.

A Neurodevelopmental Understanding of Resilience

Furthermore, the relational developmental systems approach also allows the consideration of the extreme micro-system level of neurodevelopmental theory. Researchers such as Bruce Perry, Stephen Porges, and Bessel van der Kolk have looked at trauma through the lens of neuroscience, especially how the human physiological response to threat is shaped by a social dimension.

These researchers are keenly aware that the developmental stage of a child changes the impact of a traumatic experience. Perry describes "sensitive periods" such as early childhood when development of the brain will "be more sensitive to organizing or disruptive experiences."[186] Van der Kolk bemoans the inadequacy of the PTSD diagnosis as being not "developmentally sensitive" and describes the current dilemma of children being given multiple "comorbid" diagnoses, of which none "do justice to the spectrum of problems of traumatized children, and none provide guidelines on what is needed for effective prevention and intervention."[187] If the only diagnosis available for children is PTSD, largely formulated in response to adult reactions to war, once again children are being treated as "little adults." Because children are developing, they are more vulnerable when exposed to trauma, and this in turn plays a role in psychopathology by changing the "baseline activity and reactivity of the stress response systems in the traumatized individual."[188]

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[186] Bruce D. Perry, "Examining Child Maltreatment through a Neurodevelopmental Lens: Clinical Applications of the Neurosequential Model of Therapeutics," *Journal of Loss and Trauma* 14, no. 4 (2009): 242, https://doi.org/10.1080/15325020903004350.

[187] Bessel A. Van der Kolk, "Developmental Trauma Disorder: Toward a Rational Diagnosis for Children with Complex Trauma Histories," *Psychiatric Annals* 35, no. 5 (2005): 401-408, https://doi.org/10.3928/00485713-20050501-06.

[188] Perry, "Examining Child Maltreatment through a Neurodevelopmental Lens," 244.

The stress response system begins in the amygdala which quickly identifies threats and "sends an instant message down to the hypothalamus and the brain stem, recruiting the stress-hormone system and the autonomic nervous system (ANS) to orchestrate a whole-body response."[189] While all animals exhibit survival responses to threat with "Fight, Flight, or Freeze," the autonomic nervous system in mammals and most distinctively humans is unique in providing "mammals with neural mechanisms to promote biobehavioral states necessary for caring for offspring, reproducing, and cooperative behavior."[190] This means that in order for mammals to successfully raise offspring that required longer periods of dependence, they needed to develop ways to restrain their survival mechanisms. Porges suggests that the vagus nerve in mammals, "conveys a respiratory rhythm to the heart's pacemaker, resulting in rhythmic oscillation in heart rate at the frequency of spontaneous breathing."[191] This vagus nerve connects the brain stem with the major organs of the body, but also to the muscles of the face and head, and middle ear creating a social engagement system. "The face-heart connection functions to convey physiological state via facial expression and prosody (intonation of voice), as well as regulate the middle-ear muscles to optimize species-specific listening within the frequency band used for social communication."[192] In short, the stress response system of mammals includes a social dimension that interacts with the brain and organs of the body.

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[189] Bessel A. Van der Kolk, *The Body Keeps the Score: Brain, Mind, and Body in the Healing of Trauma* (New York: Penguin Books, 2015), 60.

[190] Stephen W. Porges and Deb Dana, *Clinical Applications of the Polyvagal Theory: The Emergence of Polyvagal-Informed Therapies* (New York: W. W. Norton and Company, 2018), 52.

[191] Porges and Dana, *Clinical Applications of the Polyvagal Theory,* 52.

[192] Porges and Dana, *Clinical Applications of the Polyvagal Theory,* 55.

Unlike other animals, mammals have developed a social dimension to their stress response which gives them a third option besides ramping up the body's organs to support fight or flight or slowing down the body to effectively 'play dead.' Mammals are able to calm one another by communicating through their facial expressions and voices that the situation is actually safe and does not require a physical response. Van der Kolk describes this social dimension as one of three physiological states.

> Whenever we feel threatened, we instinctively turn to the first level, social engagement. We call out for help, support, and comfort from the people around us. But if no one comes to our aid, or we're in immediate danger, the organism reverts to a more primitive way to survive: fight or flight… however if this fails--we can't get away, we're held down or trapped--the organism tries to preserve itself by shutting down and expending as little energy as possible.[193]

The importance of this social dimension of the stress response to the developing child, who cannot physically fight nor flee, cannot be overstated. Without language or experience, the infant evaluates risk through 'neuroception,' "a neural process, distinct from perception, capable of distinguishing environmental and visceral features that are safe, dangerous, or life-threatening."[194] Through the use of "mirror neurons," infants mimic the facial expressions and actions of their care-givers. These expressions are then transmitted through the vagal nerve to the organs. "As individuals change their facial expressions, the intonation of their voices, the pattern in which they are breathing, and their posture, they are also changing their physiology through circuits involving myelinated vagal pathways to the heart."[195] As the child develops, the social dimension remains crucial to the stress response system. The child not only needs the threat to be removed, but also to feel safe. Porges states three conditions necessary for feeling safe:

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[193] Van der Kolk, *The Body Keeps the Score*, 82.
[194] Porges and Dana, *Clinical Applications of the Polyvagal Theory*, 58.
[195] Porges and Dana, *Clinical Applications of the Polyvagal Theory* 59.

an autonomic system that is not in a state of supporting defense, an activated social engagement system, and cues of safety available and detected via neuroception.[196] Van der Kolk describes it more practically: "Social support is not the same as merely being in the presence of others. The critical issue is reciprocity: being truly heard and seen by the people around us, feeling that we are held in someone else's mind and heart. For our physiology to calm down, heal, and grow we need a visceral feeling of safety.[197]

From a neurodevelopmental perspective, the child is vulnerable for the same reasons that they are developing so rapidly, because the brain is being shaped and organized by the experiences that the child has, for better or for worse. The human physiological response to threat is greatly influenced by the social dimension. The capacity of the vagal nerve is to connect the visceral to external expressions that can be neurally perceived even on an unconscious level and then transmit such perceptions to the body in ways that serve to promote calm and allow the child to feel safe. In light of the risk of traumatic experiences affecting the brain of the developing child and the primary role of the social engagement system in mitigating stress, "Social support is a biological necessity, not an option, and this reality should be the backbone of all prevention and treatment."[198]

Discussion of Resilience

Resilience is no longer seen as something inherent in the individual but rather can be thought of as a function of a dynamic relational developmental system. This system approach allows for the paradox of multiple correlates showing only modest effects as the

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[196] Porges and Dana, *Clinical Applications of the Polyvagal Theory*, 61.
[197] Van der Kolk, *The Body Keeps the Score*, 81.
[198] Van der Kolk, *The Body Keeps the Score*, 169.

system seeks equilibrium. Instead of searching for a proverbial "smoking gun" symptom to identify children most at risk of pathology from exposure to mass trauma, it is necessary to consider the ecosystem of the child, from the greater community down to the neurological level. Children are vulnerable to trauma because they are developing but are also somewhat protected as part of a larger ecology.

Significant Practices and Models

There is currently a widespread understanding that children exposed to mass trauma need psychosocial interventions. However, the realities of limited resources mean that only some of these children can receive care. Those planning interventions in response to disaster "should consider adopting a stepped care approach."[199] These "stepped" or "pyramid" models "triage children based on their mental health so that children at the highest risk for chronic distress (i.e., PTSS that are clinically elevated more than three to six months after disasters) receive the most intensive, and therefore most costly, interventions."[200] In these stepped models, general support is given to the community and focused psychological interventions are given to children identified as being at risk for psychopathology. However, "to date, it is not clear how to stratify children based on their risk for chronic postdisaster PTSS."[201]

Triage has been used in medicine for centuries and was first developed by the French in the early 1800s for use on Napoleonic battlefields. Before Dominique Jean Larrey (1766-1842) developed the triage system, the dominant form of medical attention for soldiers was reserved for officers. Larrey implemented a system of ambulances that

[199] Pfefferbaum et al., "Child Disaster Mental Health Interventions, Part I," 54.
[200] Lai, "Posttraumatic Stress Symptom Trajectories," 2.
[201] Lai, "Posttraumatic Stress Symptom Trajectories," 2.

would carry the wounded from the battlefield to field hospitals and was credited with a great decrease in battlefield deaths. His system "involved categorization into three grades based on the severity of the wounds irrespective of the soldier's rank: dangerously wounded, less dangerously wounded and slightly wounded."[202] Since that time, triage systems have evolved and been put in place in most countries for normal emergency room function and also disaster management. But the principles put in place by Larrey still are followed, "First, treating the sickest first, second evacuating them to the most appropriate care facility in priority order, third maximising the use of available resources, and aiming for minimum time to definitive treatment."[203] Each of these principles also pertain to the triage of children after exposure to mass trauma. By identifying which children exhibit the chronic trajectory, the sickest can be sorted out from those who will recover on their own. These chronic trajectory children can then be prioritized to access mental health professionals first. This maximizes the available mental health resources, saving the professionals time by pre-sorting the children. Finally, the rapid nature of the assessment over a week's time, minimizes the time the child has to wait to receive definitive treatment.

One important qualification that must be stressed is the difference between normal triage like that done in an ER and "disaster triage." "It is only during a major surge when resources are, or will be, overwhelmed do crisis standards of care and response strategies involving the allocation (rationing) of resources come into play

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[202] Hiroyuki Nakao, Isao Ukai, and Joji Kotani, "A Review of the History of the Origin of Triage from a Disaster Medicine Perspective," *Acute Medicine and Surgery* 4, no. 4 (July 14, 2017): 383, https://doi.org/10.1002/ams2.293.

[203] Iain Robertson-Steel, "Evolution of Triage Systems," *Emergency Medicine Journal* 23, no. 2 (February 1, 2006): 155, https://doi.org/10.1136/emj.2005.030270.

necessitating "disaster triage."[204] A clinical psychological examination tests for symptoms of psychopathology and emphasizes an accurate assessment so that the child may be correctly sorted and prioritized to receive appropriate care. In a disaster setting, the allocation of resources is included in the calculus, requiring decisions to be made regarding care in order to maximize the resources available. This shifts the emphasis from the individual medical outcomes of each child receiving the "right" care to public health outcomes of doing the greatest good for the greatest number.

Triage originally came from the French word trier that was used by merchants to sort and prioritize goods into three categories for sale and was picked up by the military surgeons as a metaphor of their work of sorting through the wounded and prioritizing their treatment.[205] Three categories for triage was standard on the battlefield because it was faster when working in dangerous areas. In emergency rooms, the categories are often more numerous to minimize risk for patients.

Most of the research done on psychosocial interventions has been conducted on focused interventions given to children already identified as being at risk for psychopathology.[206] One such study was performed on focused interventions given to children in the public elementary schools of Kauai two years after Hurricane Iniki.[207] The researchers used a 24-item self-report scale keyed to the event exposure and diagnostic

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[204] Michael D. Christian, "Triage," *Critical Care Clinics* 35, no. 4 (October 2019): 577, https://doi.org/10.1016/j.ccc.2019.06.009.

[205] Nakao, Ukai, and Kotani, "A Review of the History of the Origin of Triage from a Disaster Medicine Perspective," 379.

[206] Marianna Purgato et al., "Focused Psychosocial Interventions for Children in Low-Resource Humanitarian Settings: A Systematic Review and Individual Participant Data Meta-Analysis," *The Lancet Global Health* 6, no. 4 (2018), https://doi.org/10.1016/s2214-109x(18)30046-9.

[207] Claude M. Chemtob, Joanne P. Nakashima, and Roger S. Hamada, "Psychosocial Intervention for Postdisaster Trauma Symptoms in Elementary School Children," *Archives of Pediatrics and Adolescent Medicine* 156, no. 3 (January 2002): 211, https://doi.org/10.1001/archpedi.156.3.211.

criteria of PTSD to identify 248 children out of 4,258 screened. These children were then provided individual or group treatment by "specially trained school-based counselors."[208] A 2018 review of PTSS trajectories found multiple instruments being used to evaluate PTSS including the University of California at Los Angeles Posttraumatic Stress Disorder Reaction Index for Children (PTSD-RI), the Trauma Symptoms Checklist for Children - Alternate Version (TSCC-A), and the PTSD Self-Rating Scale (PTSD-SS). However, Pfefferbaum cautions, "An over reliance on the assessment of PTSD and post-traumatic stress reactions is imprudent as it fails to address the complexity and the spectrum of stress responses."[209]

Early interventions for children in general following mass trauma have not received as much scholarly attention as focused interventions. "The empirical literature on interventions delivered in the early months post disaster has been sparse. Two interventions created specifically for use during this period—psychological debriefing and psychological first aid—have not been well studied in children."[210] After the Asian Tsunami in 2004, the World Health Organization (WHO), in concert with major children's humanitarian organizations, published a strong warning regarding psychosocial interventions being conducted too soon, before children are ready, without a safe physical or emotional environment, without guaranteed follow-up, or by nonprofessionals. While acknowledging the need for some children to receive more specialized interventions, they stressed specifically that "'trauma counseling' should

[208] Chemtob, 211.
[209] Pfefferbaum, "Child Disaster Mental Health Interventions," 54.
[210] Grolnick, "Improving Adjustment and Resilience in Children Following a Disaster," 217.

never be the point of departure for psychosocial programming."[211] This document was released in reaction to interventions that were conducted in the chaotic aftermath of the disaster, where many rushed in to help assuming that anything was better than nothing. Unfortunately, this is still too often the approach used in response to a crisis, with children being subjected to interventions designed for adults, therapeutic activities without follow-up, or "trauma counseling" provided before being identified as truly needing it.

The current standard for early psychosocial intervention is Psychological First Aid (PFA), which largely follows Stevan Hobfoll's five essential elements for mass trauma intervention; these were identified, for lack of empirical research, by consensus of a "worldwide panel of experts."[212] PFA seeks to non-intrusively implement Hobfoll's guidelines to: "1) Promote a sense of safety; 2) Promote calming; 3) Promote a sense of self—and collective efficacy; 4) Promote connectedness; 5) Promote hope."[213] This came as a correction to some of the abuses that the WHO was addressing, with Hobfoll remarking, "A major reason why psychological debriefing (such as Critical Incident Stress Debriefing) has been criticized in recent years is that it serves to enhance arousal in the immediate aftermath of trauma exposure."[214] However, PFA is designed for use with the general population of those exposed to mass trauma and not specifically for

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[211] World Health Organization, "Psychosocial Care and Protection of Tsunami Affected Children: Guiding Principles," retrieved April 9, 2005, 1.

[212] Hobfoll et al., "Five Essential Elements of Immediate and Mid–Term Mass Trauma Intervention: Empirical Evidence," 284.

[213] Hobfoll et al., 286.

[214] Hobfoll et al., "Five Essential Elements of Immediate and Mid-Term Mass Trauma Intervention," 290.

children. The danger with treating children as "little adults" is that the intervention will ignore children's unique developmental and social needs.

More research is needed on how to identify children most at risk of chronic PTSS, as these are the ones most likely to develop future psychopathology. Currently, this is most often done when the children are already presenting elevated stress symptoms three to six months after the disaster. In the case of the Kauai school children, the screening was conducted two years after the disaster, essentially identifying children who had already developed psychopathology (despite not being formally diagnosed with PTSD). Ideally, screening should happen at a lower stage of the stepped approach to care and be available to all the children in a community so that children at risk of psychopathology can receive focused intervention before it develops. As PFA is currently the standard for early psychosocial intervention, it is the most logical candidate for inclusion as a screening component. However, there are major difficulties in that most instruments used to screen are intrusive and focused only on PTSD symptoms, and PFA is not designed specifically for children.

Integration of Principles and Practices

At the heart of the problem of identifying children most at risk of psychopathology after exposure to disaster-related trauma is that children are still largely treated as "little adults." Instead of designing instruments and interventions that consider their unique developmental and social needs, children are subjected to general psychosocial interventions and PTSD assessment instruments that fail to fully "receive" them as children. This is not "setting the child in the midst" with purpose but simply tossing them in with the rest of the survivors and hoping for the best.

Children are social and relational, and those relationships provide much of their resilience to trauma. Yet, in most research that has been conducted, children are seen as individuals, or at best, aggregated data. In the psychosocial interventions, children are treated individually or in groups, but not as a community. The result is an incomplete assessment of the child. The *imago Dei* in children as the image of a relational God is unseen. The social element is left out of psychosocial in favor of the psychological. The child is treated in separation from large portions of the dynamic relational development system that serves as a source of their resilience.

Risk and resilience are not simply attributes of the individual, and yet that is the way that they have been assessed. The heterogeneity of risk, the differing trajectories, Bonanno's paradox--all point to resilience being a complex dynamic system of which the individual child is just one part. Looked at holistically, resilience cannot be accurately measured solely with the symptoms of the individual child. Children are both dependent upon the surrounding community for their resilience and are themselves part of the resilience of that surrounding community.

Children need the visceral feeling of safety that comes through an activated social engagement system. In disaster, often the extended community of relationships that a child depends upon is disrupted and must be reestablished before healing can take place. Many times, the rapid development of new friendships and return to play of children lead the way for the restoration of community when adults are themselves traumatized by loss and despair. Starting with the children is the best way to bring hope to disrupted communities following disaster.

Methodology

To identify which children are most at risk of psychopathology after exposure to disaster-related trauma, they must be considered in a developmentally sensitive manner and as part of a social community. The method we have chosen is to include the screening as part of a modified PFA child mental health psychosocial support intervention called "OperationSAFE," made appropriate for the target age, held for three hours daily for five days as a "camp" with a variety of crafts, games, stories, snacks, and calming exercises. The modified PFA is staffed by trained volunteers from the community recruited through a local church rather than outsiders, and these conduct the activities or lead a small group of five children through the activities. At the end of the first day, the volunteers leading small groups of children fill out an initial assessment on seven aspects of the children's well-being and not just PTSD symptoms. On the last day of the intervention, the volunteers fill out a final assessment on these seven aspects. The Rapid Trauma Assessment Scale for Children (R-TAC) assessment tool used in the OperationSAFE intervention was developed by Dr. Alan Oda and Dr. Emi Koyama after the 2011 Great East Japan earthquake and tsunami. They originally modified existing measures for PTSS but found through pre-testing that these were impractical in post-disaster settings with the targeted age group. Oda and Koyama then developed the R-TAC as a seven-item survey assessing somatoform issues (DSM-IV Axis III), depression, post-traumatic stress disorder (PTSD), the child's coping skills, shock, and stress. The seven different categories were developed for use in the questionnaire (see Table 2), using five-point Likert scales completed by trained volunteers who each worked directly with a small group of the children. This revised questionnaire was then tested with 651

children in the OperationSAFE intervention after the 2013 Typhoon Haiyan in the Philippines, and all seven categories demonstrated strong statistical significance.

Table 2. Analysis of Typhoon Haiyan Test

Category	Mean	diff				
pre vs post	SD	SE	t-obt		df	df
General Health	0.750	1.079	0.042	17.992***	668	668
Attention	0.830	1.086	0.042	17.794***	670	670
Activity	0.803	1.071	0.041	19.399***	669	669
Affect	0.780	0.041	0.041	18.962***	668	668
Sociability	0.781	1.093	0.042	18.492***	669	669
Appetite	0.688	1.026	0.040	17.418***	673	673
Conflict / Distress	0.782	1.048	0.040	19.324***	669	669

***p<001

Oda and Koyama considered the possibility that the seven variables assessed may share commonalities. Using SPSS they conducted an exploratory factor analysis using Principle Access Factoring as the extraction method with a Varimax (orthogonal) rotation (See Table 3).

Table 3. Factor Matrix

Factor Matrix[a]	
General_Health1	Factor 1
Attention1	0.615
Activity1	0.784
Affect1	0.805
Sociability1	0.719
General_Appetite1	0.763

Conflict1	0.642
Extraction Method: Principal Axis Factoring.	0.442
a. 1 factors extracted. 5 iterations required.	

All loadings were greater than 0.40 on a single factor with a simple structure (factor loadings ≥ 0.44). After five (5) iterations, one (1) factor was extracted. Thus, all seven items loaded on a single factor. Oda and Koyama's findings support combining the scores of each of the seven variables to provide one Wellbeing/PTSS score for the child between 7 and 35, with higher scores indicating greater wellbeing and less PTSS. This approach of assessing wellbeing and PTSS as a single factor also aligns with the model of resilience as a dynamic system that reacts as a whole instead of relying on any one trait.

The interventions in this study were held in response to disasters striking the Visayas and Mindanao regions of the Philippines. The choice to use local volunteers to conduct the camps and to do the PTSS assessments of the children is an attempt to gain an accurate evaluation of the child's PTSS in relationship with their peers in community. "Indigenous knowledge is a basic resource and should inform all interventions, particularly those from the outside."[215] Rather than bringing in outsiders who might be from an urban setting or have a different socio-economic status, the children are assessed by members of their own community.

Both the modified PFA and the assessment instrument are non-intrusive and administered by trained volunteers rather than mental health professionals, making it scalable to meet the needs of entire communities after mass trauma. For post-disaster

[215] Melba Padilla Maggay, *Rise Up and Walk: Religion and Culture in Empowering the Poor* (Eugene, OR: Wipf and Stock, 2016), 27.

survivors, the intervention is also a first step towards restoring community—working together to help the children, establishing bonds between volunteers, building connections, and renewing hope as they see the children improve. As the community becomes stronger, so does the entire dynamic system of resilience for the children.

Conclusion

Through the use of a developmentally sensitive camp conducted by the local community, two shortcomings can be addressed. Treating children as indistinguishable from adults by using interventions designed for the general population can be remedied by using camp materials designed with children in mind. For the same reason the assessment tool and analysis of the assessment also needs to take into account the age of the subjects. Looking at children primarily as individuals rather than part of their community is a product of Western bias that stresses the medical model. This can be overcome by stressing the importance of the child's social ecology for their overall resilience. Again, both in the implementation of the camp and the assessment and analysis the dynamic system including family, friends, teachers, and community needs to be included.

The local church, by its involvement in these camps, receives these children, recognizing their value as bearers of the image of God. It welcomes them as they are developmentally, relationally dependent upon others. As the church recovers hope seeing the children return to childish activities, they enter into the kingdom of God, a kingdom built upon interdependent relationship. With the children, the church helps to rebuild their damaged community to once again support one another.

The children receive the visceral feeling of safety needed to lower defenses and reengage with their world. Much of this is achieved through their social engagement system as they connect with peers and volunteers, see and hear others enjoying activities, and join in the fun themselves. As they do this, their vagal nerve relays to their bodily organs this information that things are safe and returning to normal, resulting in a reduction of stress symptoms commonly exhibited in children through behavioral or somatic symptoms. Children whose dynamic system of resilience is robust often exhibit light post traumatic stress symptoms, those who experienced stronger traumatic experience or are more susceptible often exhibit stronger initial post traumatic stress symptoms.

Although previous research has failed to stratify children by risk of psychopathology due to the paradox of each factor having minimal effects, it may be possible to successfully triage children for mental health risk at an early stage. By taking an assessment of each child's PTSS at the beginning and end of the early modified PFA intervention, children with elevated initial symptoms (compared to their peers) and that do not respond to the intervention as positively as their peers could then be identified as most at-risk of developing future psychopathology.

CHAPTER III

RESEARCH METHODOLOGY AND PROCEDURES

Overview

The research question of this study is how children most at risk of psychopathology after exposure to disaster-related trauma can be effectively identified for further treatment. The literature considers children with a chronic trajectory of PTSS to be most at risk of psychopathology. So, another way of stating the research question is how to identify early on which children have a chronic trajectory.

Approach

Using existing data collected during OperationSAFE camps, this quantitative descriptive study demonstrates that "setting the child in the midst" of a developmentally appropriate peer group in a locale where children have had similar experiences and a similar support environment most accurately allows early assessment of the heterogeneous risk or resilience trajectories expected from the literature.[216] The focus of the study was on describing the PTSS trajectories of children in a variety of locales and disaster types in order to identify which children are most at risk.

This is in contrast with experimental designs that seek to create a closed system so that individual variables can be tested. "This metaphor of the 'closed system 'becomes hugely problematic if it is accepted that social objects have an internal complexity and

[216] The deidentified original data can be accessed online at https://drive.google.com/drive/folders/1FxV7eYe1Z8bKY-UtAL8Gtphm5-Xq8t9_?usp=sharing

structure as a complex responsive open system."[217] With Masten's adoption of the relational developmental systems framework to define resilience as a dynamic system, it becomes obvious that resilience cannot be measured in isolation. The child must be placed "in the midst" of that dynamic system for an accurate assessment of resilience to be obtained.

Following Masten's dynamic system approach, risk at the macro level and the individual level can be compared, with risk or resilience being a factor of exposure and vulnerability, and where vulnerability can be described as being composed of susceptibilities, coping, and adaptation. In order to avoid Bonanno's paradox of the modest effect of each factor, this study did not seek to measure individual factors of risk or resilience such as acute, chronic, or cumulative exposure; genetic or environmental susceptibilities, coping system advantages or disadvantages in attachment, individual intelligence, or other personal resources; or presence or lack of resources from the community allowing adaptation (see Figure 1).

[217] Ronnie Lessem and Alexander Schieffer, *Integral Research: A Global Approach Towards Social Science Research Leading to Social Innovation* (Geneva: TRANS4M, Four World Center for Social Innovation, 2008), 366.

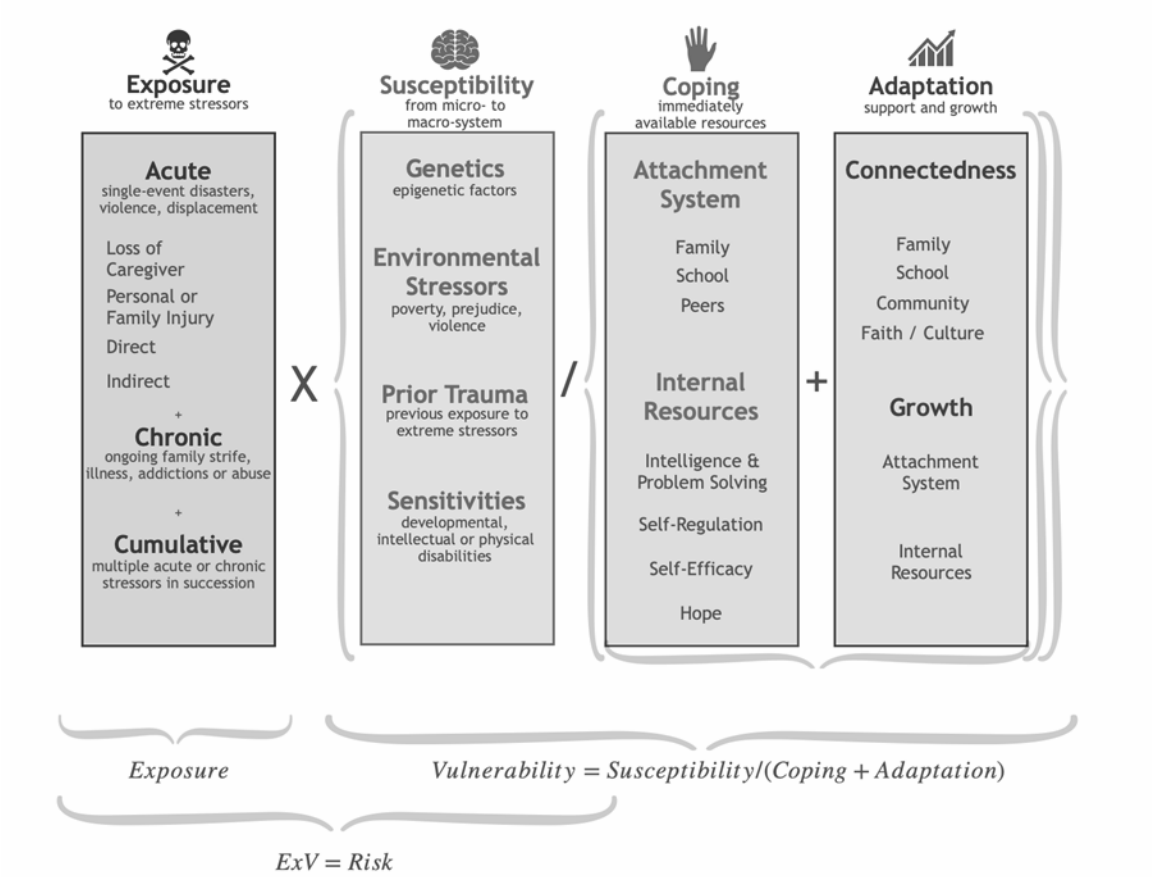

Figure 1. Trauma Risk/Resilience Factors

Instead, this study sought to measure the combined effect of these factors and whether responses to early intervention follow the same trajectories as those recorded in the literature. Since Oda and Koyama's factor analysis of the R-TAC shows that the scale provides an overall Wellbeing or PTSS score, it serves as a measure of the entire dynamic system of resilience.

Because many of the various factors are hidden or are complex and defy direct measurement, this study uses the combined pre-intervention PTSS scores (PTSSpre) of the R-TAC as a proxy for exposure, susceptibility, and initial coping with lower scores indicating more severe PTSS. This could mean that the child experienced greater exposure, had greater susceptibility, or had fewer coping resources, but does not identify

which one was the cause. Identifying possible causes would require professional assessment, needing much greater time and resources than are available in crises. The R-TAC measures the overall effect of the dynamic system on the child's wellbeing at that time. However, this score alone is not yet useful in identifying risk of future psychopathology, as the literature suggests that while most children will show a resilient trajectory, a large portion of even the children with more severe PTSS will exhibit a recovery trajectory.[218] A limitation of PTSS studies is that, while it can be shown that children's well-being improved, most studies fail to show how much improvement indicates recovery. "Too few studies included clinically meaningful analyses, such as effect sizes or reliable change indices. Most relied on statistical tests of mean differences."[219] Jacobson and Truax developed a statistical approach to determining clinical significance, where clients who begin as part of a dysfunctional population no longer belong to that population.[220] Using this definition, it becomes possible to categorize children whose initial R-TAC score could be considered to be in the dysfunctional population, (i.e. the first quartile) as having potentially either a recovery or chronic trajectory. Those children whose post-intervention R-TAC scores have moved outside of the range of the dysfunctional population would be classified as having the recovery trajectory. Since there are no available norms for either the dysfunctional or functional populations in disaster, Jacobson and Truax suggest that the most appropriate

[218] Bonanno and Mancini, "Beyond Resilience and PTSD," 77.

[219] Shannon Dorsey et al., "Evidence Base Update for Psychosocial Treatments for Children and Adolescents Exposed to Traumatic Events," *Journal of Clinical Child and Adolescent Psychology* 46, no. 3 (October 19, 2016): 321, https://doi.org/10.1080/15374416.2016.1220309.

[220] Neil S. Jacobson and Paula Truax, "Clinical Significance: A Statistical Approach to Defining Meaningful Change in Psychotherapy Research," *Journal of Consulting and Clinical Psychology* 59, no. 1 (1991): 12, https://doi.org/10.1037/0022-006x.59.1.12.

way to define the range is "extending two standard deviations beyond (in the direction of functionality) the mean for that population."[221]

This study used the combined post-intervention PTSS scores (PTSSpost) as a proxy for adaptation. The third PTSS score is a measurement of the change between the PTSSpre and PTSSpost scores. This score also served as a second proxy for adaptation, showing which children failed to respond to the intervention. Again, this could be caused by numerous factors such as an inability to make connections with support, or difficulties in growing from overcoming trauma which cannot be revealed through the R-TAC. What the R-TAC scores were able to show clearly is whether an individual child with initial (PTSSpre) scores within the first quartile of their peer group in a locale had made clinically significant improvement. With this information, a rapid field triage of which children are most at risk of psychopathology becomes possible after the five-day intervention.

Although all of the camps in this study were located in the Philippines, it must not be assumed that every community shares similar qualities of resilience. Studies of disaster in the Philippines have shown that the nation is extremely diverse. "Studying how other communities understand and process warnings is significant in the Philippine hazard response context: the country has hundreds of languages and cultures in over seven thousand islands, all of which are vulnerable to storms."[222] How a specific community prepares, receives warnings, and responds to a disaster are in many ways unique. "The challenge for disaster managers is therefore to design effective

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[221] Jacobson and Truax, "Clinical Significance," 13.

[222] Inez Z. Ponce de Leon, "A Portrait of Contrasts in Disaster Risk Response: A Post-Haiyan Study of Coron, Philippines," *Weather, Climate, and Society* 13, no. 3 (2021): 513, https://doi.org/10.1175/wcas-d-20-0093.1.

tools/strategies that not only span language differences, but also take into consideration cultural perceptions and attitudes so that the objectives of disaster risk-reduction can be achieved."[223]

Typhoons struck rural impoverished areas such as "Samar, Philippines, where Eastern Samar (2nd), Northern Samar (9th), and Western Samar (10th) form part of the top 10 poorest provinces in the country."[224] Disasters also struck metro areas such as Cebu and Davao, which are rapidly urbanizing and creating wealth. However, in Davao, "as a consequence of this urbanization, flooding has been the most occurring natural event and the frequency of typhoons and storms that pass through the Philippines makes it more vulnerable to flooding."[225] The resources available to prepare and respond to a disaster can vary widely between rural and urban areas.

Some of the studies pointed out that indigenous peoples have unique methods of preparing and responding to disasters. "We argue that memories of previous disasters and hazards not only inform people's knowledge of their environment and vulnerabilities, it (*sic*) also influences their interpretations of risks and their response to future disasters and hazards."[226] Similarly, communities affected by frequent storms "already have systems in place to deal with storms, or habits and attitudes that have been ingrained through years of exposure to extreme weather events."[227] For this study, data from camps in Eastern

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[223] Karen Joyce Cayamanda, "Exploring a Social Vulnerability Model for Disaster Studies: The Case of the 2011 Flashflood in Davao City, Southern Philippines," *International Journal of Educational Management and Development Studies* 1, no. 1 (2020): 68, https://doi.org/10.53378/346006.

[224] J. G. S. Kahambing, "Public Health and Local Emergency Ethics: Vulnerability in Eastern Samar, Philippines," *Public Health* 185 (2020): 117, https://doi.org/10.1016/j.puhe.2020.05.032.

[225] Cayamanda, 46.

[226] Ginbert Permejo Cuaton and Yvonne Su, "Local-Indigenous Knowledge on Disaster Risk Reduction: Insights from the Mamanwa Indigenous Peoples in Basey, Samar after Typhoon Haiyan in the Philippines," *International Journal of Disaster Risk Reduction* 48 (2020): 101596, https://doi.org/10.1016/j.ijdrr.2020.101596.

[227] Ponce de Leon, "A Portrait of Contrasts in Disaster Risk Response," 513.

Samar, Cebu, Leyte, Davao del Sur, and Lanao del Norte reflect some of the diversity of the experience of disaster in the Philippines. Each locale provides a unique ecological system within which the child exists, either providing or lacking resources, connections, and environmental susceptibilities. Setting the child in the midst of their developmental peers in their unique combination of exposure, susceptibility, and coping resources in their locale gives a clearer assessment of risk than testing a child outside of their context.

Research Design

This is a research study based on the data from fifty-five OperationSAFE pediatric mental health interventions conducted between 2015 and 2020 in Leyte, Eastern Samar, Davao Del Sur, Lanao Del Norte and Cebu, at schools, churches, and community centers. "Disaster mental health interventions represent natural experiments that, when systematically examined across time and context, reveal fundamental principles about trauma recovery that could not be ethically designed as prospective studies. The secondary analysis of these intervention datasets, even years after their collection, continues to yield critical insights into the effectiveness of various approaches and the natural trajectory of post-traumatic adaptation."[228] The data was examined for patterns within the post-traumatic stress symptoms (PTSS) in children across multiple disasters, ages, sexes, and locales. This data is part of the information used for the purpose of analyzing data "that was collected by someone else for another primary purpose."[229]

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[228] Alexander C. McFarlane, "The Long-Term Costs of Traumatic Stress: Intertwined Physical and Psychological Consequences," World Psychiatry 10, no. 1 (February 2011): 5.

[229] Melissa P. Johnston, "Secondary Data Analysis: A Method of Which the Time Has Come," *Qualitative and Quantitative Methods in Libraries* 3 (2014): 619-626.

The initial step was to explore if the PTSS scores of the children across all the camps resembled those in the literature, with most children showing resilient or recovery trajectories and few showing a chronic trajectory. The resilient trajectory begins and finishes with less severe PTSS resulting in higher R-TAC Well-Being scores. The recovery trajectory begins with more severe PTSS which becomes less severe. The chronic trajectory begins and finishes with more severe PTSS (see Figure 2).

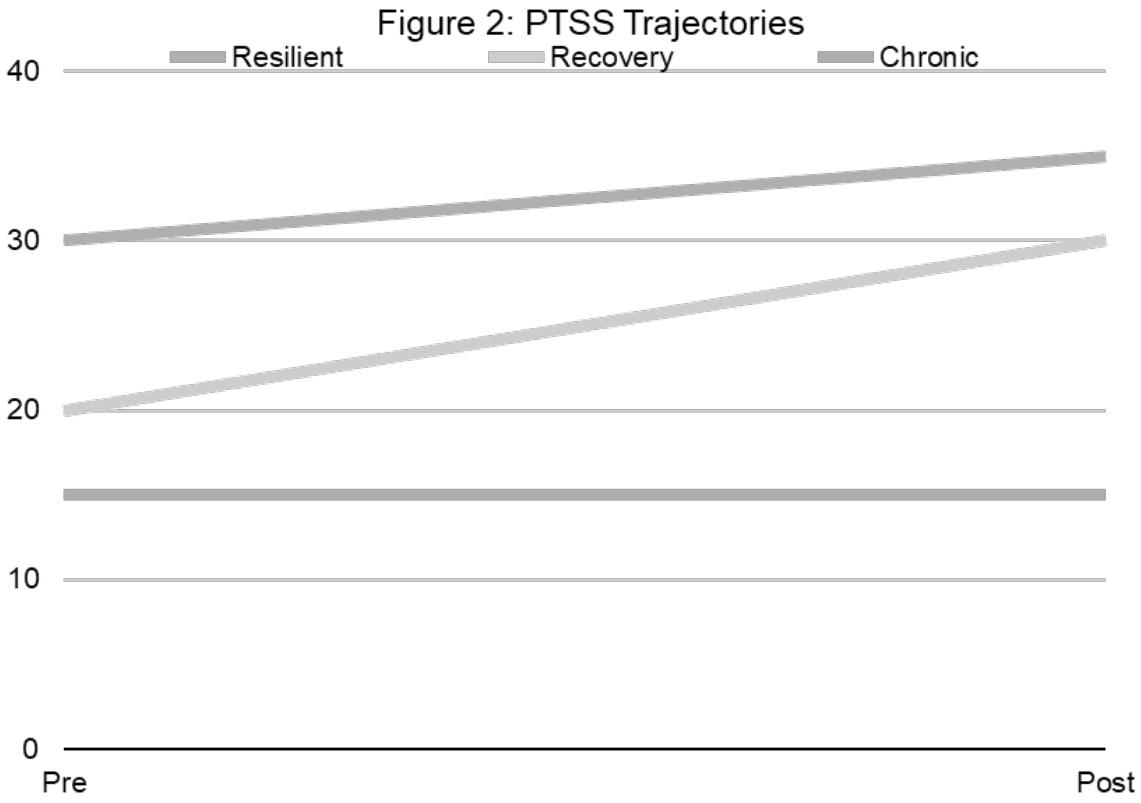

Figure 2. PTSS Trajectories

The second step was to explore the relationship between age, sex, and initial PTSS scores (PTSSpre). The goal was to establish peer groupings of children who are at a similar developmental stage.

The third step was to explore whether children who went through a specific type of disaster, or who lived in a particular region have similar PTSS, or whether each locale was unique.

Based on the results of the previous steps, the child was compared with a peer group of children in the same locale who could be assumed to be of the same developmental stage, to have experienced similar exposure, and have similar environments and community support. Comparing individual children to their peers in a locale showed a heterogeneity of trajectories within a locale as seen in the literature, with most children showing a resilient trajectory while some have a recovery trajectory, and few have a chronic trajectory.

Setting the child in the midst of peers of a similar developmental stage in a locale where there is similar exposure to trauma, similar susceptibility, and similar resources for coping allows early assessment of those with a chronic trajectory and higher likelihood of future psychopathology.

Defining the Dataset

The original data was collected in-house by OpSAFE International over the course of five years and multiple crisis events such as disasters, conflicts, displacement, and poverty in 158 OperationSAFE camps for 16,768 children. For this study, the data was limited to camps held in the Philippines between 2015 and 2020 in response to disaster and to children within the age range for which the intervention was designed, six to twelve years old.

OpSAFE International has integrated assessment into every response, including the assessment scale in every training and implementation of the OperationSAFE

program. As a humanitarian organization, OpSAFE International found that integrated assessment helps to more effectively serve children who have been affected by trauma, thereby allowing the organization to monitor the effectiveness of the interventions in a variety of conditions. Because a large amount of data from a variety of contexts has been accumulated, the organization considered that this might also be useful to researchers studying trauma, resiliency, and trauma interventions. In 2020, OpSAFE International invited Dr. Miranda van Tilburg from Campbell University, North Carolina, and her team to study the data, not just for evaluation of our intervention but to better understand trauma. Two of their findings from researching data on 16,768 children in 158 OperationSAFE camps were that older children improved more and that the effect of the number of days between the traumatic event and the start of the camp were negligible.[230]

One of the challenges of carrying out research in crises is the chaotic, unpredictable nature of the environment.[231] It is common in humanitarian response to adjust the timing, subjects, location, or duration of an intervention to better fit local conditions or avoid hazards. In a project that was purely research based, this could result in the research design being compromised, or the need to cancel the research project altogether if researchers or subjects would be put into danger. Because integrated assessments are designed into the humanitarian response, priority is always given to ethics and safety. However, since the assessments are conducted for every response, even

[230] Emily A. Simonds et al., "Trauma Functioning and Well-Being in Children Who Receive Mental Health Aid after Natural Disaster or War," *Children* 9, no. 7 (2022): 951, https://doi.org/10.3390/children9070951.

[231] Ann S. Masten and Angela J. Narayan, "Child Development in the Context of Disaster, War, and Terrorism: Pathways of Risk and Resilience," *Annual Review of Psychology* 63, no. 1 (2012): 227–57, https://doi.org/10.1146/annurev-psych-120710-100356.

if there is loss of data, there is always another opportunity to collect useful data in the next implementation.

Evaluating the Dataset

The purpose of the original data was to show the efficacy of the OperationSAFE psychosocial intervention and to monitor its implementation. The study was quasi-experimental with a pre- and post-test design, although without treatment and control groups or random assignment of subjects to groups. The quasi-experimental design was used because of ethical considerations of withholding timely intervention, as well as logistical difficulties during post-disaster conditions. The Campbell University study using this data, published in the journal *Children* in 2022, found that "OperationSAFE camp participation for children resulted in an improvement in trauma-related functioning/well-being scores with large effect sizes."[232]

Selection of Subjects

The primary data set consists of data from 158 OperationSAFE camps for 16,768 children in a variety of mass trauma events in countries throughout Asia. This study was limited in focus to disasters in the Philippines and excludes data from other countries. It also excludes data in the Philippines from camps involving conflict rather than disaster. As the limitation of the study is children between the ages of six and twelve years old, the data was screened to exclude children outside of this age range. In some very large interventions held in schools and in some areas with difficulty accessing the internet, it is

[232] Simonds et al., "Trauma Functioning and Well-Being in Children Who Receive Mental Health Aid after Natural Disaster or War," 951.

possible that data was entered afterwards from memory. To ensure the quality of the data, each camp with a standard deviation of less than 1.00 in the PTSS assessments was excluded.

The original data collected recorded information about the camp, volunteers, and child participants. The data concerning the camp included the date, location, and type of crisis. The data concerning the volunteers included their name, age, sex, education level, training, the number of children in their group, and identified which children were in their group. The data concerning the children included their name, age, sex, which volunteer's group they were in, and assessment of seven areas of PTSS (General Health, Attention Level, Activity Level, Affect, Sociability, General Appetite, Reaction to Conflict or Distress) both pre- and post-intervention.

Because the primary study was quasi-experimental in design, there was no attempt to obtain a sample. The children were invited from the local community through word of mouth, churches, schools, and *barangay* (local community) officials. Due to ethical and post-disaster logistical considerations, no children were turned away, though some were outside of the focus age group of the intervention. For the purpose of this study, all of the children in a community affected by disaster in the 6-12 target age range are considered as the population of the study. This reflects the understanding that every child is affected to some degree, whether the exposure to traumatic events is high (such as loss or displacement) or low (non-direct, disruption of normal routine).

Development of Instruments

OpSAFE International needed to conduct assessments to measure the effectiveness of the intervention in various conditions. The primary concerns were that the tool could be deployed rapidly in emergency situations, that it could be administered by trained volunteers instead of clinicians to preserve scalability, that it would be non-intrusive, and that it could be used amongst diverse populations where the children might be illiterate or have a different primary language. The scale of the massive March 11th, 2011, Great East Japan Earthquake which caused a tsunami and nuclear disaster gave an opportunity to look into assessment over the next four years as dozens of OperationSAFE interventions were conducted in the Tohoku region.

Most existing PTSS scales are focused on Post-traumatic Stress Disorder (PTSD) and do not take into account developmentally typical expressions of stress such as somatic complaints, behavior, or interpersonal relationships. They are also usually self-reported questionnaires that might not be suitable for immediate use post-trauma, or for non-literate children. Following the 2011 Japan tsunami, OpSAFE International asked clinical psychologist and professor of psychology at Azusa Pacific University Alan Oda and research psychologist at the University of Toronto Emiko Koyama to recommend a scale for the assessment of post-traumatic stress symptoms in children. Oda and Koyama first modified existing measures for post-traumatic stress using multi-page open-ended questionnaires, but, after pre-testing, found that they were practically unworkable with the target population of six-to-twelve-year-olds in non-clinical chaotic post-disaster settings. The questionnaire was to be completed by parents and volunteers; however, there was very limited data available, as the questionnaire was not a time-efficient

instrument. Very few questionnaires were completed. Oda and Koyama then designed an original assessment instrument (Oda and Koyama's Rapid Trauma Assessment for Children, the R-TAC) that could be administered after observation by volunteers. They developed the R-TAC as a seven-item survey assessing somatoform issues (DSM-IV Axis III), depression, post-traumatic stress disorder (PTSD), the child's coping skills, shock, and stress. The seven different categories (see Table 4) were developed for the questionnaire using five-point Likert scales completed by trained volunteers who worked directly with small groups of the children.

Table 4. R-TAC

Name:	**Age:**				
General Health	1	2	3	4	5
	Poor				Excellent
Attention	1	2	3	4	5
	Unfocused / distracted				Focused/ Engaged
Activity	1	2	3	4	5
	Diminished				Active
Affect	1	2	3	4	5
	Sad / Desolate				Happy / cheerful
Sociability	1	2	3	4	5
	Withdrawn				Engaging
General Appetite	1	2	3	4	5
	Poor				Excellent
Reaction to Conflict / Distress	1	2	3	4	5
	Easily upset				Calm / tranquil

Pilot Studies

The revised questionnaire was tested with OperationSAFE children after the 2013 Typhoon Haiyan in the Philippines. A total of 368 female and 283 male children ranging from 4-14 years of age were assessed (see Table 5).

Table 5. Analysis of Typhoon Haiyan Test

Category	Mean diff (pre vs post)	SD	SE	t-obt	df
General health	0.750	1.079	0.042	17.992***	668
Attention	0.830	1.086	0.042	17.794***	670
Activity	0.803	1.071	0.041	19.399***	669
Affect	0.780	1.064	0.041	18.962***	668
Sociability	0.781	1.093	0.042	18.492***	669
Appetite	0.688	1.026	0.040	17.418***	673
Conflict / distress	0.782	1.048	0.040	19.324***	669
				****p<0.01*	

Assessments were recorded by volunteer aides and staff recording pre- and post-program participation. A one-way, repeated-measures ANOVA was used. The results of Wilks' Lambda = 0.549, F (7,643) = 78.404, p = 0.01, indicated statistically significant improvement in the children's well-being with a moderate effect size. The majority of participants in the OperationSAFE child mental health psychosocial intervention saw improvement in well-being across the seven measures assessed by Oda and Koyama's R-TAC. The large number of subjects nearly guarantees statistical significance due to the

hundreds of degrees of freedom. Consequently, Oda and Koyama reanalyzed the data using randomly selected subsets (n = 25), finding that statistically significant results were still obtained.

Oda and Koyama considered the possibility that the seven variables assessed may share commonalities. Using SPSS, they conducted an exploratory factor analysis using Principle Access Factoring as the extraction method with a Varimax (orthogonal) rotation (see Table 6).

Table 6. Factor Matrix

General_Health1	Factor 1
Attention1	0.615
Activity1	0.784
Affect1	0.805
Sociability1	0.719
General_Appetite1	0.763
Conflict1	0.642
Extraction Method: Principal Axis Factoring.	0.442
a. 1 factors extracted. 5 iterations required.	

The results of the orthogonal rotation of the solution showed that all loadings were greater than 0.40 on a single factor with a simple structure (factor loadings ≥ 0.44). After five (5) iterations, one (1) factor was extracted. Thus, all seven items loaded on a single factor.

A scree plot provides a graphic illustration of this analysis, supporting a one-factor solution (see Figure 3).

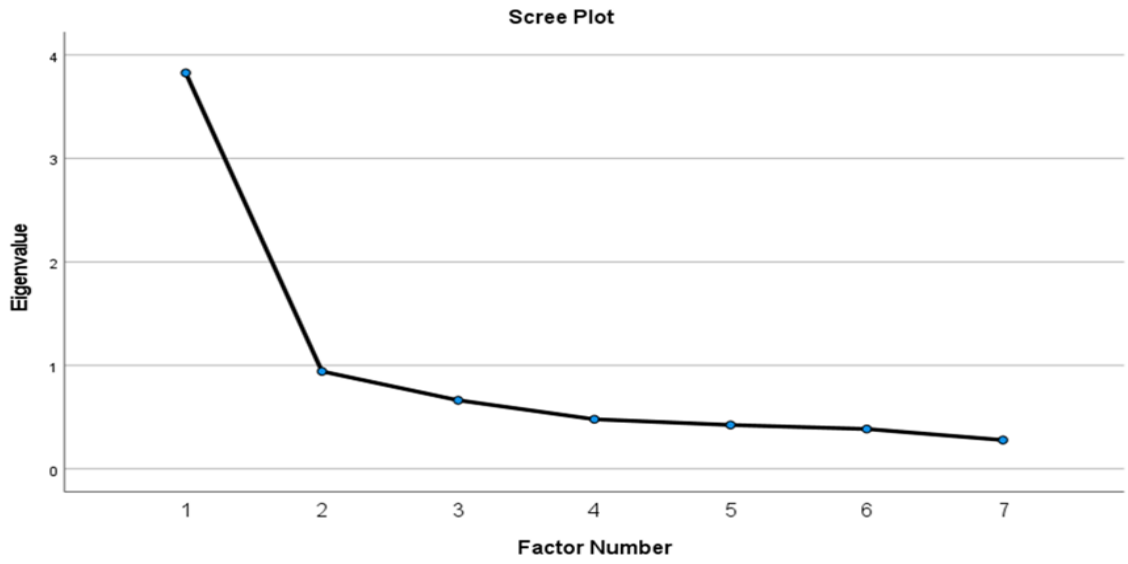

Figure 3. Scree Plot of Factor Analysis

Oda and Koyama's factor analysis demonstrates that a number could be generated to gauge the progress of children before and after the OperationSAFE intervention. Simply by combining the factors to reach an overall score between seven and thirty-five, a convenient measure which can be used in different applications for other psychosocial health interventions for children is obtained, making the R-TAC a useful assessment instrument that offers needed data to improve and help establish OperationSAFE and other psychosocial care programs for children.

Construct and content validity for the R-TAC were supported by its holistic coverage of seven PTSS domains validated in the Typhoon Haiyan pilot. Predictive validity remains untested, pending longitudinal follow-up. Reliability of the R-TAC was tested with a Cronbach's alpha of 0.94 (95% CI: 0.941-0.945), indicating excellent internal consistency. Practical reliability was inferred from consistent trajectory identification across camps. Inter-rater reliability awaits formal testing but was assumed as each of the volunteers received a standardized training.

Integrated Assessment

Once OpSAFE International had an appropriate assessment tool in the R-TAC that could be deployed rapidly, was scalable, and could be used anywhere, it was included in the training and implementation of every intervention and is now used to collect first and last day assessments on every child who attends an OperationSAFE camp. This data allows monitoring of the effectiveness of the interventions in a variety of conditions. When five months of battles between militants affiliated with the Islamic State and the armed forces of the Philippines resulted in displacement of up to 98% of the population of Marawi city in 2017, comparison of the initial trauma/well-being scores of the children with those affected by Typhoon Haiyan which struck the Philippines in 2013 showed that the initial scores of the children affected by conflict were significantly worse than those affected by disaster. They also did not show as much improvement after the intervention. These findings from the data led to adjustments to the intervention and its implementation. A mindfulness module was developed to help children learn to self-regulate their emotions. Local imams were partnered with to recruit Maranao volunteers from amongst the internally displaced themselves to be more culturally sensitive. Once these new innovations were implemented, there was a remarkable improvement in the final scores of the children.

Having assessment integrated into the program itself allows monitoring of innovations as they happen in the chaotic post-crisis field implementation of the intervention. In 2023 in Ukraine, the challenge was how to conduct training when travel was difficult and gatherings were dangerous as a result of missile strikes occurring across the country and not only at the warfront. The implementing partner’s solution was to do

the entire training online. OpSAFE International was initially skeptical about this. However, the data was able to show that, despite being unable to hold the trainings in person, the interventions were still effective. The OperationSAFE intervention program was originally used in disasters in China, Japan, Haiti, the Philippines, Indonesia, and Nepal, but was then found to be useful in refugee and conflict situations such as with the Rohingya refugees in Bangladesh and Ukrainian refugees in Poland, as well as IDPs in the Philippines and Ukraine. A third crisis situation occurred among children of families suffering from extreme poverty and addictions in Mongolia. Once again there was uncertainty about whether an intervention designed for use in mass trauma crises such as disaster or war would be effective in cases of complex or chronic trauma. Integrated assessment enabled verification that children who attended the intervention in Mongolia also saw increased well-being by the end of the camp. The use of integrated assessment increases confidence to try out innovations that otherwise might be rejected.

The original data was comprised of information about the camp, volunteers, and child participants. The data concerning the camp included the date, location, and type of crisis. The data concerning the volunteers included their name, age, sex, education level, training, the number of children in their group, and identified which children were in their group. The data concerning the children included their name, age, sex, which volunteer's group they were in, and assessment of seven areas of PTSS (General Health, Attention Level, Activity Level, Affect, Sociability, General Appetite, Reaction to Conflict or Distress) both pre- and post-intervention. Because this assessment is integrated into every implementation of the OperationSAFE CH-MHPSS program, it has potential to be used as a measure for rapid triage in disasters and other incidents of mass trauma.

Field Procedures

The data was collected from 2015 to 2020 by trained local volunteers who spent three hours a day for five days with the children in small group settings engaged in a variety of activities. Assessment of the children was designed to be non-intrusive, developmentally sensitive, and independent of the literacy of the children. Local volunteers were selected so that their assessment would be sensitive to the culture and environment of the children of that locale. Because of varying local languages such as Cebuano, Tagalog, and Warai in different locales, and limited literacy especially amongst younger children, it was important for the volunteers to be recruited locally. There was also concern that outsiders coming from urban areas such as Manila would not be as familiar with children in more rural settings. The local volunteers collecting the data were recruited and trained by OpSAFE International trained camp directors who coordinated with local churches, schools, and barangay officials. The training consisted of modules educating them on PTS, PTSD, PFA for children, and also team care and self-care after working with children with PTS. The fifty-three camps considered in this study were held in three regions, namely, the Visayas, Davao, and Lanao Del Norte (see Table 7).[233]

[233] Complete information for each camp location can be accessed at https://drive.google.com/drive/folders/1FxV7eYe1Z8bKY-UtAL8Gtphm5-Xq8t9_?usp=sharing

Table 7. OpSAFE Camp Locations

Locale	Cebu City Alliance Church	Cogon Pardo Cebu City	Consolacion Community Alliance Church "CCAC"	Hidden Paradise	Blasan Elementary School	Camp Aurora, Old Bulatukan Evacuation Site	Lukatong	Malawanit, Magsaysay, Davao del Sur	Luna Norte Evacuation Site	Flortam Evacuation Site	Camp Malungon	Camp Malabuan	Brokenshire College	Alugan Elementary School	Barangay Del Remedio Sulat	Carolina Can-Avid Elementary School	Brgy. San Jose Elementary School Borongan Eastern Samar
Sample size (n)	80	139	49	113	7	97	75	23	130	143	37	66	147	230	39	61	166
Type	Typhoon	Typhoon	Typhoon	Typhoon	Earthquake	Earthquake	Earthquake	Earthquake	Earthquake	Earthquake	Earthquake	Earthquake	Flood	Typhoon	Typhoon	Typhoon	Typhoon
Place	Cebu	Cebu	Cebu	Cebu	Davao Del Sur	Davao Del Sur	Davao Del Sur	Davao Del Sur	Davao Del Sur	Davao Del Sur	Davao Del Sur	Davao Del Sur	Davao Del Sur	Eastern Samar	Eastern Samar	Eastern Samar	Eastern Samar

Locale	Batiawan Elementary School	Bato Elementary School	Brgy. Sto Nino Elementary School	Barangay Rawis Can-Avid Elementary School	Buenavista Elementary School	Bunghon Elementary School	Cabay, Balangkayan, Eastern, Samar	Caghalong Elementary School	Cansangaya Elementary School	Canteros Can-Avid Elementary School	Dao Oras	Fountain of Life Eastern Samar	Malaintos Elementary School	Paypayon Oras	Picando Airport	San Francisco Elementary School	Sapad Municipal Gym
Sample size (n)	66	182	48	56	92	400	35	43	65	46	75	42	33	45	30	42	430
Type	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Flood
Place	Eastern Samar	Eastern Samar	Eastern Samar	Eastern Samar	Eastern Samar	Eastern Samar	Eastern Samar	Eastern Samar	Eastern Samar	Eastern Samar	Eastern Samar	Eastern Samar	Eastern Samar	Eastern Samar	Eastern Samar	Eastern Samar	Lanao Del Norte

Locale	Brgy. Dalama, Tubod, Lanao del Norte	Brgy. Mabugnao, Sapad, Lanao del Norte	Brgy. Padianan, Salvador, Lanao del Norte	Brgy. Pancilan, Sapad, Lanao del Norte	Daligdigan, Salvador, Lanao del Norte	Buntong Elementary School, Buntong, Salvador	Inasagan, Salvador, Lanao del Norte	Madaya Elementary School, Madaya, Salvador, Lanao del Norte	Mala Salug, Sapad, Lanao del Norte	Munai Central Elementary School, National Road, Munai, Lanao del Norte	North Central Mindanao College, Lemon Tree, Maranding, Lala, 9211, Lanao del Norte	Pansor, Salvador, Lanao del Norte	Pendolonan Elementary School, Pendolonan, Munai, Lanao del Norte	Pinoyak Elementary School, Pinoyak, Lala, Lanao del Norte	Ramain Elementary School, Ramain, Munai, Lanao del Norte	Saavedra Elementary School, Lala, Lanao del Norte	Sanja, Riverview Gate 1, Aparri, Aparri, 3515 Cagayan
Sample size (n)	79	77	117	104	63	359	156	254	126	233	428	111	390	380	222	474	114
Type	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon	Typhoon
Place	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte	Lanao Del Norte

Data Collection and Recording

The data was collected on the field through the Kobo Toolbox platform developed at Harvard University.[234] This platform allows flexible data collection in the field on a mobile phone or tablet whether or not internet access is available, with the data being uploaded when there is a connection. In some locales where devices were not available post-disaster, forms were filled out manually by the volunteers and then uploaded to the Kobo Toolbox platform afterwards by the camp director.

For the purpose of this analysis, the data regarding volunteer name, age, sex, education level, training and the number of children in their small group were excluded.

[234] "Data Collection Tools for Challenging Environments," KoboToolbox, accessed November 16, 2022, https://www.kobotoolbox.org/.

Likewise, the names of the children are excluded so that the data is de-identified. The original data was recoded into the following variables (see Table 8).

Table 8. Recoded Variables

Camp Data	CAMP_ID CAMP_NAME CAMP_REGION, DISASTER_TYPE	
Child Data	CHILD_ID, AGE_CHILD, SEX_CHILD PTSS_PRE, PTSS_POST, PTSS_CHANGE	DAY1_GENERALHEALTHSTATUS, DAY5_GENERALHEALTHSTATUS, DAY1_ATTENTIONLEVEL, DAY5_ATTENTIONLEVEL, DAY1_ACTIVITYLEVEL, DAY5_ACTIVITYLEVEL, DAY1_AFFECT, DAY5_AFFECT, DAY1_SOCIABILITY, DAY5_SOCIABILITY, DAY1_GENERALAPPETITE, DAY5_GENERALAPPETITE, DAY1_REACTIONtoCONFLICTDISTRESS, DAY5_REACTIONtoCONFLICTDISTRESS,
Volunteer Data	COUNSELOR_ID	

Data Analysis Methodology

Descriptive Analysis of Global Data

Descriptive statistics such as means, standard deviations, histograms, and boxplots were used to confirm that PTSS_PRE, PTSS_POST, and PTSS_CHANGE across all of the camps were not distributed on a normal curve using DataTab statistical software. Since the literature shows that most children will exhibit a resilient trajectory

with mild PTSS_PRE and PTSS_POST, the data was largely skewed to the right. This suggested the use of non-parametric tests in further statistical tests.

> While it is generally agreed that parametric procedures are a little more powerful than nonparametric procedures when the assumptions of the parametric procedures are met, what about the case of data for which those assumptions are not met, for example, the typical Likert scale data? Such data violate the normality assumption and often the homogeneity of variance assumption made when we conduct a traditional parametric analysis.[235]

Considering the use of Likert scale data in this study, this analysis made use of the nonparametric Kruskal-Wallis in place of the ANOVA. As both the sample size and the variance were varied between groups, the Kruskal-Wallis test is preferable to the ANOVA. Van Hecke explains, "For non-symmetrical distributions the non-parametrical Kruskal-Wallis test results in a higher power compared to the classical one-way anova."[236]

Once the Kruskal-Wallis analysis showed that the data was not from identical populations, a post-hoc Dunn-Bonferroni correction was used to correct for family-wise error and show which specific pairs differed from each other, as "Bonferroni's method is used when the number of observations of each group is different."[237]

Exploring the Relationship Between Age and Sex and PTSS

To test the null hypothesis that AGE_CHILD has no effect on the PTSS_PRE scores of children in this study, the Kruskal-Wallis test was implemented to compare

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[235] T. Van Hecke, "Power Study of Anova versus Kruskal-Wallis Test," *Journal of Statistics and Management Systems* 15, no. 2-3 (May 2012): 241–47, https://doi.org/10.1080/09720510.2012.10701623.

[236] Hecke, 241–47, 5.

[237] Seung Won Lee, "Methods for Testing Statistical Differences between Groups in Medical Research: Statistical Standard and Guideline of Life Cycle Committee," *Life Cycle* 2 (January 24, 2022): 1, https://doi.org/10.54724/lc.2022.e1.

each age group with each other to find where there are significant differences between them in order to categorize them into peer groups by age range.

Based on the results of these tests of age and sex, it was possible to assign children to a peer group where their PTSS could be compared to children within a similar developmental stage. This is the first step of "setting the child in the midst."

Exploring the Uniqueness of Locales, Disaster Types, and Regions

The next step was to explore whether children who went through a specific type of disaster, or who lived in a particular region have similar PTSS or whether each locale is unique. The null hypotheses that CAMP_ID, CAMP_REGION, and DISASTER_TYPE have no effect on the PTSS_PRE scores was tested once again using Kruskal-Wallis test.

Within the 51 camps included in this study, there were three types of disasters: Earthquakes (8 camps, n=578), Floods (2 camps, n=577), and Typhoons (41 camps, n=5860). These camps were held in three regions: The Visayas (24 camps, n=2173), Davao Del Sur (9 camps, n-725), and Lanao Del Norte (18 camps, n=4117).

In the literature, a heterogeneity of trajectories in any one disaster location is reported, with a large percentage of the children presenting as resilient, a smaller percentage beginning with more severe PTSS but then recovering, and a very small percentage being chronic in that their initial severe symptoms do not improve. This step compared distribution types for the locales with the global distribution to see if entire locales would have to be considered at-risk with severe initial PTSS or if entire locales would have to be considered resilient with light initial PTSS resulting in a false homogeneous set of trajectories.

Setting the Child in the Midst

Based on the results of the previous tests, the children were compared with a peer group of children in the same locale who can be assumed to be at the same developmental stage, to have experienced similar exposure, and to have similar environments and community support. Descriptive statistics using boxplots, interquartile range, and detection of outliers were used to "place the child in the midst" of their peers in a specific locale. Comparing individual children to their peers in a locale showed a heterogeneity of trajectories within a locale as seen in the literature, with most children showing a resilient trajectory while some have a recovery trajectory, and very few have a chronic trajectory.

Essentially the study sought to check to see if the child was "in the midst" of their peers in the PTSSpre assessment. The assumption was that if they were within the 2nd and 3rd quartiles, they have had a similar exposure to trauma, a similar set of susceptibilities, and similar coping resources to those of their peers. If they were in the 1st quartile, then the study assumed that in one or more of these areas, their situation was extreme. If they were a true outlier as determined using the IQR rule, then this was more likely to be the case.

Despite showing extreme initial PTSS, very few children fail to recover, a situation which is deemed a chronic trajectory. The study checked to see if these children with extreme initial PTSS would rejoin their peers in a recovery trajectory. Those who scored within the second and third quartiles (25th to 75th percentiles) on the PTSS post-assessment adapted similarly to their peers.

Children who scored in the first quartile (0–25th percentile) on the post-traumatic stress symptoms post-assessment (*PTSSpost*) were less successful in adapting compared

to their peers. Some remained in this quartile despite significant progress because they started in the lower range of the pre-assessment (*PTSSpre*). Those who scored in the second and third quartiles (25th–75th percentiles) on the change in symptoms (*PTSSchange*) adapted similarly to their peers.

Finally, each peer group in a locale were assigned a cutoff for clinically significant improvement in their wellbeing or PTSS. Jacobson and Truax also include the Reliable Change Index (RCI), which "tells us whether change reflects more than the fluctuations of an imprecise measuring instrument."[238] In situations where the dysfunctional and functional score distributions overlap, only scores that fall outside of the RCI could be considered reliable.

With these two concepts it was possible to show reliable change graphically using a modified Brinley plot, where children's R-TAC pre- and post- wellbeing (PTSS) scores were plotted, with a line showing the cutoff point for clinically significant change at 2x the standard deviation of the median of the dysfunctional population (see Figure 4).

[238] Jacobson and Truax, "Clinical Significance," 14.

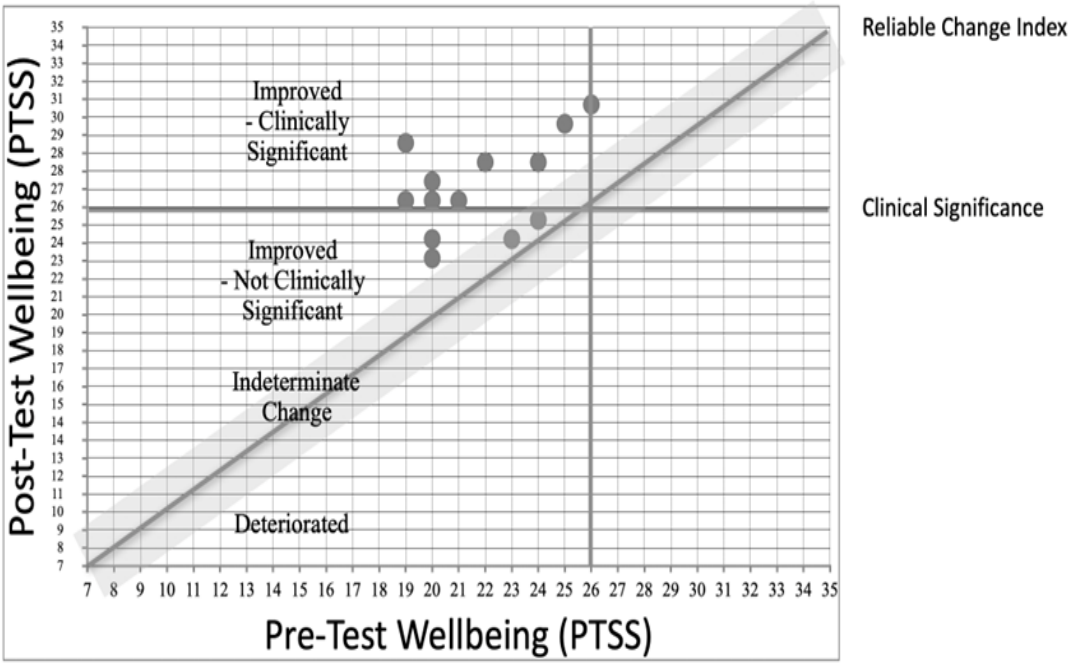

Figure 4. Modified Brinley Plot

A grey zone in both positive and negative directions from the unchanged central diagonal line signifying unreliability was "calculated (specifically for $p < 0.05$) as: RCI(0.05) = 1:96SDiff."[239] From this chart, four types of conditions can be determined: 1) Deteriorated, those scores that fall below the RCI beneath the diagonal line; 2) Indeterminate Change, scores within the RCI on either side of the diagonal line; 3) Improved - Not Clinically Significant, scores above the RCI but below the cutoff point; and 4) Improved - Clinically Significant.

[239] Neville M. Blampied, "Reliable Change and the Reliable Change Index: Still Useful after All These Years?," *The Cognitive Behaviour Therapist* 15, no. e50 (2022): 6, https://doi.org/10.1017/s1754470x22000484.

Triage Process

Once the child was set in the midst of their peers in their unique locale, it became possible to rapidly triage them based on their trajectories (see Table 9).

Table 9. Triage Steps

Step 1	Set children into peer groups based on age and sex.
Step 2	Define dysfunctional and functional populations within that peer group using descriptive statistics to assign quartiles.
Step 3	Calculate a clinical significance cut-off point and RCI for each peer group.
Step 4	Assign a trajectory of Recovery or Chronic, based on whether or not children in the dysfunctional population improved past the clinical significance cut-off point. Assign a Resilient trajectory to the children in the functional population
Step 5	Give a low-risk rating to the Resilient, a medium risk rating to the Recovery group, and a high risk rating to the Chronic group.

In order to determine clinically significant change, it was first necessary to define the dysfunctional and functional populations in any camp locale. It is important to emphasize that this was not a comparison between children who have been exposed to traumatic events and those who have not had any exposure, but rather the difference between those children who have heightened PTSS and those who are comparatively less affected. In the literature, most children--80% or more--are considered to be resilient or in the functional population, with a smaller group starting out in the dysfunctional

category but recovering, and a much smaller group <10% considered as chronic.[240] By the use of descriptive statistics and box charts, it was possible to categorize from the pre-test R-TAC scores those children in the first quartile as being the dysfunctional population and those in the second through fourth quartiles as being the functional population.

However, most OperationSAFE camps are attended by children with ages ranging from six to twelve years old. It can be seen from previous studies that younger children usually have lower initial R-TAC scores, so if the camp is treated as a whole, the younger children would form the entire dysfunctional population. To determine accurately the dysfunctional population, it was necessary first to determine statistically significant differences between ages and sexes, which we could do using the Kruskal-Wallis test, due to its usefulness "if the normal distribution assumption is not satisfied."[241] Peer groupings of children in similar developmental stages in a region could be calculated once by comparing children across the entire dataset of all the interventions held there. Then these groupings could be statistically described with different box charts for each peer group in each camp locale.

This sample data taken from an OperationSAFE camp locale in Ukraine in 2024 shows three pre-test box charts in the upper left for three age groupings of children, and the three post-test box charts at the lower right for the same three groupings (see Figure 5).

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[240] Lai et al., "Trajectories of Posttraumatic Stress in Youths after Natural Disasters," e2036682, https://doi.org/10.1001/jamanetworkopen.2020.36682.

[241] Lee. "Methods for Testing Statistical Differences between Groups in Medical Research," 1.

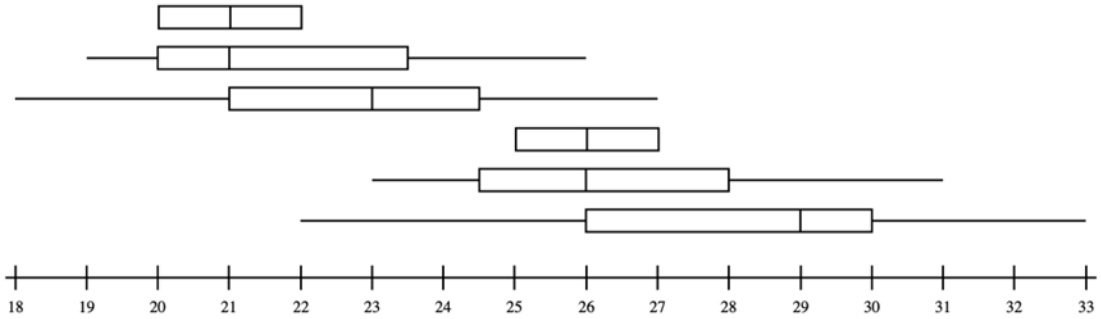

Figure 5. Ukraine OperationSAFE Box Charts

Like the box-charts in this current study for age the youngest children are on top and the oldest children on the bottom. It can be quickly seen that the older children have much higher median R-TAC scores but also show much more variability. Using these refined box-charts, the children in each peer group whose R-TAC scores fall in the first quadrant (the whiskers on the box chart) can be defined as the dysfunctional population. This particular camp was attended by thirty-six children, with thirty-two (88.89%) falling in the functional population and four (11.11%) falling in the dysfunctional population.

Once the dysfunctional population is identified, it is possible to calculate the clinical significance cut-off point and RCI for each of the peer groupings (see Figure 6).

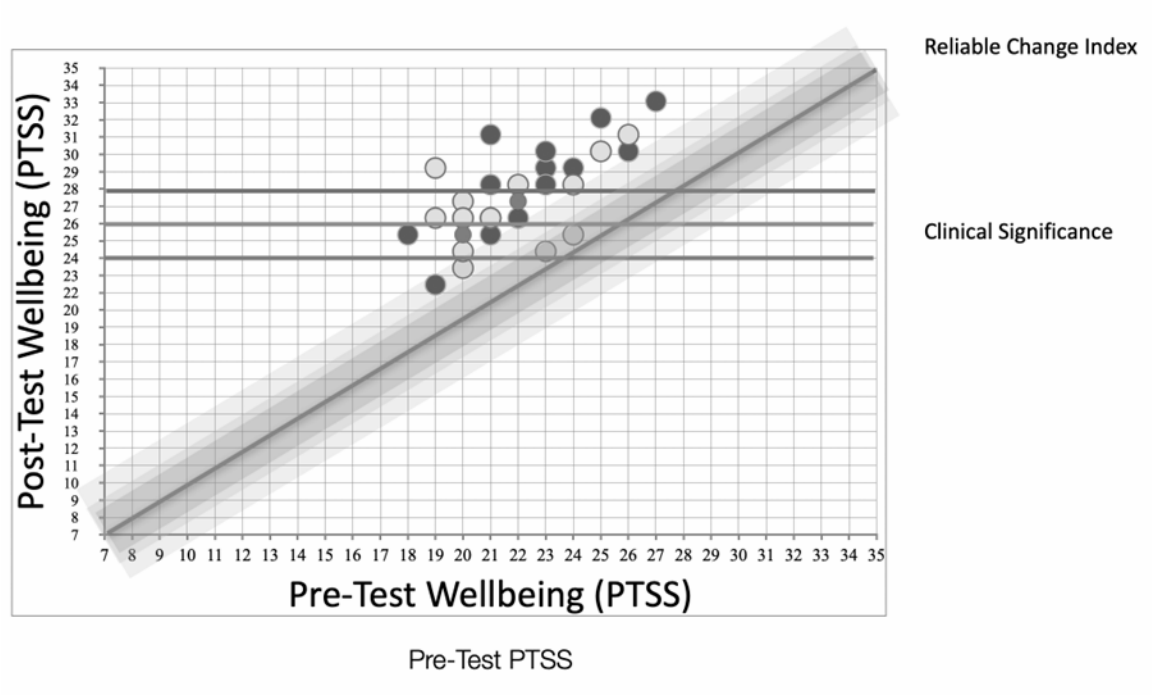

Figure 6. Ukrainian OperationSAFE Brinley Chart

In this case, the youngest peer group (blue) had a clinical significance cut-off point of twenty-four and an RCI of 3.92, and both of these children made clinically significant improvement. The middle peer group (green) had a cut-off point of twenty-six and an RCI of 2.32. Of these seventeen children, two were classified as being in the dysfunctional group. Of these children, thirteen made clinically significant improvement, while two made non-clinically significant improvement and two had indeterminate change. The older peer group (red) had a cut-off point of twenty-eight and an RCI of 2.15. Of this group of seventeen children, two were classified as being in the dysfunctional group. Thirteen of these children made clinically significant improvement, while four made non-clinically significant improvement.

The final step in the psychopathology risk triage process was assigning a trajectory to each child. The great majority of the children, i.e., the entire functional population, were considered to have the resilient trajectory. The four children who made

up the dysfunctional population are represented by the four left-most points on the Brinley plot in Figure 6. Both of the middle peer group children (green) started with a pre-test score of nineteen but made clinically significant improvement past the cut-off point of twenty-six, exhibiting a recovery trajectory. The two older peer group (red) children each made some improvement, but it was not clinically significant, and so their trajectory can be classified as chronic. In this sample data, thirty-two of the children can be categorized as having the resilience trajectory, while two children have the recovery trajectory, and two children have the chronic trajectory.

Triage assigns priority to those who are most at risk. This should not be considered a clinical diagnosis of psychopathology but rather a field indicator of whether a higher level of care should be sought. Since all of the children attending the OperationSAFE camp have experienced a traumatic event, it is inaccurate to categorize any of them as having no risk of future psychopathology. Nevertheless, using this system, it is possible to rapidly assign a rating of high risk to those showing the chronic trajectory, medium risk to those showing the recovery trajectory, and low risk to those with the resilience trajectory.

Summary

This study sought to "set the child in the midst" in order to more accurately assess risk of future psychopathology from having a chronic PTSS trajectory. It did this by setting the child in a peer grouping of children having similar PTSS by age and sex so that they are compared with children at a similar stage of development, and by comparing them to peers in a locale where children have had similar exposure to traumatic events, susceptibilities, coping abilities, and adaptation resources. By comparing individual

children to their peers in a locale, the data more accurately fits the heterogeneous trajectories of the literature than if individual children are compared to global PTSS or global peer PTSS, thereby providing an early indication of which children are most at risk.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Overview

This study explores how children most at risk of psychopathology after exposure to disaster-related trauma can be effectively identified for further treatment. Up until the last decade, trauma in children has been treated and assessed without a child development orientation. In order to gain an accurate assessment of which children are most at risk of psychopathology, this study proposes that a more holistic manner of assessing and analyzing trauma symptoms is needed. Three sets of sub-questions address this holistic assessment.

1. Establishing a Peer Group - If age and gender affect the severity of initial PTSS, then a more holistic assessment would compare them with children within the same developmental group.

Q1. How does age affect the severity of initial post-traumatic stress symptoms (PTSSpre)?

Q2. How does gender affect the severity of initial PTSS (PTSSpre)?

2. Establishing a Locale - If region, or type of disaster affect the severity of PTSS, then a more holistic assessment would compare children with children within the same community.

Q3. How does camp region (Visayas, Eastern Samar, Davao Del Sur, Lanao Del Norte) affect the severity of initial PTSS? (PTSSpre)

Q4. How does the type of disaster (typhoon, earthquake, flood) affect the severity of initial PTSS?

3. Describing Trajectories - Compared with children in the same developmental group and locale, if trajectories of resilient, recovery and chronic can be described proportionate to the literature, then the assessment may be an effective tool for rapid triage.

Q5. What is the statistically normal range of severity of initial PTSS (PTSSpre), final PTSS (PTSSpost), and change (PTSSchange) for a peer group in a locale?

Q6. Which children score in the first quartile or below in all three assessments? (PTSSpre, PTSSpost, PTSSchange)

Q7. Does this method consistently identify across multiple locales and disasters, resilient, recovery, and chronic trajectories as referenced in the literature?

The children who have initial PTSS scores in the first quartile of their peers in a locale can be considered as being in the dysfunctional group as compared to the functional group. Those children in the dysfunctional group who have final PTSS scores in the first quartile of their peers in a locale can be seen to have continued a chronic trajectory. Those children with a chronic trajectory that also have change PTSS scores in the first quartile of their peers in a locale can be seen to have not experienced significant change and would therefore be the most likely children to be more at risk of psychopathology.

Statement of the Null Hypotheses

A holistic assessment, comparing children exposed to mass trauma of similar age and gender within the same locale, does not accurately describe the prevalence of resilience, recovery, and chronic PTSS trajectories as seen in the literature.

Alternative Hypothesis

A holistic assessment of children exposed to mass trauma, i.e., of similar age and gender within the same locale, accurately describes the prevalence of resilience, recovery, and chronic PTSS trajectories as seen in the literature.

Establishing a Developmental Peer Group in a Unique Locale

The original data collected by OpSAFE International included multiple crisis events such as disasters, conflicts, displacement, and poverty in 158 OperationSAFE camps for 16,768 children in multiple countries. For this study, data beyond the scope of camps held in the Philippines between 2015 and 2020 in response to disaster were excluded. Data from children outside of the age range for which the intervention was designed, six to twelve years old, were also excluded from the study although they were not turned away from the intervention. Data sets that were missing data or had a standard deviation of <1 were excluded as well. The final sample size was 7,015 children who participated in 51 interventions.

Establishing a Developmental Peer Group

If age and gender affect the severity of initial PTSS, then a more holistic assessment would compare them with children within the same developmental group.

Summary Statistics. The observations for initial post-traumatic stress symptoms (PTSSpre) had an average of 21.03 (SD = 5.87, Min = 7, Max = 35).

Question 1: How Does Age Affect the Severity of Initial Post-Traumatic Stress Symptoms (PTSSpre)?

A Kruskal-Wallis test was conducted to examine whether the mean of PTSSpre was significantly different between ages of children.

Assumptions. The assumptions of normality and homogeneity of variance were assessed. Four different statistical tests were used to assess whether the data follows a normal distribution, where a high p-value (greater than 0.5) would suggest that the data does not significantly deviate from normality. All four of the tests resulted in p-values of <.001 indicating that the PTSSpre data deviates significantly from the normal distribution (see Table 10).

Table 10. Tests for Normal Distribution of PTSSpre – Age

		Statistics	P
Kolmogorov-Smirnov		0.16	<.001
Kolmogorov-Smirnov (Lilliefors Corr.)		0.16	<.001
Shapiro-Wilk		0.96	<.001
Anderson-Darling		110.72	<.001

Equally, with large sample sizes, analytical tests of normality tend to show increasingly smaller p-values, so a histogram and quantile-quantile plot graphically show that indeed the PTSSpre data deviates from the normal distribution (see Figure 7).

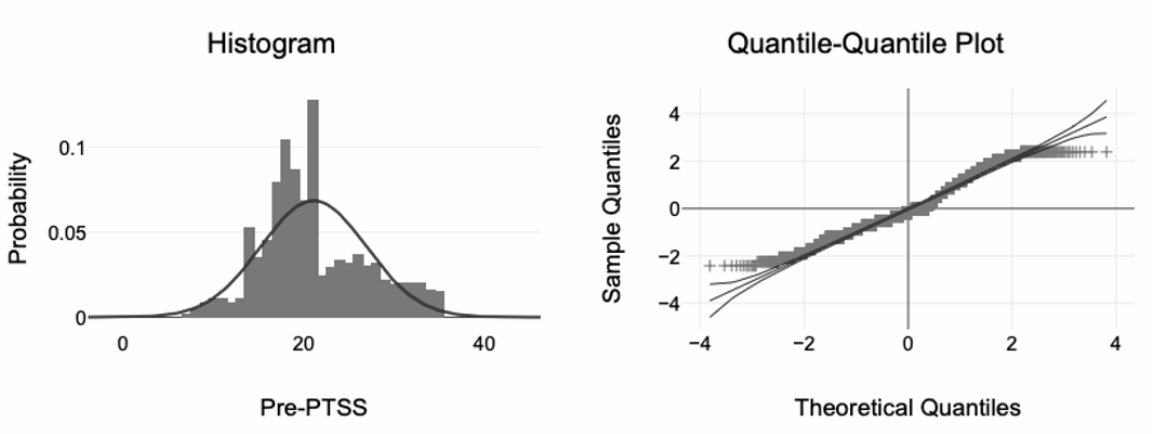

Figure 7. PTSSpre Histogram and Q-Q Plot - Age

Homogeneity was assessed using the Levene's test for equality of variance comparing the variance equality between the age samples in order to determine whether the homogeneity of variance assumption was met[242] Variance equality was seen between age groups 6-7, 8-10, and 11-12. However, variance equality was not seen between ages 7-8, and 10-11. Therefore, because the assumption of homogeneity of variance was violated between certain ages and the distribution was not normal, the Kruskal-Wallis test was used in place of the ANOVA.

Results. The result of the Kruskal-Wallis test (Chi2=163.5, df=6, p<0.001) with p=<0.001 shows that there was a significant difference between the categories of the independent variable (age) with respect to the dependent variable (PTSSpre). Younger children score lower on PTSSpre indicating greater vulnerability or less resilience. This

[242] H. Levene, "Robust Testes for Equality of Variances," in *Contributions to Probability and Statistics*, ed. Ingram Olkin, 278–292 (Palo Alto, CA: Stanford University Press, 1960).

aligns with many studies across the literature such as Lai's that broadly associate older ages with being in trajectories of less severe PTSS.[243] A post hoc Dunn-Bonferroni test was used to compare the groups in pairs to find out which pairs were significantly different (see Table 11).

Table 11. Dunn-Bonferroni Test

	Test Statistic	Std. Error	Std. Test Statistic	p	Adj. p
6 - 7	-13.06	98.09	-0.13	0.894	1
8 - 9	-208.82	87.82	-2.38	0.017	0.366
8 - 10	-120.17	86.14	-1.4	0.163	1
9 - 10	88.64	84.78	1.05	0.296	1
11 - 12	12.74	92.99	0.14	0.891	1

Adj. p: Values adjusted with Bonferroni correction. The Dunn-Bonferroni test revealed that paired 6-7 year olds showed no significant statistical difference in their PTSSpre scores. Likewise, paired 9-10 year olds showed no significant statistical difference with each other as did also paired 11-12 year olds. Also paired 8-10 showed no statistical difference. However, paired 8-9 year olds showed an adjusted p (p values adjusted with Bonferroni correction) of 0.366 which is slightly over the 0.05 level of significance. While the paired 8-9 year olds are not statistically different, there was not the same confirmation as in the other pairs where the adjusted p values were a clear 1. The Age vs. PTSSpre boxplot (see Figure 8) shows the relationship between age and stress clearly

[243] Lai, et al., "Trajectories", 9.

with ages 6, 7, and 8 sharing a common median of 19, ages 9-10 sharing a common median of 20 and ages 11-12 sharing a common median of 2.

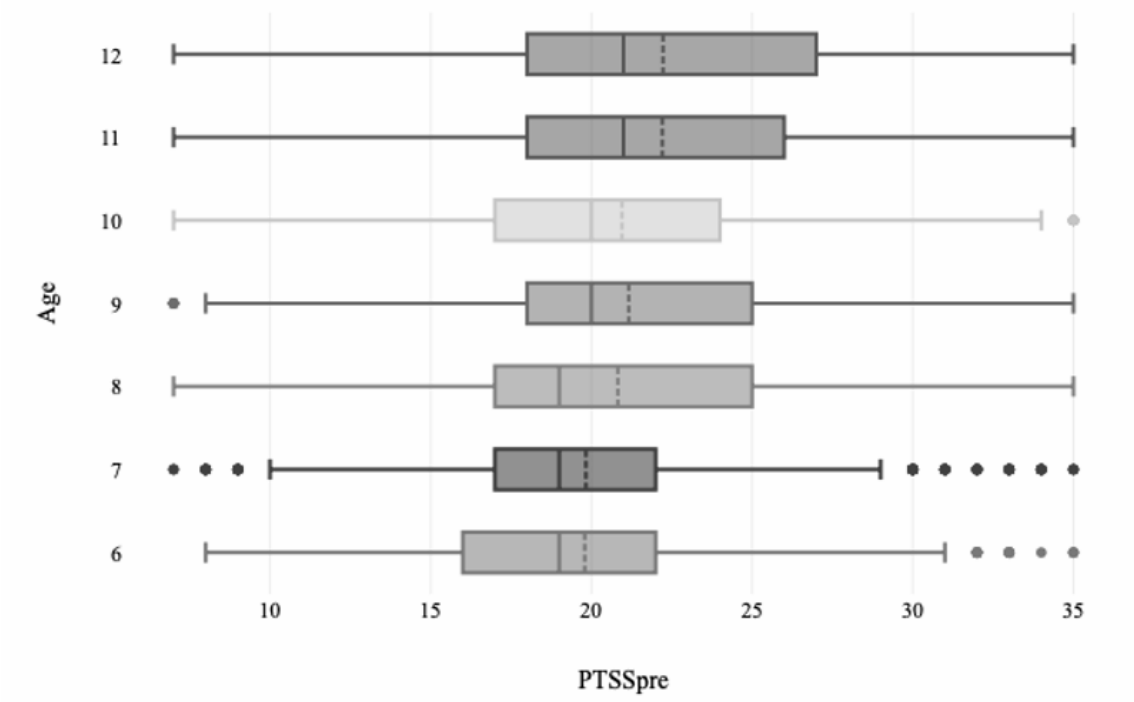

Figure 8. Age vs. PTSS Boxplot

Discussion. The PTSSpre data collected at the end of the first day of the OperationSAFE intervention reflects the initial well-being or stress of the child in light of the mass trauma to which they were exposed, their susceptibilities, and their available resources with which to cope. The global data suggests that, on the whole, younger children are more vulnerable to the effects of mass trauma than older children. This is expected since "at each age, previous means of coping are differentiated and integrated with new modes, supplementing them and providing a wider repertoire."[244] While all of the children considered in this study were between the ages of six to twelve years old and

[244] Melanie J Zimmer-Gembeck and Ellen A Skinner, "The Development of Coping: Implications for Psychopathology and Resilience," *Developmental Psychopathology*, 2016, https://doi.org/10.1002/9781119125556.DEVPSY410, 30.

could be categorized as being in middle childhood, a finer gradation can be seen in the data. The data reveals three clear development stages. The youngest group (6-8) with a median PTSS score of 19 is still transitioning from Piaget's preoperational stage to the concrete operational stage, meaning that some of them are still struggling with concepts such as cause and effect or understanding sequences.[245] Similar transitions are taking place in their psychosocial development as they expand from Bronfenbrenner's micro-ecology of the home into the meso-ecology of school and friends. Finally, some of these younger children are still making meaning primarily through imitation of their family as described in Fowler's Intuitive-Projective faith. Each of these factors leave the younger children more vulnerable to trauma as they struggle to cognitively understand what has happened, have less familiarity with the resources available to them in the meso-ecology, and often simply mirror back inexplicable stress expressed by family members. The middle group (9-10) with a median PTSS score of 20 are firmly established in the concrete operational stage and can navigate confidently the meso-ecology and all of the new social expectations and relationships that this context brings. This gives them a significant advantage over the younger children in using the resources available to them to cope with stress. However, their method of meaning-making is often literal and black and white, with little room for the complexities of crises. It is the oldest group (11-12) with median PTSS scores of 21 that is best prepared to cope with mass trauma as their transition into the formal operational stage allows them to think about the abstract, plan ahead, and imagine themselves in someone else's circumstances. They also have a much more robust system of friends and awareness of how they are perceived by others and

[245] Jean Piaget, *Construction of Reality in the Child* (New York: Routledge, 1954).

their place in the world. These pre-teens are moving from the mythic-literal faith of childhood to the synthetic-conventional approach to meaning making, where they depend much more on consensus and the opinions of their friends than stock answers provided by authority figures.

Question 2: How Does Gender Affect the Severity of Initial PTSS (PTSSpre)?

A Mann-Whitney U test (n=7015, male=3537, female=3589) was conducted to examine whether the mean of PTSSpre was significantly different between genders of children.

Assumptions. The assumptions of normality and homogeneity of variance were assessed. Four different statistical tests were used to assess whether the data follows a normal distribution, where a high p-value (greater than 0.5) would suggest that the data does not significantly deviate from normality. All four of the tests resulted in p-values of <.001 indicating that the PTSSpre data deviates significantly from the normal distribution (see Table 12).

Table 12. Tests for Normal Distribution of PTSSpre-1 – Gender

		Statistics	P
Kolmogorov-Smirnov		0.15	<.001
Kolmogorov-Smirnov (Lilliefors Corr.)		0.15	<.001
Shapiro-Wilk		0.97	<.001
Anderson-Darling		49.04	<.001

With large sample sizes, analytical tests of normality tend to show increasingly smaller p-values, so a histogram and quantile-quantile plot graphically show that indeed the PTSSpre data deviates from the normal distribution (see Figure 9).

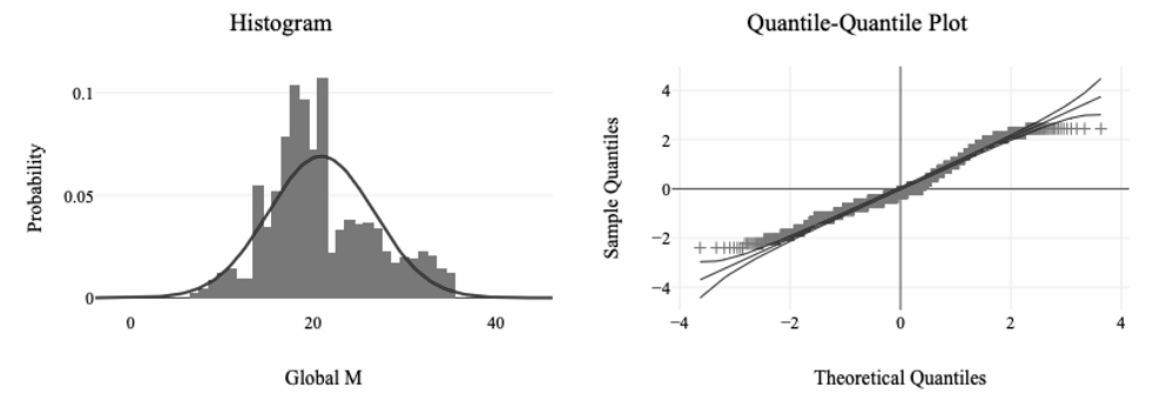

Figure 9. PTSSpre Histogram and Q-Q Plot – Gender

Homogeneity was assessed using the Levene's test for equality of variance comparing male and female samples, in order to determine whether the homogeneity of variance assumption was met.[246] Variance equality was seen between male and female samples with a p-value of 0.071 which is above the 5% significance level but with a very small effect. Because the assumption of normal distribution was not met and the homogeneity of variance weak, the Kruskal-Wallis test was used in place of the ANOVA.

Results. In the global data, the results of the Mann-Whitney U test showed that the male group had equally high values for the dependent variable (PTSSpre) as the female group (median = 20), showing that the difference between the male and female groups with respect to the dependent variable was not statistically significant, (U =

[246] Levene, 1960.

6178157, n1 = 3537, n2 = 3589 p = 0.052). This was unexpected as the literature usually has females being more vulnerable than males.[247] Thus, the null hypothesis was rejected. The Kruskal-Wallis Test showed that there was a significant difference between the categories of the independent variable with respect to the dependent variable (Chi2=159.54, df=13, p=<0.001). To determine the exact nature of these differences required a post-hoc Dunn-Bonferroni test.

Through this test it could be seen that group 6M (6yr. old males) did not differ statistically from groups 6F (6yr. old females), 7M, 7F, and, surprisingly, 8M. Based on the previous analysis of age vs PTSSpre, we would have expected a difference at age 8 (see Table 13).

Table 13. Youngest Group by Age and Gender

	Test Statistic	Std. Error	Std. Test Statistic	p	Adj. p
6M - 6F	1.87	47.24	0.04	0.968	1
6M - 7M	27.83	44.46	0.63	0.531	1
6M - 7F	-36.98	44.73	-0.83	0.408	1
6M - 8M	-56.86	43.37	-1.31	0.19	1
6F - 7M	25.96	45.45	0.57	0.568	1
6F - 7F	-38.85	45.72	-0.85	0.395	1
6F - 8M	-58.73	44.39	-1.32	0.186	1
7M - 7F	-64.81	42.84	-1.51	0.13	1
7M - 8M	-84.69	41.41	-2.05	0.041	0.409
7F - 8M	-19.88	41.71	-0.48	0.634	1

[247] Lai, Trajectories, 8.

However, group 8F (8 year old females) did differ statistically from group 8M and the younger groups, fitting in better with the middle group of children ages 9-10 (see Table 14).

Table 14. Middle Group by Age and Gender

	Test Statistic	Std. Error	Std. Test Statistic	p	Adj. p
8F - 9M	-29.29	50.2	-0.58	0.56	1
8F - 9F	-7.93	50.32	-0.16	0.875	1
8F - 10M	8.93	49.52	0.18	0.857	1
8F - 10F	21.42	49.13	0.44	0.663	1
9M - 9F	21.37	49.03	0.44	0.663	1
9M - 10M	38.22	48.2	0.79	0.428	1
9M - 10F	50.72	47.8	1.06	0.289	1
9F - 10M	16.85	48.33	0.35	0.727	1
9F - 10F	29.35	47.94	0.61	0.54	1
10M - 10F	12.5	47.09	0.27	0.791	1

From age 9, both sexes once again did not differ statistically from one another, leaving the third group of older children unchanged at age 11 and 12 (see Table 15).

Table 15. Older Group by Age and Gender

	Test Statistic	Std. Error	Std. Test Statistic	p	Adj. p
11M - 11F	-24.67	35.32	-0.7	0.485	1
11M - 12M	-3.31	37.17	-0.09	0.929	1
11M - 12F	-18.98	36.57	-0.52	0.604	1
11F - 12M	21.36	35.66	0.6	0.549	1
11F - 12F	5.69	35.04	0.16	0.871	1
12M - 12F	-15.67	36.9	-0.42	0.671	1

Adding in gender gives a more nuanced view of the developmental stages of the children, with the youngest group sharing a PTSSpre median of 19 including 6- and 7-year-old male and female children and also 8-year-old-male children. The middle group sharing a PTSSpre median of 20 includes 8-year-old females along with the 9-and 10-year old male and female children. Then the oldest group of 11 and 12 year olds continues with both male and female children sharing a PTSSpre median of 21 (see Figure 10).

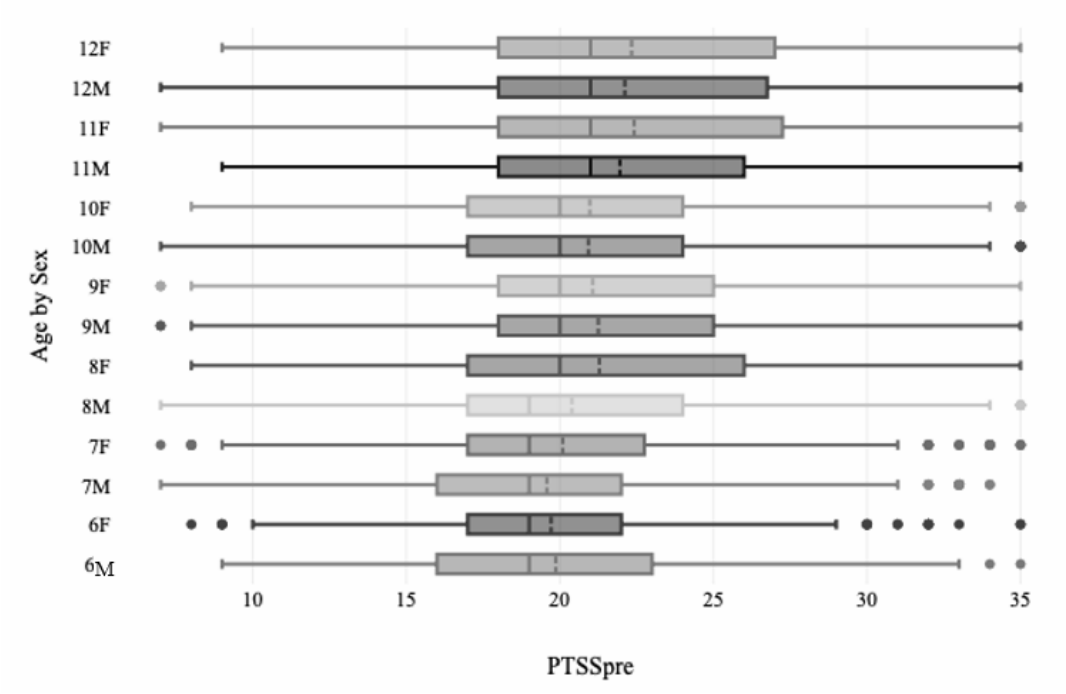

Figure 10. Age by Gender vs PTSSpre Boxplot

Discussion. The Mann-Whitney u-test suggested a slight non-significant difference between male and female PTSSpre scores with an effect size that was very small. It is only through the subsequent Kruskal-Wallis test and Dunn-Bonferroni test that a more nuanced picture of child development is seen. The male and female children in the youngest grouping of 6-7 year olds largely react the same to trauma. The difference starts to be noticeable in the 8-9 year olds with the 8-year-old male having the same median as the 6-7 year olds, but with the 8-year-old female's median equaling that of the 9-year-old male. Surprisingly, despite the widening lead of females over males, the 10-year-old male and female's medians once again converge, and then, through 11 and 12 years of age they continue to show the same response to trauma. So it would seem that it is only among the 8 year olds that females show more resiliency than males to trauma,

but they start and end their school age years with similar resilience implying that a gender related difference at that age.

This difference in 8-year-old females can perhaps best be understood by the onset of puberty, where females typically experience a growth spurt before males. In the Philippines, the median height of females overtakes males at 8.5 years of age and continues to be higher than the median height of males until age 13 when males experience their own growth spurt.[248] This might explain why females are more resilient than males at that age as they are more confident physically.

The answer to question 2 is that gender does affect the severity of PTSS but in a nuanced way. Males and females are largely similar to one another in ages 6-7, and from age 9-12, but at age 8 males are more vulnerable, with lower R-TAC scores, and females more resilient, with higher R-TAC scores. This finding allows us to construct three peer groups for the Philippines (see Table 16). Each of these groups contains children who are approximately at the same stage of development in regard to vulnerability or resilience to trauma.

Table 16. Developmental Peer Groups

	Group A (Younger)	Group B (Middle)	Group C (Older)
Male	6, 7, 8	9, 10	11, 12
Female	6, 7	8, 9, 10	11, 12

[248] Rodolfo F. Florentino et al., "Proposed Weight and Height Standards for 0–19 Year Old Filipino children," *Transactions of the National Academy of Science* 9 (1987): 507.

Establishing a Locale

If region or type of disaster affect the severity of PTSS, then a more holistic assessment would compare children with children within the same community.

Summary Statistics. The observations for initial post-traumatic stress symptoms (PTSSpre) had an average of 21.08 (SD = 5.83, Min = 7, Max = 35). A total of 51 interventions held in disaster-affected locales were included in this study. These interventions were spread across 4 regions in the Philippines; Visayas (n=4), Eastern Samar (n=20), Davao Del Sur (n=9), and Lanao Del Norte (n=18). These interventions were held in response to three different types of disasters; typhoons (n =41), earthquakes (n=8), and floods (n=2).

Question 3: How Does Camp Region Affect the Severity of Initial PTSS (PTSSpre)?

A Kruskal-Wallis test was used to examine whether the mean of PTSSpre was significantly different first, between regions, and then, between locations within the same region.

Assumptions. The assumptions of normality and homogeneity of variance were assessed.

Four different statistical tests were used to assess whether the data follows a normal distribution, where a high p-value (greater than 0.5) would suggest that the data does not significantly deviate from normality. All four of the tests resulted in p-values of <0.001 indicating that the PTSSpre data deviates significantly from the normal distribution (see Table 17).

Table 17. Tests for Normal Distribution of PTSSpre – Region

	Statistics	P
Kolmogorov-Smirnov	0.16	<.001
Kolmogorov-Smirnov (Lilliefors Corr.)	0.16	<.001
Shapiro-Wilk	0.96	<.001
Anderson-Darling	110.72	<.001

With large sample sizes, analytical tests of normality tend to show increasingly smaller p-values, so a histogram and quantile-quantile plot graphically show that indeed the PTSSpre data deviates from the normal distribution (see Figure 11).

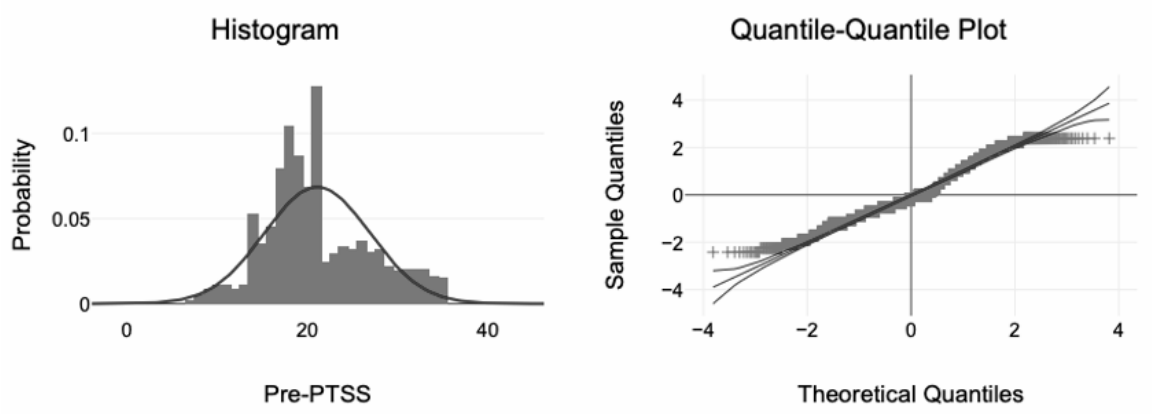

Figure 11. PTSSpre histogram and Q-Q Plot - Region

Homogeneity was assessed using the Levene's test for equality of variance, comparing the variance equality between the region samples in order to determine whether the homogeneity of variance assumption was met.[249] No variance equality was

[249] Levene, 1960.

seen between any pairing of the regions of Visayas, Davao Del Sur, Lanao Del Norte, or Eastern Samar. Because the assumption of homogeneity of variance was violated between regions and the distribution was not normal, the Kruskal-Wallis test was used in place of the ANOVA.

Table 18. Regional Comparison

Groups	n	Median	Mean Rank
Cebu	492	21	3940.62
Davao Del Sur	725	26	5429.17
Eastern Samar	1793	22	4001.24
Lanao Del Norte	4117	19	3000.12

Results. Comparing PTSSpre scores from interventions held in the four regions of Cebu, Eastern Samar, Davao Del Sur, and Lanao Del Norte, the Kruskal-Wallis test shows a statistically significant difference across the four regions (Chi2=18.67, df=3, p<.001) (see Table 18).

Table 19. Differences within Regions

Groups	Chi^2	Df	P
Cebu	182.84	4	<.001
Davao Del Sur	100.86	8	<.001
Eastern Samar	1515.79	19	<.001
Lanao Del Norte	1495.34	17	<.001

However, comparing interventions held within each region revealed even more significant differences. While the median PTSSpre score in the Cebu was 21, this score ranged from 17-28. Davao Del Sur had a less varied range, from 21-28, but Lanao Del Norte and Eastern Samar were much more varied, ranging from 14-27 and 11-34 respectively (see Table 19). In the regions where more interventions were held (Lanao Del Norte, Eastern Samar), there was greater variation between the camps.

Discussion. Comparing regions in the Philippines, it is impossible to determine whether children in one area are more or less resilient or vulnerable to PTSS than another. While the median scores of PTSSpre would suggest that children in Lanao Del Norte (19) were more at risk than children in Davao Del Sur (26), each location where the intervention was held turned out to be unique. In the same way that risk and resilience for the child can be described as exposure multiplied by vulnerability, so too, communities as a whole exhibit risk or resilience according to the same factors of exposure and vulnerability. Masten's dynamic system approach lends itself to using the same language to describe this continuum of risk and resilience on varying levels from the individual to society.

As noted with individual children, it is difficult to pinpoint which factors cause a community to show more risk or resilience. In this study, 51 locales received intervention after exposure to various disasters. In Eastern Samar and Cebu, the locales suffered from Typhoon Ruby less than a year after tremendous damage from Typhoon Yolanda, but varied widely in their PTSSpre scores. This could have been because that community had greater or lesser exposure to either of the storms. It might have been due to greater or

lesser susceptibility brought on by socio-economic factors. It also might have been because that community had more or less social capital present to use for recovery efforts. In Lanao Del Norte, Typhoon Vinta (Tembin) brought flooding to a region already affected by the Marawi conflict in the region the previous year. In Davao Del Sur, flooding occurred amongst the urban poor in one area of Davao while later an earthquake struck villages in the countryside at the beginning of the COVID-19 pandemic. Whatever the case, the answer to question 3 is that there is no typical PTSSpre score for a region. Each locale must be considered as unique. Further study is needed to explore the effects of factors of urban vs rural, socio-economic status, and ethnicity and marginalization on community risk and resilience.

Question 4: How Does the Type of Disaster (Typhoon, Earthquake, Flood) Affect the Severity of Initial PTSS?

A Kruskal-Wallis test was used to examine whether the mean of PTSSpre was significantly different between types of disasters and then between locations that experienced the same type of disaster.

Assumptions. The assumptions of normality and homogeneity of variance were assessed. Four different statistical tests were used to assess whether the data follows a normal distribution, where a high p-value (greater than 0.5) would suggest that the data does not significantly deviate from normality. All four of the tests resulted in p-values of <.001 indicating that the PTSSpre data deviates significantly from the normal distribution (see Table 20).

Table 20. Tests for Normal Distribution of PTSSpre - Disaster

	Statistics	P
Kolmogorov-Smirnov	0.16	<.001
Kolmogorov-Smirnov (Lilliefors Corr.)	0.16	<.001
Shapiro-Wilk	0.95	<.001
Anderson-Darling	109.89	<.001

With large sample sizes, analytical tests of normality tend to show increasingly smaller p-values, so a histogram and quantile-quantile plot graphically show that indeed, the PTSSpre data deviates from the normal distribution (see Figure 12).

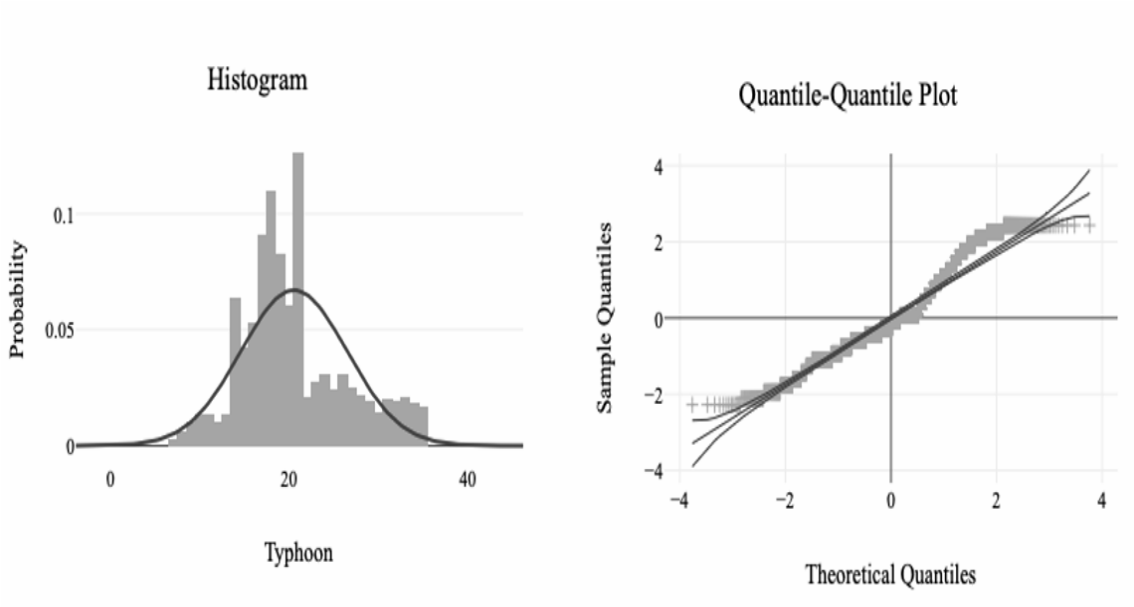

Figure 12. PTSSpre histogram and Q-Q Plot – Disaster

Homogeneity was assessed using the Levene's test for equality of variance comparing the variance equality between the disaster type samples in order to determine

whether the homogeneity of variance assumption was met[250] the disaster types, i.e., typhoon, earthquake, or flood. Because the assumption of homogeneity of variance was violated between disaster types and the distribution was not normal, the Kruskal-Wallis test was used in place of the ANOVA.

Results. Comparing median PTSSpre scores in locations where interventions were held following earthquake (n=8), flood (n=2), and typhoon (n=42), the Kruskal-Wallis test results were able to confirm significant differences between disaster types (Chi2=573,77, df=2, p=<0.001), with type typhoon having a median PTSSpre score of 19, flood at 20, and earthquake at 26. However, comparing variations in PTSSpre scores between camps held in response to earthquakes resulted in a wide range of difference (Chi2=104.69, df=7, p<0.001), as did camps in response to floods (U=9125, z=-13.06, p=<0.001), and camps in response to typhoons (Chi2=3577.76, df=41, p=<0.001).

Discussion. Compared globally across the study, there is significant difference in the severity of initial trauma symptoms among different types of disaster. When each disaster type was isolated and those types of camps were compared with each other, each camp was unique, with no typical PTSSpre score appearing for a specific type of disaster.

We can therefore answer question 4 with the result that there is no typical PTSSpre score for a type of disaster; rather, each community has a unique experience of that disaster based on their risk/resilience factors (see Table 21).

[250] Levene, 1960.

Table 21. Risk/Resilience Factors for the Community and the Child

Risk /Resilience Factors	Community/Society	Individual Child
Exposure	Loss or threat of loss of facilities, institutions, infrastructure	Loss or threat of loss of family, injury to self or others, witnessing traumatic scenes
Susceptibility	Conditions that increase vulnerability such as poverty, violence, marginalization	Genetics, environment, previous trauma, developmental, intellectual or physical disabilities
Coping	Resources immediately available to mitigate adverse effects of disaster	Attachment system of family, friends, and teachers; internal resources developed such as self-regulation, self-efficacy, problem solving
Adaptation	Growth and disaster risk reduction implemented after a crisis	Connection to a wider circle of support after the disaster and personal growth

Each community has a unique experience of disaster which is a combination of the same set of factors that determine risk and resilience from the macro societal level to the level of the individual child. The wider society, community, and the individual child are all part of a dynamic system that adapts to reestablish equilibrium.

Despite Alugan Elementary School and Bati-awan Elementary School both being located in the same region of Eastern Samar and being affected by the same type of disaster, a typhoon, they presented very different PTSSpre scores, with Alugan Elementary having a median score of 11 and Bati-awan having a median score of 32. To discover the reason for the difference in scores from location to location would require investigating the four risk/resilience factors of exposure, susceptibility, coping, and

adaptation affecting each community. A community with much more severe PTSSpre scores after a disaster might have received more exposure, might have been more susceptible to its effects, might have lacked resources to cope with the aftermath, or might have had fewer outsiders offering to help.

If an a priori baseline PTSSpre score from the global data is set at the first quartile, it would indicate that children with scores 17 and lower are the least resilient group, that is, the children with more severe stress symptoms. However, using the peer groupings, Group A (younger) would have a baseline score of 16, and Group C (older) would have a baseline score of 18. But it is when locale is considered that it becomes clear that a global baseline is not truly an accurate assessment. Among the 51 interventions, the first quartile ranges from 10 at the lowest to 32 at the highest. This supports the understanding of each locale as having a unique resilience based upon the community's dynamic relational development system as it uses the available resources and conditions to reestablish equilibrium.

In order to make a holistic assessment of initial PTSS severity in children, it is necessary to compare them to children at their own developmental stage because older and younger children will have a different balance of individual risk/resilience factors. Younger children might be shielded from some exposure of which older children are more aware. Older children might rely on a wider circle of support from friends and teachers or find that support stripped away by displacement when they need it most. Creating a peer group of children at the same developmental stage allows the data to be compared between children with similar resources available for use by the dynamic system of resilience.

In the same way, a holistic assessment will compare the symptoms of children to their peers within the same unique locale, who share their community's risk/resilience factors such as similar exposure to the disaster, similar environmental susceptibilities, similar abundance or lack of coping resources, and similar adaptation opportunities. This study has established that age and gender affect resilience with younger children having more severe stress symptoms than older children, so it separates the data into three peer groups. This study has established that region and type of disaster also affect resilience but that there is a wide variation between communities, even amongst those in the same region that are facing the same type of disaster. The study therefore compares peer groups of children within the same locale.

Describing Trajectories

Taking each implementation of the OperationSAFE CMHPSS as a locale, the children can then be described as exhibiting one of three trajectories in response to post-traumatic stress: Resilient, where PTSS severity is mild; Recovery, where initially severe PTSS improve; or Chronic, where initially severe PTSS continue to be severe.

Summary Statistics. Across the locales (n=51), the Resilient trajectory was modal with a mean of 65.26%, SD=6.36, Min= 47.95%, Max=74.23%. The Recovery trajectory had a mean of 29.80%, SD=5.93, Min=16.67%, Max=42.11%. The Chronic trajectory had a mean of 4.95%, SD=4.3, Min=0%, Max=16.67%.

Question 5: What is the Normal Range of Severity of Initial PTSS (PTSSpre), Final PTSS (PTSSpost), and Change of PTSS (PTSSchange) for a Peer Group in a Locale?

Using descriptive statistics, each locale's first quartile for each of the three peer group's (A, B, C) variables was recorded (see Table 22).

Table 22. First Quartile Statistics per Locale

Locale	CA-002	CA-003	CA-004	CA-005	CA-006	CA-007	CA-008	CA-009	CA-010	CA-011	CA-012	CA-013	CA-014	CA-015	CA-016	CA-0017	CA-018
Q1 PTSSpre Groups A/B/C	10/10/11	29/29/31	17/17/15	10/10/11	29/29/31	17/17/15	10/10/11	29/29/31	17/17/15	10/10/11	29/29/31	17/17/15	10/10/11	29/29/31	17/17/15	10/10/11	29/29/31
Q1 PTSSpost Groups A/B/C	24/32/32	25.75/31/32	-1.5/-2/-1	24/32/32	25.75/31/32	-1.5/-2/-1	24/32/32	25.75/31/32	-1.5/-2/-1	24/32/32	25.75/31/32	-1.5/-2/-1	24/32/32	25.75/31/32	-1.5/-2/-1	24/32/32	25.75/31/32
Q1 PTSSchange Groups A/B/C	30/29.75/31	31/31/32	-1/0/0	30/29.75/31	31/31/32	-1/0/0	30/29.75/31	31/31/32	-1/0/0	30/29.75/31	31/31/32	-1/0/0	30/29.75/31	31/31/32	-1/0/0	30/29.75/31	31/31/32

Locale	CA-019	CA-020	CA-022	CA-023	CA-024	CA-025	CA-026	CA-027	CA-028	CA-029	CA-030	CA-032	CA-033	CA-034	CA-035	CA-036	CA-037
Q1 PTSSpre Groups A/B/C	17.75/19/19	29/30.5/31	29/30/30.25	30.5/31/31	25.5/15.5/21	18/20/25	21.5/24.5/25.75	17/17/18	31/31/31	15/19/20	26/33/22	x/20/21	23/23/21	26/27/27.25	19/17/20	15/18/17	28.5/27/22.5
Q1 PTSSpost Groups A/B/C	21.75/25.75/26	30/31/31	30.25/32.00/31	32/32/32	27.5/23/28	20.25/25/23	28/29.5/29	31/33/32	34/34/34	31/32/32	29.5/30/29	x/25/24	28/28/25	30/29.75/30	26/31/32	29/32/31	33/31/29
Q1 PTSSchange Groups A/B/C	4/5.75/5.5	1/-0.5/-1	-0.75/0/-1	0.5/-1/0	1/4/3.25	1/3/-1.5	5/2/1	14/13/13	2.5/0/0.5	14/12/7	0/-3/-1	x/0/1	2/1.75/1	2/3/0.25	1/13/2	13/13.75/13	1/2.5/5.5

Locale	CA-038	CA-039	CA-040	CA-041	CA-042	CA-043	CA-044	CA-045	CA-046	CA-047	CA-048	CA-049	CA-050	CA-051	CA-052	CA-053	CA-054
Q1 PTSSpre Groups A/B/C	21/22.5/20	23/23/24	16/14/14	15/16/16	21/24/25	15/15/16	29/32/24.75	17/21/18	21.5/33.75/32.5	17/18/21	17/18/14	17/18/18	29/32/30.25	26/27/27	18/18/19	24/21.25/24	27/28/29.25
Q1 PTSSpost Groups A/B/C	25.75/27/24.75	24/24/23	31/28/28	31/31/32	22/23.5/25	31/30/30.50	34/35/28	31/28/28	25.5/35/32.5	30/32/31	28/28/29	32/32/32	28.5/32/31.25	30/30/30	31/32/32	27/26.5/26	27/27/218
Q1 PTSSchange Groups A/B/C	4.75/3.5/3.75	0/0/-1	13/12.5/14	14/14/14	-1/-1/-1	13/13/11.5	2.5/0/1.75	10/7/7	1/0.75/0	11/13/8	7/7/10	14/13/14	0/-1/0	3/2/3	13/13/13	0/0/0	-2/-2/-3

Using the first quartile statistic measured at PTSSpre, it is possible to identify in each peer group in a locale which children are functional, and which are dysfunctional in regard to coping with PTSS, with those at quartile 1 or below being dysfunctional in comparison with the rest of their peers (see Figure 13).

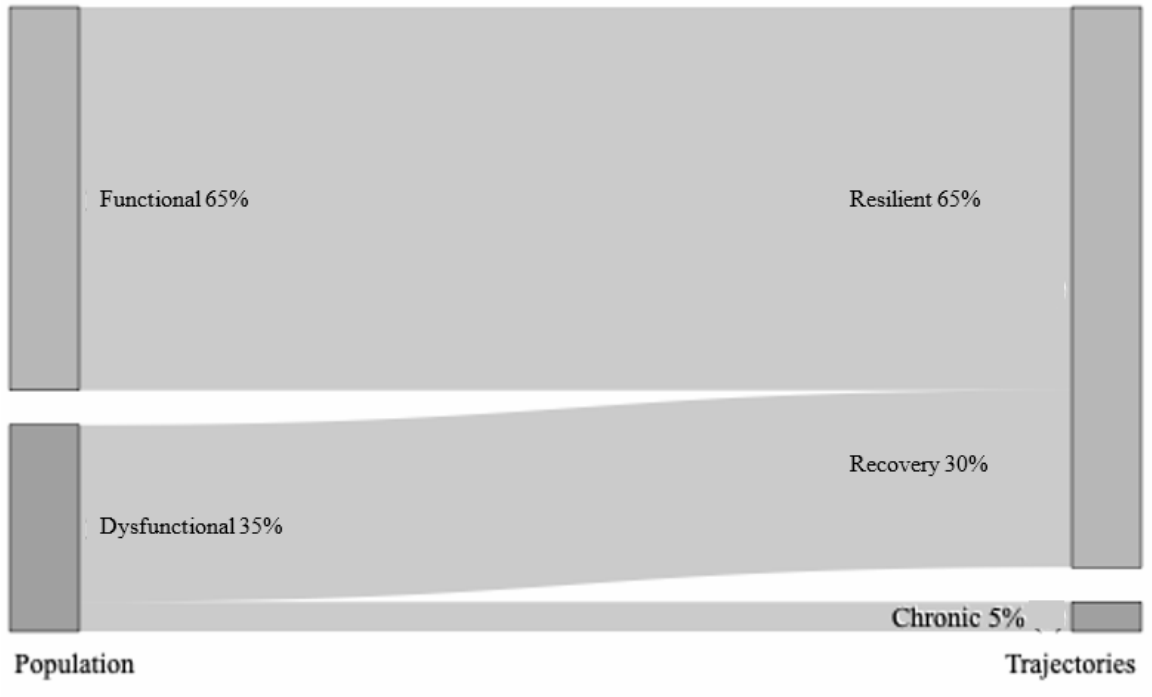

Figure 13. Populations to Trajectories

However, while PTSSpre data can discriminate between the functional and dysfunctional populations this is not yet enough information to determine which trajectory is being exhibited. As Galatzer-Levy et al. comment, "Cross-sectional diagnostic classification can overlook or conflate distinct trajectories as the above described populations overlap substantially at any given point of time. Recovery, for example, may be conflated with resilience or chronic stress depending on when it is assessed."[251] By answering question 5 describing the statistically normal range of severity of initial, final, and change of PTSS scores for a peer group in a locale, quartiles can be assigned determining the functional and dysfunctional populations within a peer group in a locale.

[251] Isaac R. Galatzer-Levy, Sandy H. Huang, and George A. Bonanno, "Trajectories of Resilience and Dysfunction Following Potential Trauma: A Review and Statistical Evaluation," *Clinical Psychology Review* 63, no. 63 (July 2018): 42, https://doi.org/10.1016/j.cpr.2018.05.008.

Question 6: Which Children Score in the First Quartile or Below in All Three Assessments? (PTSSpre, PTSSpost, PTSSchange)

Results. The functional population, all those above quartile 1 in PTSSpre, continues in PTSSpost to be shown to be the resilient trajectory. But as mentioned, those in the recovery trajectory are conflated with the dysfunctional population if measured at PTSSpre and with the functional population if measured at PTSSpost. In order to differentiate between the recovery and chronic trajectories, the first quartile statistic measured at PTSSpost needs also to be considered, showing which children responded to the intervention. Finally, the PTSSchange measures the amount of improvement made in response to the intervention. Some children in the first quartile in PTSSpre respond to the intervention and make significant improvement, as much as their peers, but not enough to catch up to them and therefore still remain in the first quartile of PTSSpost. Including the PTSSchange statistic takes this into account. Question 6 can be answered by reporting that each locale is a unique context of exposure, susceptibility, and coping resources, but that peer groupings of children show a similar response, with the majority of them showing a resilient trajectory, the next largest group showing a recovery trajectory, and then a small group showing the chronic trajectory (see Table 23).

Table 23. Resilient, Recovery, and Chronic Trajectories by Locale

Locale	CA-002	CA-003	CA-004	CA-005	CA-006	CA-007	CA-008	CA-009	CA-010	CA-011	CA-012	CA-013	CA-014	CA-015	CA-016	CA-0017	CA-018
n=	230	39	61	166	66	182	7	448	79	77	117	104	97	56	147	88	400
Resilient	145	21	43	110	40	127	5	30	50	44	77	64	72	39	101	65	274
%	63.04	53.85	70.49	66.27	60.61	69.78	71.43	62.50	63.29	57.14	65.81	61.54	74.23	69.64	68.71	73.86	68.50
Recovery	80	15	15	56	20	54	2	11	29	29	39	28	24	15	41	18	113
%	34.78	38.46	24.59	33.73	30.30	29.67	28.57	22.92	36.71	37.66	33.33	26.92	24.74	26.79	27.89	20.45	28.25
Chronic	5	3	3	0	6	1	0	7	0	4	1	12	1	2	5	5	13
%	2.17	7.69	4.92	0.00	9.09	0.55	0.00	14.58	0.00	5.19	0.85	11.54	1.03	3.57	3.40	5.68	3.25

Locale	CA-019	CA-020	CA-022	CA-023	CA-024	CA-025	CA-026	CA-027	CA-028	CA-029	CA-030	CA-032	CA-033	CA-034	CA-035	CA-036	CA-037
n=	35	43	65	46	80	139	49	63	72	359	42	113	156	75	254	126	33
Resilient	19	30	46	32	56	92	36	39	45	259	29	80	98	46	176	84	24
%	54.29	69.77	70.77	69.57	70.00	66.19	73.47	61.90	63.38	72.14	69.05	70.80	62.82	61.33	69.29	66.67	72.73
Recovery	13	12	18	12	22	40	12	23	25	91	10	30	53	24	76	39	8
%	37.14	27.91	27.69	26.09	27.50	28.78	24.49	36.51	35.21	25.35	23.81	26.55	33.97	32.00	29.92	30.95	24.24
Chronic	3	1	1	2	2	7	1	1	1	9	3	3	5	5	2	3	1
%	8.57	2.33	1.54	4.35	2.50	5.04	2.04	1.59	1.41	2.51	7.14	2.65	3.21	6.67	0.79	2.38	3.03

Locale	CA-038	CA-039	CA-040	CA-041	CA-042	CA-043	CA-044	CA-045	CA-046	CA-047	CA-048	CA-049	CA-050	CA-051	CA-052	CA-053	CA-054
n=	23	130	233	428	143	111	45	390	30	380	222	474	42	114	430	37	66
Resilient	14	91	120	276	100	64	30	187	22	238	148	300	29	59	281	25	36
%	60.87	70.00	51.50	64.49	69.93	57.66	66.67	47.95	73.33	62.63	66.67	63.29	69.05	51.75	65.35	67.57	54.55
Recovery	8	28	78	149	35	44	15	162	6	130	37	122	11	48	96	10	25
%	34.78	21.54	33.48	34.81	24.48	39.64	33.33	41.54	20.00	34.21	16.67	25.74	26.19	42.11	22.33	27.03	37.88
Chronic	1	11	35	3	8	3	0	41	2	12	37	52	2	7	53	2	5
%	4.35	8.46	15.02	0.70	5.59	2.70	0.00	10.51	6.67	3.16	16.67	10.97	4.76	6.14	12.33	5.41	7.58

Placing children "in the midst" of their developmental peers across 51 locales shows a consistency across the camps of a majority in the resilient trajectory, the second largest trajectory being recovery, and the third--very small--trajectory being chronic. It also reveals a range in the trajectories between camps, with each locale being unique. As seen in theologian Stanley Grenz's *Theology of Community* corrected by Child Theology, the nature of children is essentially relational. It is not without doing damage to both the child and the community that the child is excluded. It is only as the child is looked at in the context of their community that a clear assessment of risk and resilience can be formed. As children respond to the OperationSAFE intervention, there is a conscious effort to restore children to their community and even to help the community to rebuild connections and support for the children.[252] The result of this emphasis on community is

[252] The Director's Manual for the OperationSAFE intervention can be accessed https://drive.google.com/drive/folders/1FxV7eYe1Z8bKY-UtAL8Gtphm5-Xq8t9_?usp=sharing

that most children in a locale show similar improvement, with similar PTSSchange scores. As the children improve their well-being together within a community, those who do not improve as well possibly indicate that they are somehow insufficiently included in the community. This exclusion might be the result of any number of what Ann Masten calls "multisystem processes"[253], the traumatic experience the child was exposed to, susceptibilities such as physical or mental disabilities, or discrimination due to being part of a marginalized group. It could be the result of a home environment that others look down on. As local churches conduct OperationSAFE interventions for children after disaster, they become more trauma aware and sensitive to those children who are excluded in their communities. Daniel Brewster writes of the church, "Our love and concern for suffering children is a reflection of God's love and concern for those children."[254] There is a strong need for advocacy for children who are excluded from community, and the local church is in the best position to fulfill that need because "they are insiders in their communities and have a greater understanding of the needs of their communities."[255] Whereas representatives of the global Church, often through NGOs and relief and development ministries, can advocate "for" a local community, the local church is actually part of that community and can more sustainably continue raising their voice on behalf of suffering children after outside resources have left.[256]

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[253] Ann S Masten, "Emergence and Evolution of Developmental Resilience Science over Half a Century," *Development and Psychopathology*, March 8, 2024, 1–9, https://doi.org/10.1017/s0954579424000154, 5.

[254] Daniel Roy Brewster, *Future Impact: Connecting Child, Church, and Mission* (Colorado Springs, CO: Compassion International, 2010), 136.

[255] Jonathan Edward Wilson, *How Christian Volunteers Can Respond to Disasters: Lessons from the 2011 Japan Tsunami* (Tokyo, Japan: CRASHJapan, 2014), 142.

[256] Graham Gordon, *Understanding Advocacy* (Teddington, UK: Tearfund, 2002).

Sometimes a child's exclusion from community is the result of previous abuse or lack of secure attachment within their own family. "At the parental and familial levels, parents in chronically stressed environments are often overwhelmed, distressed, and fearful, which can make it difficult for them to establish a secure relationship and bond with young children."[257] The local church, as they build up trust and the child's sense of safety through the OperationSAFE intervention, often hear children self-disclose and are then able to report abuse to authorities and provide shelter and comfort to those who were abused. However, the role of the local church is much more foundational than reporting and supporting the abused after the fact. "Despite the fact that international legislation repeatedly refers to the right of children to 'grow up in a family environment, in an atmosphere of happiness, love and understanding, 'it is not possible to legislate for loving relationships."[258] The local church is called to model to their community these loving relationships in the exact same environment and facing the same difficulties that others in the community face.

Question 7: Does this Method Consistently Identify Across Multiple Locales and Disasters Resilient, Recovery, and Chronic Trajectories as Seen in the Literature?

In the analysis conducted by Galatzer-Levy et al. of sixty-seven studies using a trajectory approach to identify responses to traumatic events, these studies all measured their subjects, (both children and adults) on multiple occasions over long periods of

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[257] Katharine Meese Putnam, "Children's Needs for Parental Love in a Systemically Broken World," in *Understanding God's Heart for Children: Toward a Biblical Framework*, ed. Douglas McConnell, Jennifer Orona, and Paul Stockley (Colorado Springs: Authentic, 2007), 57-64, 59.

[258] Judith Ennew, "God Intends for Children to Thrive in Stable and Loving Relationships," in *Understanding God's Heart for Children: Toward a Biblical Framework*, ed. Douglas McConnell, Jennifer Orona, and Paul Stockley (Colorado Springs: Authentic, 2007), 99.

time.[259] The shortest study was over a period of six months and the longest was 10-11 years. The purpose of this study is to develop a holistic approach to screening, so that children most at risk of developing psychopathology can be identified rapidly over the course of five days during an early child mental health psychosocial intervention. This would allow these children to be referred to more costly and professional care in a stepped approach. If the outcomes of the R-TAC assessments are similar to the results of these longer, more intensive assessments, then this approach could serve as a method for rapid triage in the field during disasters. Galatzer-Levy's comparison revealed that the "pooled prevalence rate of the resilient trajectory was 0.657 (i.e., 65.7%)."[260] The studies that they compared included four trajectories, the resilient, recovery, and chronic trajectories previously mentioned, as well as a fourth one, the delayed-onset trajectory, where initial scores for well-being are high but then deteriorate over time. While the delayed-onset trajectory is quite common in adults, especially those dealing with post-traumatic stress from military engagement, the evidence for it in children is quite mixed. Galatzer found only one case of child delayed-onset trajectory mentioned across the sixty-seven studies reviewed. Betty Lai's comparison of trajectories in studies involving children came to the conclusion that "the lack of evidence for delayed trajectories suggests that very few children are likely to develop clinically significant PTSS after initial screening periods."[261] This study has chosen not to look for the delayed-onset

[259] Isaac R. Galatzer-Levy, Sandy H. Huang, and George A. Bonanno, "Trajectories of Resilience and Dysfunction Following Potential Trauma: A Review and Statistical Evaluation," *Clinical Psychology Review* 63, no. 63 (July 2018): 41–55, https://doi.org/10.1016/j.cpr.2018.05.008.

[260] Galatzer-Levy, Trajectories of Resilience and Dysfunction, 43.

[261] Lai, "Posttraumatic Stress Symptom Trajectories Among Children After Disaster Exposure: A Review," 10.

trajectory and to focus rather on the three trajectories in children most supported by the evidence in the literature: the resilient, recovery and chronic trajectories.

Table 24. Trajectory Means Comparison between Studies

	Resilient	**Recovery**	**Chronic**
R-TAC	65.26%	29.80%	4.95%
Galatzer-Levy (Children)	52%	32%	2.8%
Lai	37% - 79%	7.3% - 43%	3.9% - 38%
Le Brocque	57%	33%	10%
Price, Kassam-Adams	57% - 72%	18% - 33%	8% - 10%

According to Galatzer-Levy, while prevalence of trajectories across the studies were 65.7% for the resilient trajectory, 20.8% for the recovery trajectory, and 10.6% for the chronic trajectory, amongst studies that included children after post-traumatic experiences, these percentages shifted, with children showing fewer resilient trajectories than adults (52.0%), more recovery trajectories than adults (32.0%), and fewer chronic trajectories than adults (2.8%) (see Table 24).[262] Lai concluded that while the resilience trajectory tended to be the most prevalent trajectory group, there was "no clear consensus regarding the proportion of children falling into various trajectories,"[263] with various studies showing the percentage of children in the chronic trajectory ranging from 3.9% to 38%.[264] One of the limitations of these reviews is that the studies were conducted using different methods and time points, which is common in post-disaster research. Similar

[262] Galatzer-Levy, Trajectories of Resilience and Dysfunction, 48.
[263] Lai et al., "Posttraumatic Stress Symptom Trajectories Among Children After Disaster Exposure," 10.
[264] Lai et al., 7.

research into trauma trajectories has been conducted in hospital settings however, with children receiving treatment following injuries, or with children with medical trauma stress (i.e. from operations or treatments). In Robyne M. Le Brocque's 2009 study with 190 children post injury, 57% exhibited a resilient trajectory, 33% a recovery trajectory, and 10% a chronic trajectory.[265] A systematic review of studies on pediatric medical stress trajectories in 2016 found that the resilient trajectory was in the range of 57-72%, the recovery trajectory was in the range of 18-33%, and the chronic trajectory was in the range of 8-10%.[266] Analysis of the R-TAC data in this study over 51 camps shows a mean of 65.26% for the resilient trajectory, a mean of 29.80% for the recovery trajectory, and a mean of 4.95% for the chronic trajectory. The R-TAC proportion of children in the three trajectories is largely similar to that described in the literature, with the majority of children exhibiting a resilient trajectory, followed by more than a quarter of the children with a recovery trajectory, and a small minority with the chronic trajectory. However, the literature is quite varied, with disaster studies rarely sharing common methodologies of analysis, timing of data collection, or ages of children. While the medical studies done in hospitals yielded similar results, they also might contain bias with children having suffered personal physical pain, whereas children after disaster might have been exposed to less intense traumatic events. These differences would suggest that the hospital-based studies 'chronic trajectories of around 10% might be higher than that of disaster studies because of more severe trauma exposure. A raincloud plot of the chronic trajectory across

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[265] R. M. Le Brocque, J. Hendrikz, and J. A. Kenardy, "The Course of Posttraumatic Stress in Children: Examination of Recovery Trajectories Following Traumatic Injury," *Journal of Pediatric Psychology* 35, no. 6 (June 17, 2009): 642, https://doi.org/10.1093/jpepsy/jsp050.

[266] Julia Price et al., "Systematic Review: A Reevaluation and Update of the Integrative (Trajectory) Model of Pediatric Medical Traumatic Stress," *Journal of Pediatric Psychology* 41, no. 1 (August 28, 2015): 90, https://doi.org/10.1093/jpepsy/jsv074.

all 51 OpSAFE interventions shows that the median is 3.96, with most of the camps having between 0% and 5% of the participants with the chronic trajectory (see Figure 14). The presence of outliers above 15% suggested possible false positives requiring further investigation.

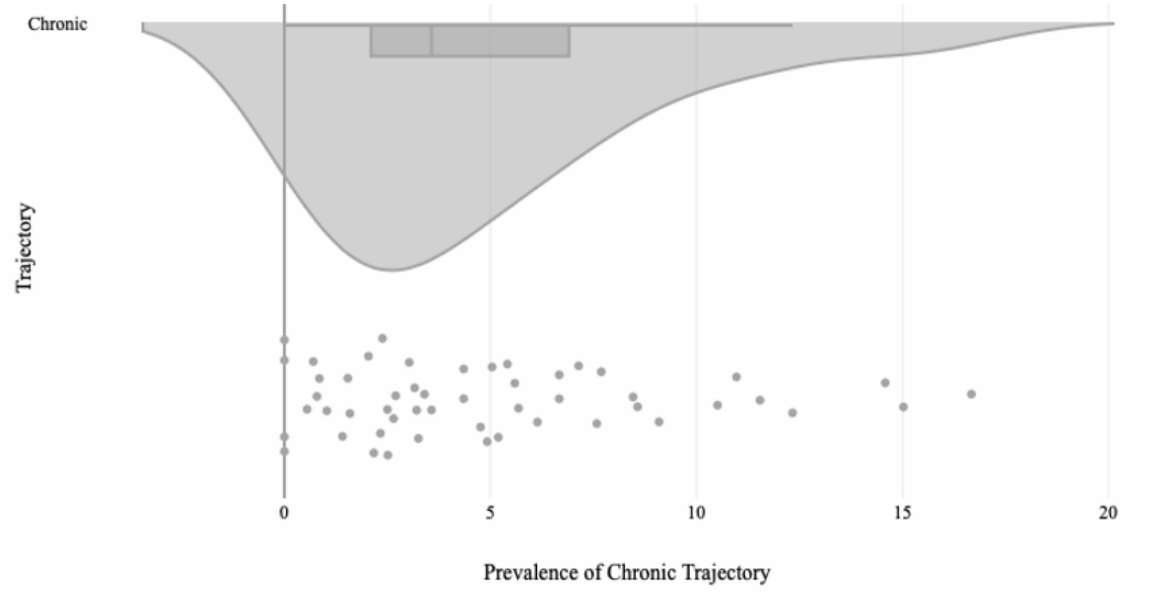

Figure 14. Raincloud Plot of Chronic Trajectory across OpSAFE Camps

To evaluate whether the R-TAC is a consistent assessment of PTSS levels across various locales, the 51 locales were plotted on modified Brinley charts including a reliable change index and cut-off points for each age group indicating clinically significant change.

Results: Comparing the Brinley charts, three patterns emerged (see Figure 15). In 48% of the camps, Pattern 1 was clearly seen; most of the children exhibited more severe initial PTSS, with a median PTSSpre score of 22 or below. In these camps, most children improved by the end of the week, receiving PTSSpost scores well above the cutoff lines for their peer group calculated as 2x the standard deviation of the median of the

dysfunctional population. This indicates clinically significant improvement in the direction of their peers who are coping better with post-traumatic stress.

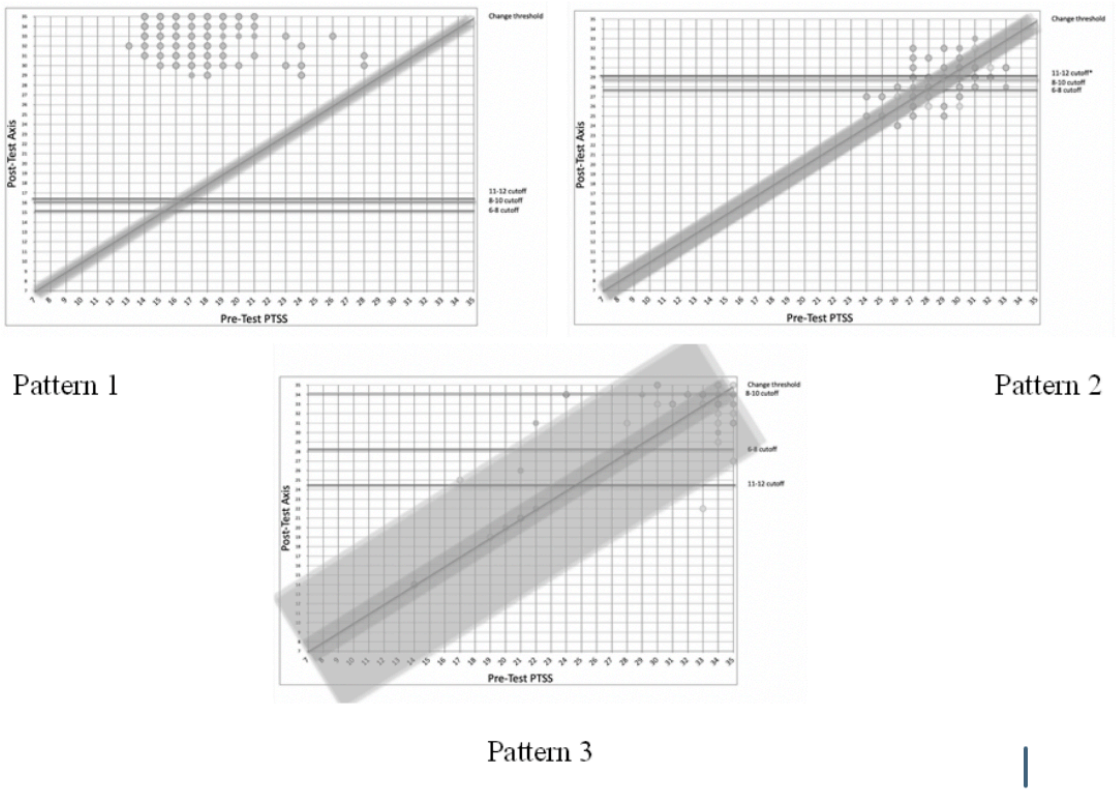

Figure 15. Brinley Chart Patterns

Almost all of the children in the Pattern 1 camps improved and so are above the diagonal line indicating the change threshold. The Reliable Change Index (RCI), which is shown on the chart by the shaded region on either side of the change threshold, indicates whether or not the change is more than what might just be error in the R-TAC assessment instrument. In the Pattern 1 camps, most children are well above the shaded region, which tends to be very narrow.

Pattern 2 was seen in 28.8% of the camps, where the median PTSSpre score was between 23 and 29, with most children exhibiting less severe initial post-traumatic stress symptoms and the pattern was marked by mixed results. The results in these camps were more mixed than in the camps with more severe initial symptoms. These camps also tended to need much higher scores to reach clinical significance than the Pattern 1 camps. These camps typically included results ranging from clinically significant improvement (above the cutoff line for their peer group), not clinically significant improvement (below the cutoff line but above the RCI), indeterminate change (within the RCI) and deteriorated (below the RCI). The RCI also tended to be a bit wider with more uncertainty in the results.

Pattern 3 was seen in 23% of the camps, where the median PTSSpre scores were 30 or above, with children exhibiting the least severe initial post-traumatic stress symptoms, and it was marked by an RCI that was significantly wider, making most results indeterminate. The cutoff line for clinically significant improvement was the highest for these camps. But as there was very little room left on the scale for the children to improve, reliable change was more difficult to measure.

Discussion. Betty Pfefferbaum has expressed that "A major issue raised in intervention research is the degree to which the results represent meaningful change with respect to clinical or public health practice."[267] The addition of Jacobson and Truax's reliable change index and clinical significance cutoff lines not only allows more

[267] Betty Pfefferbaum, Pascal Nitiéma, and Elana Newman, "A Critical Review of Effective Child Mass Trauma Interventions: What We Know and Do Not Know from the Evidence," *Behavioral Sciences* 11, no. 2 (February 11, 2021): 12, https://doi.org/10.3390/bs11020025.

confidence in the results of the camps but also helps to show the challenges in identifying the most at-risk children in camps showing a different pattern of results.

Since the 51 camps were held between 2 to 18 months after the disaster, a Spearman correlation was run between PTSSpre medians in the 51 camps and time after the disaster in months. The result of the Spearman correlation showed that there was a low, positive correlation between PTSSPre Medians in the 51 camps and Time after Disaster in Months. But the correlation between PTSSPre Medians and Time After Disaster in Months was not statistically significant, $r(50) = 0.14$, $p = 0.338$. While it would be tempting to conclude that the passage of time led to less severe initial symptoms in the Pattern 2 and Pattern 3 camps, the evidence is inconclusive. Each locale has a unique combination of exposure, susceptibilities, coping resources, and adaptation, which gives each peer group in that locale a signature response that can be seen in their initial post-traumatic stress symptoms (PTSSpre) and their final score after the intervention (PTSSpost). But there does seem to be a distinguishable pattern in those camps with more severe PTSSpre scores showing the most clinically significant results, those with less severe PTSSpre scores showing mixed results, and those with the least severe PTSSpre scores showing largely indeterminate results. For the purpose of this study, i.e., to identify the children most at-risk of psychopathology, the next question is: what effect does each pattern have on the method of identifying children in the first quartile of each measurement?

For the Pattern 1 camps with the lowest PTSSpre scores, almost all of the children show clinically significant improvement, so to determine which children are most at risk amongst their peer group in that locale, it is necessary to compare them with their peers.

For Pattern 1 camps, the method described so far is sufficient to identify children who are in the first quartile of PTSSpre, PTSSpost, and PTSSchange as the most at risk of psychopathology.

For the Pattern 2 camps with moderate PTSSpre scores and more diverse responses to the intervention, it becomes clear that more care is needed to triage the risk of the children than just the three trajectories. Within the recovery trajectory there are children who start out in the first quartile of PTSSpre and finish in the first quartile of PTSSpost, but who made as much improvement as their peers. These children can be classified as being at medium risk. There are also children who, though they start out with PTSSpre in the first quartile, improve enough to be above the first quartile in PTSSpost. These children can be classified as medium-low risk. The children who are above the first quartile from PTSSpre are the functional population and can be classified as low risk.

Over the five days of the OperationSAFE child mental health psychosocial intervention, most children's well-being improves. This improvement or lack thereof separates the dysfunctional population into the recovery and chronic trajectories. Neurologically, this is because the first priority of the intervention from the first day is to ensure that the children feel that they are safe. Having a feeling of safety is not obtained simply by removing the threat. Months after a disaster, children can experience irrational anxiety brought on by conditions that remind them of the traumatic event, such as a normal storm, loud noise, or even rumbling caused by a passing truck. Porges's three conditions for feeling safe include an autonomic system that is not in a state of supporting defense, an activated social engagement system, and cues of safety available and detected

via neuroception.[268] The reason why most children in the same peer group will recover together, improving as a group statistically is because they actually are improving as a group, socially picking up from those around them that they are now safe and able to heal and grow. Once the children feel safe, then it is possible to help them to calm themselves, find hope, realize they are not only victims but survivors, and build stronger connections to support in their community. Each day of the intervention strengthens one of these areas to build resilience, but the fundamental starting point is for the child to have that "visceral feeling of safety" which is reinforced socially.

The lack of growing together with the rest of their peer group seen in the first quartile children points to a possible deficit in one of the three conditions for feeling safe such as a difficulty in calming oneself, exclusion (whether by self or others) from the group, or an inability to detect social cues of safety. If the child does not feel safe, they continually retain the autonomic system's state of supporting defense which serves as a barrier to healing and growth. It gets in the way of integrating with the rest of the group, integration that is needed for support. A key insight regarding the small percentage of children in the camps who exhibit the chronic trajectory, is to understand that they do not yet feel safe.

The PTSSpre data collected at the beginning of the camp serves as a snapshot of the child's well-being/stress and serves as a proxy for the exposure and susceptibility of that child's relational developmental system of resilience. If this score is in the first quartile of their peers, it points to a state in which they are coping less well with post-traumatic stress. They fall into the dysfunctional population of the study. If they have

[268] Porges and Dana, *Clinical Applications of the Polyvagal Theory*, 61.

been exposed to a high dose of trauma, such as witnessing death, injury, threat of personal injury, or such things happening to close family, then their sense of safety can be severely compromised. The same is true if they are more susceptible due to previous trauma, disability, genetics, or environment. However, not all children respond to traumatic events in the same way. It is also possible that though they experienced a similar dose of trauma as others, the child lacks coping skills, or support of family or friends. This can also hinder their regaining their sense of safety. The PTSSpost and PTSSchange data serves as a proxy for these protective factors as the child responds to the intervention. It is through this second snapshot of the child's well-being/stress at the end of the intervention that the determination can be made which of the dysfunctional population has a recovery trajectory and which has a chronic trajectory.

Case Study CA-052 Pattern 1

CA-052 was a camp conducted in Sapad Municipal Gym nine months after a flood in Lanao Del Norte caused by tropical storm Tembin. Tembin, known locally in the Philippines as Vinta struck the region of Mindanao just over two months after the completion of the five month long military campaign against militants that had taken over the Islamic city of Marawi. As a result, "Marawi and Vinta [had] created a situation of 'doble bakwit, 'or double displacement."[269] The sample size was 430 children, of which 176 were male and the average age was 9.0. The results from this camp fit Pattern 1 with median PTSS at 19.00 and most children showing clinically significant improvement. Of

[269] Ica Fernandez, "The Two Sides of Dignity in Post-Crisis Response in the Philippines," in *Dignity in Displacement: Case studies from Afghanistan, Colombia, the Philippines and South Sudan*, ed. Kerrie Holloway (ODI, 2019), 4.

the children, 65.35% showed the resilient trajectory, 33.95% showed the recovery trajectory, and 0.70% showed the chronic trajectory.

Using the standard method of checking PTSSpre, PTSSpost, and PTSSchange quartiles, three children are in the chronic trajectory. For triage, these children are considered as high risk because they are not coping with stress and showing improvement in their well-being like their peers. An additional child had PTSSpre and PTSSpost in the first quartile of their peers but improved enough to be higher than the first quartile in PTSSchange. This child could be classified as medium risk. A total of 145 children started out in the first quartile of PTSSpre but improved enough to be above the first quartile of PTSSpost. These 145 children can be classified as medium-low risk. Finally, 281 children were above the first quartile from PTSSpre and made up the functional population. These children can be classified as low risk. On a Brinley Chart (see Figure 16), it can be clearly seen that the children to a large degree made clinically significant progress, greatly increasing their R-TAC wellbeing scores, with some children being identified as being at higher risk in comparison with their peers.

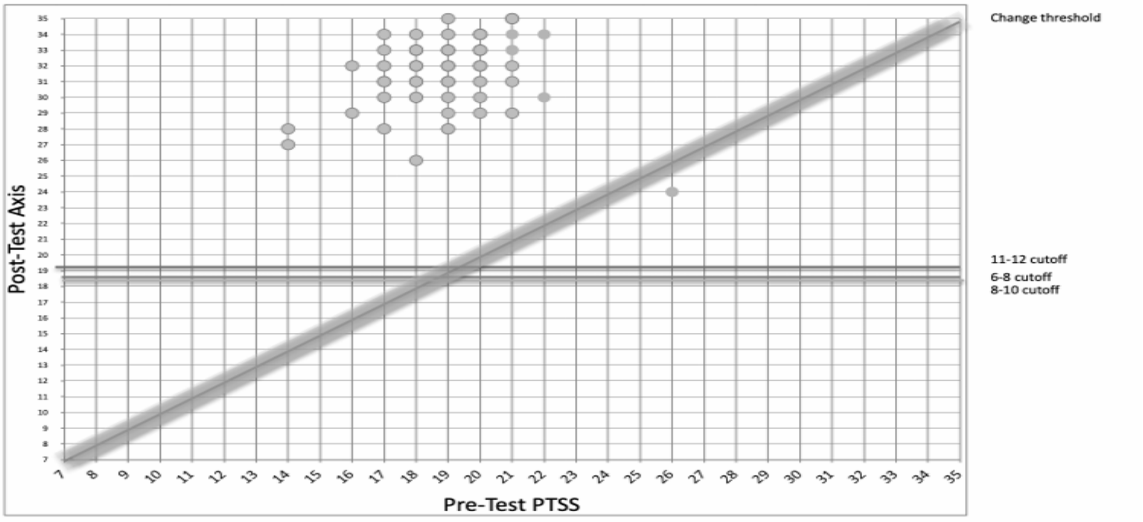

Figure 16. CA-052 Pattern 1 Brinley Chart

Case Study CA-014 Pattern 2

CA-014 was a camp conducted in Old Bulatukan Evacuation Site five months after an earthquake in Davao del Sur. The 6.8 magnitude quake struck the area in December of 2019. This was right at the beginning of the COVID-19 pandemic. As noted by Ericson Peñalba, "In Mindanao, vulnerable communities had been displaced due to recent earthquakes and ongoing armed conflict."[270] The sample size was 97 children, of which 32 were male and the average age was 8.2. The results from this camp fit Pattern 2 with median PTSS at 26.00 and mixed outcomes. A total of 74.23% showed the resilient trajectory, 24.74% showed the recovery trajectory, and 1.03% showed the chronic trajectory.

Using the standard method of checking PTSSpre, PTSSpost, and PTSSchange quartiles, one child was in the chronic trajectory. For the purpose of triage, this child is considered as high risk. Nine other children had PTSSpre and PTSSpost in the first quartile of their peers but improved enough to be higher than the first quartile in PTSSchange. These nine children could be classified as medium risk. Fifteen (15) children started out in the first quartile of PTSSpre but improved enough to be above the first quartile of PTSSpost. These 15 children can be classified as medium-low risk. Lastly, 72 children were above the first quartile from PTSSpre and made up the functional population. These children can be classified as low risk.

[270] Ericson Peñalba, "Pandemic and Social Vulnerability: The Case of The Philippines," in *The Societal Impacts of Covid-19: A Transnational Perspective*, ed. Veysel Bozkurt, Glenn Dawes, Hakan Gülerce, Patricia Westenbroek (Istanbul University Press, 2021).

Looking at the Brinley Chart, it can be seen that there is a wider variation in initial PTSSpre scores and final PTSSpost scores and a greater number of scores fall into a range of uncertainty in the reliable change index (see Figure 17).

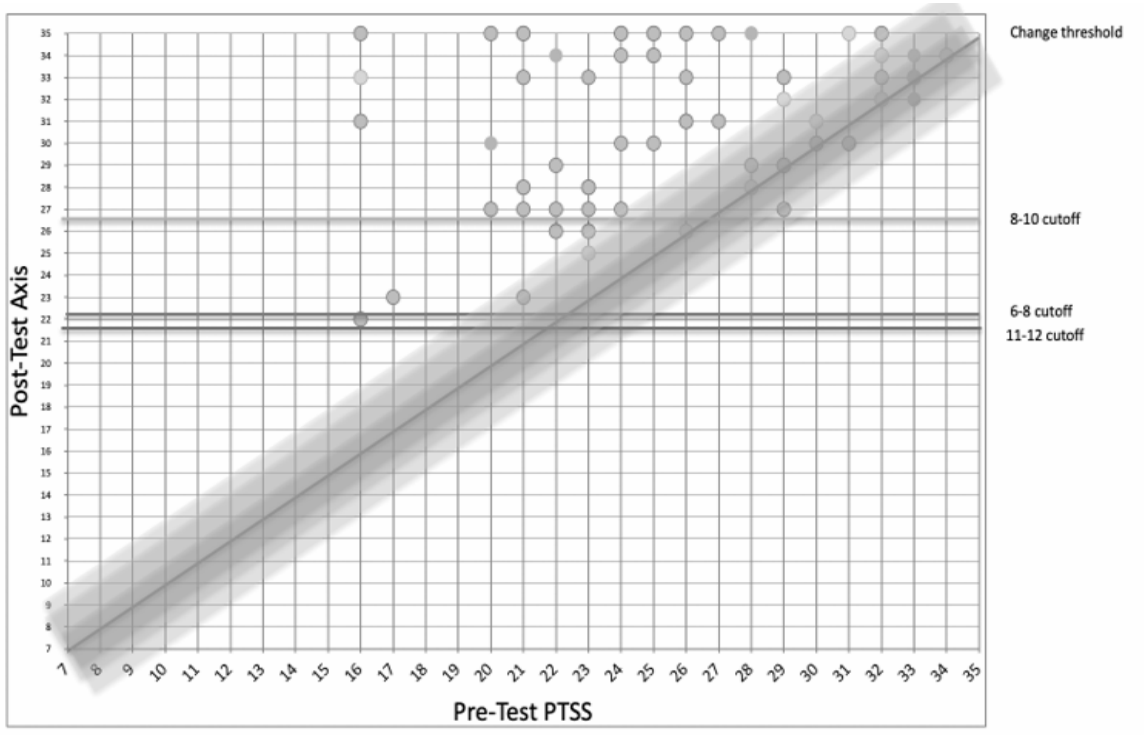

Figure 17. CA-014 Pattern 2 Brinley Chart

Case Study CA-003 Pattern 3

CA-003 was a camp conducted in Barangay Del Remedio Sulat seventeen months after a typhoon in Eastern Samar province in the Philippines. Typhoon Hagupit, known locally in the Philippines as Ruby, struck the region of Eastern Samar in December of 2014, bringing more damage to an area that had taken the brunt of the impact of Typhoon Haiyan (Yolanda) the previous year, killing 18 people and bringing further destruction of

homes and displacement.[271] The sample size was 39 children, of which 17 were male and the mean age was 9.6. The results from this camp fit Pattern 3 where the median PTSS was 32.00 and there was not much room for improvement amongst the participants. Using the method of checking which children were in the first quartile of PTSSpre, PTSSpost, and PTSSchange resulted in 53.85% of the children showing the resilient trajectory, 38.46% with the recovery trajectory, and 7.69% with the chronic trajectory.

After setting an a priori threshold for the functional population at any score 29 or above (as in the fourth quartile of possible scores), this removed any children with PTSSpre or PTSSpost scores greater than 28 from consideration as having the chronic trajectory, even if they were in the first quartile of their peer group. After setting the a priori threshold for the functional population, the results were that 87.18% of the children were in the resilient trajectory, 12.82% were in the recovery trajectory, and 0.00% were in the chronic trajectory.

Using the a priori threshold for the functional population better fit the data for camps with Pattern 3 charts, where the median PTSSpre scores were high, indicating better well-being and less severe stress symptoms. Most of the children were above the threshold for the functional population but also within the indeterminate range of the reliable change index (RCI), meaning that their improvements or declines could not be reliably assessed by the R-TAC instrument.

For the purpose of triage, there are 4 children that fit here into the recovery trajectory; however, looking at the Brinley chart suggests more care is needed (see Figure

[271] "SitRep No. 27 re Effects of Typhoon 'Ruby' (Hagupit)," National Disaster Risk Reduction and Management Council, last modified December 19, 2014.

18). Two Group A (Younger) children, one child from Group B (Middle) and one child from Group C (Older) not only are in the first quartiles of PTSSpre and PTSSpost but also have a personal RCI of less than 1.96, indicating that they were unresponsive or responded poorly to the intervention. These children could be classified as medium risk.

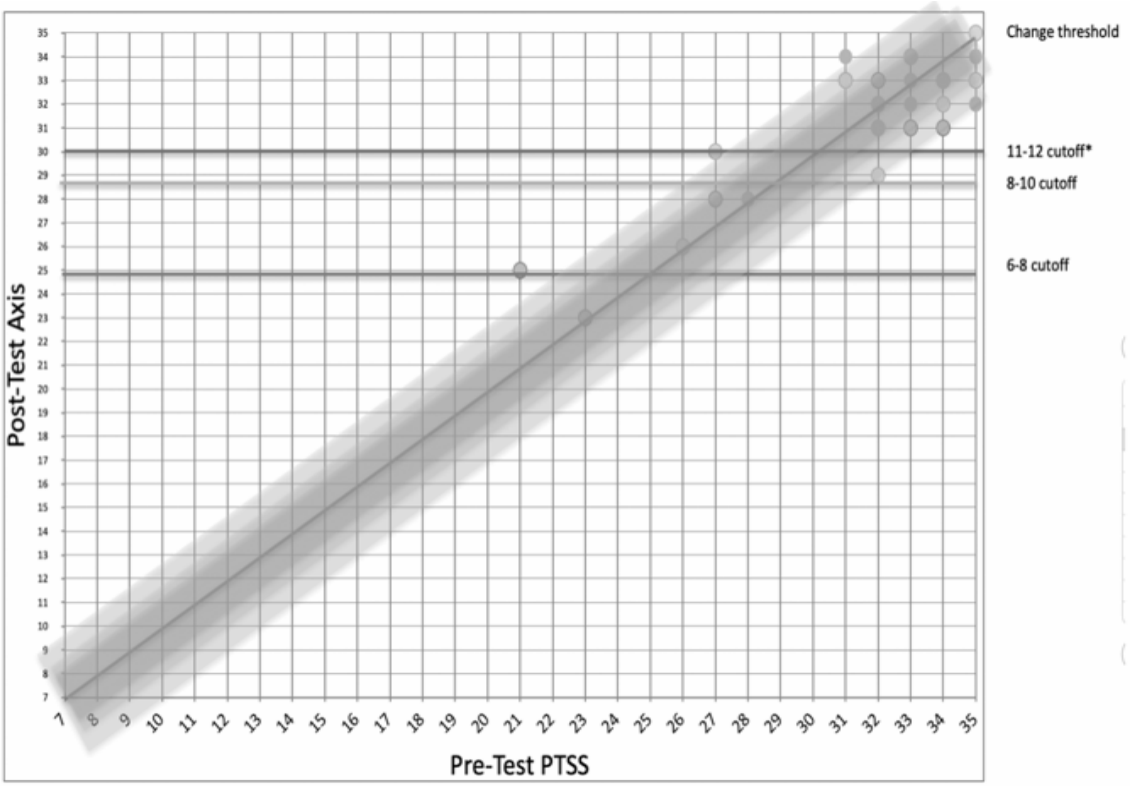

Figure 18. CA-003 Pattern 3 Brinley Chart

One child started out in the first quartile of PTSSpre and then improved enough to be above the first quartile of PTSSpost. This one child can be classified as medium-low risk. Lastly, there were 34 children who were above the first quartile from PTSSpre and made up the functional population. These children can be classified as low risk.

As can be seen in these three representative case studies, each locale is unique and faces a unique set of challenges. The disasters do not happen in a vacuum, but in a specific macro-system and even chrono-system that includes such events as the same

region being struck by two major storms in a little over a year, or displacement after previous displacement during an armed conflict. The experience of the earthquake for the children in Davao del Sur was complicated by the onset of the pandemic and the uncertainty that it caused. This cascade of stressors makes it even more important to identify which children are most in need of help so that scarce resources can be used appropriately during times of crisis in a timely manner.

By investigating patterns, three kinds of camps emerged. Most camps (Pattern 1) started with children showing more severe post-traumatic stress symptoms and with the majority of the children showing clinically significant improvement by the end of the camp. The second most common pattern was found in camps (Pattern 2) where children started with less severe post-traumatic stress symptoms and results were mixed, with some children showing clinically significant improvement, some showing improvement but not enough to be clinically significant, some showing indeterminate improvement or decline, and some showing decline. The least common camps (Pattern 3) were where children started out with the least severe post-traumatic stress symptoms and had little room on the R-TAC scale for improvement. In the Pattern 3 camps, the standard method of comparing the first quartile for PTSSpre, PTSSpost, and PTSSchange resulted in children with very high scores being classified as being in the chronic trajectory. To correct for this, scores above 28, or those in the fourth quartile of possible scores on the R-TAC, were considered to be in the functional population whether or not they were in the first quartile of their peer group in that locale. Setting this a priori threshold resulted in a new distribution where the mean prevalence for chronic trajectories across the camps was 3.28% of the children, the resilient trajectory mean was 69.58, and the recovery

trajectory mean was 27.14%. Compared with the prevalence of the trajectories in the literature, it follows the pattern of the resilient trajectory being the modal response of children to post-traumatic stress, the recovery trajectory being the next most common response, and the chronic trajectory being the response of a very small minority (see Table 25).

Table 25. Trajectory Means Comparison between Studies-2

	Resilient	**Recovery**	**Chronic**
R-TAC	69.58%	27.14%	3.28%
Galatzer-Levy (Children)	52%	32%	2.8%
Lai	37% - 79%	7.3% - 43%	3.9% - 38%
Le Brocque	57%	33%	10%
Price, Kassam-Adams	57% - 72%	18% - 33%	8% - 10%

Summary

This study sought to analyze the holistic assessment of post-traumatic stress and well-being of children after mass trauma conducted by OpSAFE International using local volunteers to observe small groups of children in the five-day child mental health psychosocial interventions. The R-TAC instrument measured seven factors of well-being in children designed to reflect the overall dynamic system of resilience of which the child is a part, including physical symptoms such as appetite and general health, and symptoms that might have a spiritual basis such as affect and reaction to conflict. This study analyzes this data by setting the child in the midst of their developmental peers in their shared ecological system context in a locale. Through comparison with their peers in that

locale, those children who initially have lower scores on the assessment, lower scores in the final assessment, and lower amounts of change are the children most at risk.

The first task was to establish a peer group of children who were at the same developmental stage. This was accomplished first by asking the question, how does age affect the severity of initial post-traumatic stress symptoms (PTSSpre)? A Kruskal-Wallis test was conducted to examine whether the mean of PTSSpre was significantly different among children of differing ages across all of the camps. The results showed that age and PTSSpre have a negative correlation (symptoms lessening with age), with 6-8 year olds, 9-10 year olds, and 11-12 year olds each showing a statistical difference. This result was then refined by asking the question: how does sex affect the severity of initial post-traumatic stress symptoms (PTSSpre)? A Mann-Whitney U test showed that there was no statistical difference between males and females, but a Kruskal-Wallis test and post-hoc Dunn-Bonferroni test showed that amongst the 8 year olds, males best fit with the 6-7 year olds of both sexes and 8-year-old females best fit with the 9-10 year olds of both sexes. Thus, three distinct peer groups could be defined: Group A comprised of 6 and 7 year olds with 8-year-old males, Group B comprised of 8-year-old females together with 9 and 10 year olds, and Group C made up of 11 and 12 year olds.

The second task was to establish the uniqueness of the locales which served as the ecological context for the children as they experienced disaster. This was done first by asking the question: how does region affect the severity of initial post-traumatic stress symptoms (PTSSpre)? A Kruskal-Wallis test showed that among the four regions where camps were held (Visayas, Eastern Samar, Davao del Sur, Lanao del Norte), there were significant differences in the means of PTSSpre. A further analysis of camps within each

region showed even more significant differences within each region and no common regional score. Next, the question was posed asking how type of disaster affects the severity of initial post-traumatic stress symptoms (PTSSpre). Comparing earthquakes, floods, and typhoons, a Kruskal-Wallis test showed that each type of disaster was significantly different from the others but also once again that there were significant differences between camps in the same type of disaster. Therefore, we could establish that there was not a common score based on region or disaster type, but that each locale was indeed a unique context.

The third task was to describe the trajectories assessed for the children in their peer group in their locale to see if they were proportionately similar to assessments of trajectories in the literature. The first question was to describe the range of severity of PTSSpre, PTSSpost, and PTSSchange for each peer group in a locale. Using descriptive statistics, quartiles were recorded for each group, allowing it to be divided into functional (above the first quartile) and dysfunctional (first quartile and lower) populations based on the PTSSpre data. The second question was to discover which children scored in the first quartile or below in all three assessments. This allowed a trajectory for each child to be assigned. Those children in the functional population were assigned the resilient trajectory meaning that they had less severe post-trauma stress symptoms and continued to have less severe post-trauma stress symptoms at the end of the intervention. Those children in the dysfunctional population were then divided into two groups. Those who by the end of the intervention were no longer in the first quartile in PTSSpost or had improved enough that they were not in the first quartile of PTSSchange were assigned to the recovery trajectory. Those children who had not improved enough so that their

PTSSpost and PTSSchange were still in the first quartile are assigned to the chronic trajectory.

The final question was to ask if this method consistently identified across multiple locales in different regions and in different types of disaster the resilient, recovery, and chronic trajectories proportional to the literature. This was answered by calculating a reliable change index (RCI) and cutoff for clinically significant improvement for each peer group in a locale and comparing the results across all 51 interventions, which revealed three patterns in the camps. The first pattern was found in camps where initial post-traumatic stress symptoms were more severe, most children showed clinically significant improvement, and most results were outside of the indeterminate area of the RCI. The second pattern occurred in camps where initial post-traumatic stress symptoms were less severe, results were mixed, and the indeterminate area of the RCI was broader. The third pattern was recorded in camps where the initial post-traumatic stress symptoms were the least severe, there was not much room for improvement, and the RCI often left many of the scores indeterminate. The difference in patterns revealed that in some of the camps, especially in Pattern 3, some children with high scores were assigned to the chronic trajectory. To correct this, an a priori functional population threshold of scores within the fourth quartile of possible scores was set. This corrected for children with the least severe post-traumatic stress symptoms being assigned the chronic trajectory because they were in the first quartiles of their very high scoring peers.

The result of this comparison between all the camps was then compared with the prevalence of trajectories in the literature with the mean of the resilient trajectory being 69.58%, the mean of the recovery trajectory being 27.14%, and the mean of the chronic

trajectory being 3.28%. These results aligned with the prevalence of trajectories in the literature where resilient trajectories are modal, recovery trajectories are the next most prevalent, and chronic trajectories are a very small minority. Therefore the null hypothesis that a holistic assessment, comparing children expose to mass trauma of similar age and gender within the same locale, does not accurately describe the prevalence of resilience, recovery, and chronic PTSS trajectories as seen in the literature was rejected.

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary of Findings

This study seeks to examine how a holistic approach to screening children's post-trauma symptoms could help to rapidly identify those children at greater risk of psychopathology. It analyzed data collected by OpSAFE International over 51 child mental health psychosocial interventions for children from the age of 6 to 12 years old conducted through local churches in response to disasters in the Philippines.

Rapid identification of those children most at risk will allow for a "stepped care approach," with public health interventions reaching all the children while more specific interventions could target those with greater risk more effectively. The difficulties in empirically identifying individual children at risk have included the chaotic and unpredictable nature of disaster itself, a focus on risk or resilience traits of the individual rather than their communities as a whole, neglect of symptoms other than those of PTSD, and a lack of consideration of developmental timing.

Identifying individual children at risk is complicated by the fact that almost all children will show some initial post-traumatic symptoms following a mass trauma event. However, research has shown that children show heterogenous trajectories, with the majority of children having less severe symptoms that do not worsen over time (resilient), the next largest percentage having more severe symptoms that improve significantly over time (recovery), and a small minority having more severe symptoms that do not improve significantly over time (chronic).

The thesis of this research is that, up until the last decade, trauma in children has been treated and assessed in ways that were not sensitive to their development. In order to gain an accurate assessment of which children are most at risk of psychopathology after exposure to disaster, a more holistic assessment was adopted which establishes a developmental peer group for the child, places them in the context of their local ecological system, and then compares their PTSS trajectory with those of their developmental peers in their unique locale. Such a holistic assessment provides a way to rapidly assess children that would accurately describe the prevalence of resilience, recovery, and chronic PTSS trajectories as seen in the literature.

This study uses Ann Masten's theoretical framework defining resilience as "the capacity of a dynamic system to adapt successfully to disturbances that threaten system function, viability, or development." The conceptual framework is the relational-developmental systems meta-theory that uses all of the resources and conditions available to restore equilibrium for development. Each of these resources and conditions on their own contribute somewhat to either resilience or vulnerability, but not conclusively, and many are hidden. So rather than looking for causes why a child might be at higher risk of psychopathology, this study looks at symptoms as proxies for the dynamic system which includes both internal and external resources and conditions available to the child at their developmental stage in their local context.

This study was informed by a review of literature in three fields, namely, the history of disaster response for children, the approach of child theology to support holistic child development work with children at risk, and research into resilience.

Children have long been regarded by disaster responders operationally as "little adults" with little consideration of their developmental needs. Specific protocols for children in humanitarian crises were not developed until the last twenty years. Likewise, psychosocial interventions have been developed based largely on practices aimed at the general population rather than the specific developmental needs of children. One of the deficits in existing psychosocial interventions is that they focus primarily on the psychological aspects and neglect the social element on which children are dependent for their well-being.

Child Theology provides a much-needed correction to traditional theology that has largely not taken children into consideration, and it gives insight into the spiritual needs of children and their communities after crises. This study has used CT to correct Stanley Grenz's "Theology of Community" by setting the child in the midst of the relational social trinity. Viewed as such, the child becomes the *imago Dei* in purest form, reflecting the relational nature of the Godhead and serving as a sign for their community of how to enter the Kingdom of God in relational love. The child also dramatically shows the destruction of community that is sin, due to their complete dependence on relationship for survival. The church, then, has a crucial role in regard to children by welcoming them, especially in times of disaster when their community has been damaged.

The R-TAC's ability to capture the state of the child's wellbeing reflects the entire dynamic system of resilience of which the child is a part. The church, with its core functions of building community, welcoming strangers, receiving children, and helping that community with meaning-making makes an important contribution to this dynamic

system of resilience in times of crisis. The state of the local church also contributes to the uniqueness of each locale presented in the data, and while the condition of each local church post-disaster was beyond the scope of this study the spiritual support of the church in each locale is reflected in the R-TAC score as part of the overall dynamic system of resilience.

Child Theology developed out of a need for those practitioners helping children at risk to theologize. These Holistic Child Development practitioners need to ensure that children truly are set in the midst of their communities by ensuring that children are welcomed and by recognizing that when they are treated as individuals apart from their community, children are less than whole and not fully the image of God that they were created to be.

In resilience studies, a consensus is developing that there is a heterogeneity of responses to exposure to trauma which can be described by several post-traumatic stress symptom trajectories. Resilience is no longer seen as something inherent in the individual; rather, it can be thought of as a function of a dynamic relational-developmental system. This systems approach allows consideration of the ecological system of the child from the risk or resilience of the greater community down to the neurological level. It also explains the paradox of researchers largely agreeing on which factors exacerbate or prevent risk but still not being able to predict a resilient outcome. The systems approach lends itself to synthesis rather than a search for a dominant factor around which to build an intervention. Looked at holistically, resilience cannot be accurately measured solely with the symptoms of the individual child. Children are both

dependent upon the surrounding community for their resilience and are themselves part of the resilience of that surrounding community.

Using existing data collected during OperationSAFE child mental health psychosocial interventions, this quantitative descriptive study demonstrates that "setting the child in the midst" of a developmental peer group in the unique locale where children have had similar experiences and support most accurately allows early assessment of the heterogeneous risk or resilience trajectories expected according to the literature.

The data was collected using Oda and Koyama's R-TAC scale which serves as a measure of the entire dynamic system of resilience, including somatoform, depression, PTSD, coping skills, shock, and stress symptoms. Because the assessment was integrated into each implementation of the intervention, ethical and logistical hurdles could be overcome, with priority always given to the safety and well-being of the child and their community. Data compromised due to these priorities was then excluded from this analysis.

The assessment was performed through observation of the children by trained local volunteers who were familiar with the condition of children in their environment. These volunteers served as small group leaders for the children as they participated in various activities of games, crafts, storytelling, Bible, snack, and mindfulness. They made their assessment on a 5-point Likert scale at the beginning and end of the five-day intervention.

After cleaning the data and excluding sets outside of the scope of the study, the resulting data included 51 interventions attended by 7015 children. These interventions

were held in response to typhoons, floods, and earthquakes between 2015 and 2020 in Mindanao and the Visayas in the Philippines.

This study "sets the child in the midst" by establishing developmental peer groups of children who have similar responses to traumatic events. This was done by comparing statistical means of initial post-traumatic stress symptoms controlling for age and sex to determine which age groups have similar responses. The next step in "setting the child in the midst" was establishing unique locales. This was done by comparing statistical means of initial post-traumatic stress symptoms across regions and disaster types to ensure that each locale is a unique ecological system providing different resources and conditions for resilience.

The study established developmental peer groups by first comparing initial PTSS across ages 6-12, and it was found that younger children are more vulnerable to exposure to traumatic events during disaster than older children ($Chi2=163.5$, $df=6$, $p<0.001$). This comparison resulted in the 6 to 8-year-old children scoring more severe post-traumatic stress symptoms, as would be expected of those at the beginning of their school years and developmentally still transitioning cognitively, socially, and spiritually from early childhood into middle childhood. The 9-10 year olds had comparatively less severe initial PTSS, as would be expected from children now fully transitioned developmentally into middle childhood. The 11-12 year olds showed the least severe initial PTSS, as would be expected from children now transitioning developmentally into adolescence.

The second comparison looked at initial PTSS differences between sexes and found that the male group had equally high values as the female group, showing that the difference between the male and female groups with respect to the dependent variable

was not statistically significant (U = 6178157, n1 = 3537, n2 = 3589 p = 0.052). Males and females were equally resilient or vulnerable until the data was controlled for age. Then there was a significant difference between the categories of the independent variable with respect to the dependent variable (Chi2=159.54, df=13, p=<0.001), with 8-year-old males showing more severe PTSS than 8-year-old females. This created a more nuanced grouping of the children with the 8-year-old males grouped with the younger 6 to 7-year-old children and the 8-year-old females grouped with the older 9 to 10-year-old children. This result corresponds with the female growth spurt occurring earlier than the males,' perhaps giving females greater physical confidence. However, these gains were only temporary, with males and females showing little significant difference as they grew older. While males would not catch up with females in median height until they reached 13 years, their R-TAC scores regained parity with the females at 9 years. A possible explanation could be the uncertainty in females caused by the onset of puberty at this time, but this is an area that suggests future studies are necessary. The results of these tests allowed three groups to be considered as developmental peers in terms of reaction to trauma events. Group A, with the most severe PTSS, was made up of the youngest children together with the 8-year-old males. Group B, with less severe PTSS, was comprised of the 9 to 10-year-olds together with the 8-year-old females, and Group C, with the least severe PTSS, was comprised of the 11 to 12-year-olds. It was then possible to compare children with others in their own developmental peer group rather than with all of the children ranging from 6 years old to 12 years old.

This study established the uniqueness of locales by first comparing initial PTSS across four regions: Cebu, Eastern Samar, Lanao del Norte, and Davao del Sur. While

median scores showed scores higher or lower in various regions, within each region there was a wide variance of severity between specific interventions. The second test for establishing the uniqueness of locales compared the initial PTSS according to types of disaster. Once again, the median scores for each type of disaster were different. However, within the group of typhoons, floods, or earthquakes there was also a wide variance of severity.

The study was able to conclude that there was no typical score for a region but that each location had its own unique set of conditions and resources, including previous disasters striking certain places, conflict and the resulting refugee displacement, or the onset of the COVID-19 pandemic.

The uniqueness of locales meant that each of the 51 interventions would be considered a unique ecological system of resilience for the children who participated.

Once the developmental peer groups and unique locales were established, it became obvious that comparison to an a priori baseline initial PTSS score from the global data set at the first quartile would not be an accurate assessment of risk. An a priori first quartile baseline based on the global data would indicate that children with scores 17 and lower would be the least resilient (dysfunctional) group. However, using the developmental peer groupings, the youngest group would have needed a baseline score of 16, while the oldest group would have needed a baseline score of 18. When unique locales were taken into account it became clear that a priori baselines were inaccurate because amongst the 51 camps, the first quartile ranged from 10 at the lowest to 32 at the highest. A holistic assessment of individual children compared them with children in their own developmental peer group in the same unique locale.

To describe trauma response trajectories, descriptive statistics were used to record first quartile median initial PTSS scores for each developmental peer group in each of the 51 unique locales. Using these as baselines, each peer group in each locale was separated into a dysfunctional population (those at the baseline or below) and a functional group (those above the baseline). But since the recovery trajectory could overlap with both of these populations depending on the time of assessment, final PTSS scores and the change in PTSS scores were also factored in. Next, the study determined which trajectory each individual child showed by comparing their three PTSS scores with those of their developmental peers in their unique locale.

Children with all three PTSS scores in the first quartile were classified as showing the chronic trajectory. Those starting in the first quartile but ending above it or showing significant improvement relative to their peers were classified as showing the recovery trajectory. Those whose initial PTSS scores were above the first quartile were classified as showing the resilient trajectory. Across all interventions, the resilient trajectory was modal (M=69.26, SD=6.36, Min=47.95, Max=74.26), the recovery trajectory was the next largest trajectory (M=29.80, SD=5.93, Min=16.67%, Max=42.11%), and the chronic trajectory was the least prevalent (M= 4.95%, SD=4.3, Min=0%, Max=16.67%).

To evaluate whether the R-TAC is a consistent assessment of PTSS levels, the 51 unique locales were then plotted on modified Brinley charts including a reliable change index and cut-off points for each age group indicating clinically significant change. Comparing the Brinley charts, three patterns emerged. Pattern 1, where the median initial PTSS scores were 22 or below, indicating more severe stress symptoms, appeared in 48% of the locales. In these camps, the children showed clinically significant improvement

that was well above the reliable change index (RCI). In 28.8% of the locales, Pattern 2 was followed, in which the median initial PTSS scores were between 23 and 29, with most children showing less severe stress symptoms, and the results were mixed. Because the initial scores were higher, these locales needed much higher final PTSS scores in order to show clinical significance. In fact, they showed varied results, including clinically significant improvement, not clinically significant improvement, indeterminant change, and deterioration. The RCI in these camps tended to be wider, with scores without much change being indeterminate. Pattern 3 was seen in 23% of the locales, where the median initial PTSS scores were 30 or above, with children showing the least severe stress symptoms. There was very little room for improvement, so the cutoff line for clinical significance was very high and the RCI included most of the participants, thus making their results largely indeterminate. Time between the disaster and when the camp was held had a low positive correlation but was not statistically significant, $r(50) = 0.14$, $p = 0.338$.

Therefore, the reason why there was a difference in the initial PTSS in each locale is not as simple as time healing the trauma. It must be the unique combination of exposure, susceptibility, coping resources, and adaptations available in that locale. By investigating the three patterns of locales, it emerged that using the standard method of determining trajectory by comparing individual children to their developmental peer group in their unique locale on all three PTSS scores would classify some children with very high scores as high risk in pattern three locales. To correct for this, an a priori threshold for the functional population was set at the 3rd quartile of possible scores (28). The new mean prevalence of the trajectories after this correction was resilient (M=69.58),

recovery (M=27.14) and chronic (M=3.28%). Compared with the prevalence of the trajectories in the literature, it follows the pattern of the resilient trajectory being the modal response of children to post-traumatic stress, the recovery trajectory being the next most common response, and the chronic trajectory being the response of a very small minority.

Conclusions

Chaotic post-disaster conditions make experimental research especially difficult, but even if such a design were practical, the dynamic relational-developmental system principle of equifinality defies finding a reliable predictor of a resilient outcome. This study has taken a quantitative approach to test whether a holistic assessment of children within a developmental group of peers within the context of a unique locale would result in similar prevalences of the trauma trajectories described in the literature.

In 51 unique locales, across four regions in the Philippines, after three different types of disasters, each intervention had results similar to the literature with the resilient trajectory being modal, the recovery trajectory being the next most common response by a wide margin, and the chronic trajectory being the response of a very small minority. This aligns with the framework that resilience is a dynamic system that uses the conditions and resources available to it to reestablish an equilibrium for development, with most children having access to what they need to cope with post-traumatic stress.

This study is limited by its design in that it does nothing to substantiate that its trajectory classifications are accurate through random sampling or the use of control groups. There are also only two points of time in the assessment; pre and post intervention. As such, this study can only point to the similarity between the prevalence

of trauma trajectories and invite further researchers' study into whether being set in the midst of their developmental peer group in community is a reliable predictor of resiliency. Likewise, further research is needed to test whether children who are assessed as having the chronic trajectory have higher rates of developing psychopathology in the future.

Recommendations

Recommendations for Triage System

The main concern of this dissertation has been that children have not been adequately treated in developmentally appropriate ways in post-disaster mental health interventions. Instead, they have been given interventions designed for adults which fail to consider not just their stage of development but also the importance of the ecological system from which they gain much of their resiliency. Much research has been focused on diagnosis of psychopathologies such as PTSD which are also largely adult responses to trauma. This belies a medical model amongst researchers seeking to diagnose individual patients so that treatment can be offered.

In contrast, the OperationSAFE child mental health psychosocial intervention operates on a public health model offering a secondary intervention for children who have experienced a mass-trauma event. The intervention is aimed at the immediate relief of post-traumatic stress symptoms, an increase in coping, and building up of social support in the community. It considers the mental health of children to be part of a developmental framework where mobilizing their community is essential to reduce the risk of adverse experiences due to disaster or war causing structural alterations in their still developing brains. Instead of using a medical model that looks at each child

individually to diagnose the problem and assign a treatment, the OperationSAFE intervention seeks to place the child in the midst of community, even encouraging communities to form amongst the displaced. Our trainers educate that local community to understand trauma and stress and how to help themselves and their children recover, as well as empower them to conduct an evidenced-based intervention.

The public health model is built upon a pyramid, where primary interventions are targeted at entire populations in order to provide support and education before problems occur. Training given by OpSAFE International to local churches educating them about trauma, PTSD, and developmentally appropriate child responses is one example of a primary intervention aimed at raising the awareness and preparedness of the community before disaster occurs. The OperationSAFE children's mental health intervention then run by the community for the children is an example of a secondary program targeted at those in need to alleviate identified problems and prevent escalation. Finally, tertiary interventions are those provided for children identified as being at high risk of psychopathology. According to McDermott and Cobham, "The key features of stepped-care models are starting with a low-intensity intervention, monitoring to establish treatment benefits or lack of response, and having the capability to step up to a higher intensity treatment."[272] OperationSAFE is a low-intensity, non-invasive intervention aimed at all the children in the community in the target age range. The R-TAC assessment is integrated into each implementation of the intervention, making it possible to monitor immediate treatment benefits or lack of response.

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[272] Brett M. McDermott and Vanessa E. Cobham, "A Stepped-Care Model of Post-Disaster Child and Adolescent Mental Health Service Provision," *European Journal of Psychotraumatology* 5, no. 1 (July 11, 2014): 24294, https://doi.org/10.3402/ejpt.v5.24294.

This study recommends that the R-TAC be used as the basis for a triage system that would identify children at most risk of psychopathology so they can be stepped-up to a higher intensity treatment. This recommendation agrees with Pfefferbaum who states, "Those planning services must match interventions with the specific reactions and conditions experienced by the children being served and should consider adopting a stepped care approach where some services, such as public health interventions, are provided to all children, and other techniques are offered to children as indicated by their clinical status."[273]

One major challenge in meeting the needs of children after disaster is the paucity of mental health resources available. The WHO reports in its Mental Health Atlas 2020 that the number of child and adolescent mental health workers available globally per 100,000 people was 3.4. However, there was great disparity between regions, with poorer regions having as few as 0.2 per 100,000 population and even greater disparity between rich and poor income groups, leaving the lowest-income-group countries with only 0.01 or practically no capacity.[274] But even in the more well-off regions and countries, "Given that clinical services typically operate at capacity at any given point in time, existing service systems cannot be expected to meet the post-disaster surge in demand."[275]

In the face of the nature of disaster being to overwhelm available mental health resources, the OperationSAFE child mental health psychosocial intervention has been effective from a public health perspective largely because of its scalability and sustainability. OperationSAFE employs a Training of Trainers (TOT) model to spread the

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[273] Pfefferbaum et al., "Child Disaster Mental Health Interventions, Part I," 54.

[274] World Health Organization, *Mental Health Atlas 2020* (World Health Organization, 2021), 67.

[275] McDermott and Cobham, "A Stepped-Care Model of Post-Disaster Child and Adolescent Mental Health Service Provision," 1.

program through a disaster region. The intervention can then be conducted by local church volunteers with little outside support and be reused as needed for large- or small-scale disasters. Using this model, hundreds of OperationSAFE implementations have been conducted in various crises in the Philippines and other nations around the world. Because the primary public health intervention to the community is conducted by OpSAFE International trained trainers, and the secondary public health intervention is conducted by the community themselves, there is no need for mental health workers until the children are identified for tertiary interventions. This significantly reduces the workload on the few mental health workers available and ensures that they are working with the children who will most benefit from the more intensive intervention.

The R-TAC scores can be used to categorize children who have been through the OperationSAFE child mental health psychosocial intervention into the resilient, recovery, or chronic trauma response trajectory. These trajectories roughly correspond with low, medium, and high risk. However, since there usually is not the urgency to evacuate children from a dangerous situation, more categories can be introduced for further distinction between risk levels.

A triage procedure after an OperationSAFE child mental health psychosocial intervention plots their PTSSpre, PTSSpost, and PTSSchange scores on a modified Brinley chart with RCI and cutoff scores according to developmental peer group. Those children who are above the first quartile in PTSSpre in their developmental group and those whose PTSSpre is above the functional threshold of 28 even though they were in the first quartile are considered to be in the functional population and therefore are also in the resilient trajectory. These children would be considered to be at low risk of

psychopathology and would have a triage categorization of "Low." Those children whose PTSSpre scores are in the first quartile of their developmental group but whose PTSSpost scores were above the first quartile would be considered to be in the recovery trajectory. These children would be considered to be at medium low risk and would have a triage category of "Medium Low." Those children whose PTSSpre scores and PTSSpost scores were both in the first quartile but who showed improvement above the first quartile in PTSSchange would be considered in the recovery trajectory but would have a triage category of "Medium." Finally, those children whose PTSS scores all remained in the first quartile would be considered to be in the chronic trajectory. These children would be considered to be a high risk and to have a triage categorization of "High" (see Table 17).

Because all of the children have been exposed to some level of trauma, it would be inaccurate to describe the children exhibiting the resilient trajectory as having no risk at all, and it perhaps would be more accurate to describe them as having a low risk of psychopathology. In a society where child mental health resources were adequate, it would not be unreasonable for follow-up interventions to be held and their progress monitored for setbacks. For each triage level, recommendations can be made for further treatment depending on available appropriate mental health resources, with priority given to the high-risk children.

Recommendations for Further Research

This quantitative descriptive study has shown that children assessed holistically by setting them within a developmental peer group in a unique locale results in prevalences of post-traumatic stress trajectories similar to those in the resilience literature for children. This suggests many areas of potential research to strengthen both the

understanding of resilience and trauma and implementation in the field to help children after crises. Two major areas need further exploration. The first is confirmation of the validity and reliability of the R-TAC assessment in comparison with other measures, and the second is to use the R-TAC assessment to enhance understanding of developmental peer groups, how unique locales enhance or exacerbate resilience, prevalences of trajectories, and resilience in the event of other kinds of crises.

The Oda-Koyama R-TAC assessment scale was developed because of a need for a scale that could be used in post-disaster contexts for which the Delphi group consensus of experts concluded random control tests would never be possible. Furthermore, 'gold standard' measurements have been questioned in the literature as being too focused on PTSD and other adult responses to post-traumatic stress and not taking responses of children into account. The R-TAC scale measures typical responses of children to post-traumatic stress. However, as seen in Bonanno's paradox, each factor alone has a negligible impact on the whole dynamic system of resilience. Accordingly, the R-TAC combines the seven factors into a single score which represents.

As has been seen in this study, the R-TAC scale consistently discriminates between functional and dysfunctional groups within the same peer group in a locale and distinguishes between chronic and recovery trajectories. What requires further research is predictive validity to establish that the children triaged as higher risk in the rapid assessment in fact have higher rates of psychopathology than children triaged as lower risk. This could be accomplished in a number of ways. The most preferable method would be a longitudinal study of children who have participated in an OperationSAFE child mental health psychosocial intervention. However, this would require major

funding, not to mention the logistical challenges of doing such a study with a transient post-disaster population. A second promising avenue to enhance predictive validity might be through research on biomarkers for post-traumatic stress. Through collecting DNA, comparisons could be made between epigenetic differences in the assessed trajectories. Similarly, hair samples could be analyzed to measure increases in cortisol, a hormone released during stress. Further research will test whether children who are assessed as having the chronic trajectory have higher rates of developing psychopathology in the future.

While the OperationSAFE child mental health psychosocial intervention was designed for 6-12-year-old children, there have always been younger and older children who have attended these interventions in disaster settings. The R-TAC tool could be used not only for the original intervention but also for adaptations of the intervention to better meet the needs of the children of other age ranges. Currently, the program is being used in modified form with adolescents in Ukraine affected by the ongoing Russian invasion. There is also interest in creating a modified program to better meet the needs of mothers with infants and toddlers. Research should continue to investigate how age and gender affect post-traumatic stress in these younger and older age ranges. Integrated assessment into each implementation allows OpSAFE International to monitor the progress of these innovations and encourage the use of methods that work. Research with various age ranges could strengthen understanding of developmental peer groups and how children in these groups become resilient socially.

This study was limited to disasters in Mindanao and the Visayas, Philippines, but the OperationSAFE program has been in use in 11 nations and different types of crises.

Because the R-TAC assessment is integrated into each implementation, there is a continuous accumulation of fresh data from new crises in various locations in the world. Research should be done comparing participants in Asia (Japan, Philippines, Mongolia, Indonesia, Nepal) and Europe (Ukraine) to explore regional differences in reaction to post-traumatic stress. One intriguing study would be to see if region affects the make-up of the developmental peer groups, such as children in one region maturing faster than another, or differences between children in rural and urban settings. Research could also look at differences between factors such as urban vs. rural locales, socio-economics, and ethnicity and marginalized populations.

Further research needs to be done comparing types of crises. This study was limited to three types of disaster: typhoon, flood, and earthquake. However, OperationSAFE has been used in a wide range of crises including terrorist attacks, war, refugee displacement, poverty, abuse, and marginalization. Further research should examine differences in severity of initial trauma symptoms according to these types of disasters and also other sources of mass trauma such as war, terrorism, violence, poverty, displacement, and abuse, which are outside of the scope of this study. There has been some evidence suggesting that post-traumatic stress symptoms for children in conflict are initially more severe. In response to the Marawi conflict in the Philippines in 2017, OpSAFE International developed a mindfulness (heart) module to help children learn to regulate difficult emotions, which after implementation improved final post-traumatic stress scores dramatically. This module is now being used in Ukraine for children going through the violence in that region with similar results.

A further area of research for which there is great need is implementation studies to provide an evidence base for the scalability and sustainability of the OperationSAFE child mental health psychosocial intervention as a public health measure aiding local communities to bring the most help to the greatest number of children. There needs to be an increased understanding why some regions, such as the Philippines and Ukraine, have seen great proliferation of the intervention across many locales while other regions have seen much weaker proliferation, such as in Japan. R-TAC data could also provide insights into the optimal amount of training for trainers and local volunteers, how adaptation to local conditions such as shortening or lengthening the program, holding it over a series of weekends, increasing or decreasing the size of small groups, total number of participants, and length of time after the traumatic event occurs affect the effectiveness of the intervention.

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Work Experience

Missionary Church Planter / Pastor (1989 - Present)
- Planted and pastored four congregations in the Tokyo metropolitan area.

Executive Director of Disaster Relief Network (2005 - 2014)
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