

Assessing Children's Disaster Relief Programs:
Health Effects and the Role of Organizational Assistance
in Disaster Recovery

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Introduction

The Gulf Coast region is no stranger to the catastrophic effects that natural and human-caused disasters can have on everyday life. When disasters occur, it is easy to see the immediate impact and physical devastation to the region, but the social impact of major disasters often goes overlooked. Hurricane Katrina and the Deepwater Horizon-BP Oil Spill are excellent examples of disasters to the Gulf Coast region that have had lasting social consequences to the surrounding communities. These situations leave a need for relief programs and assistance so populations can attempt rebuilding to return to some form of a “new normal” life.

These catastrophic events often effect all segments of the population, but not all segments of the community are affected equally. Children, in particular, have been identified as an especially vulnerable population (Peek 2008). Their needs are different than adults and recovery assistance aiming to mitigate unfavorable life outcomes should reflect that difference.

This paper will draw on existing scholarly research and empirical data to understand the effects of natural disasters and trauma on children’s health. Children’s health impacts assessed here will include physiological, behavioral, and emotional attributes. While most of the literature gathered focuses on Hurricane Katrina, primary data from the Child Impact Study: Women and Their Children’s Health (WaTCH) Consortium surveys will be used to analyze “exposure outliers” after the initial Deepwater Horizon-BP oil spill in 2010. According to Dr. Lori Peek, one of the investigators on the Child Impact Study team, exposure outliers are defined as: children under the age of 18 who have experienced three or more major disasters that have had

a substantial and disruptive effect on their households and lives. The disasters include: the Deepwater Horizon-BP Oil Spill, Hurricane Katrina, Hurricane Rita, Hurricane Gustav, and Hurricane Isaac.

Despite the growing frequency of cumulative disasters on children's lives, limited research and published literature on child specific relief programs exists. However, available literature on the present structure of organizational relief in disaster situations offers some insight into the complexity of disaster assistance in terms of governmental and non-governmental sources. A case study about a South Carolinian intervention, focused on helping children after Hurricane Hugo, is analyzed to further understanding of the role of disaster relief programs for encouraging healing and recovery among youth affected populations.

The objective of this research is to understand how adequate access to relief programs can possibly change the path of disaster recovery for children that, in turn, will positively influence their future life trajectories. By studying vulnerable geographic locations, such as the Gulf Coast, we can prepare and respond accordingly to future disasters, creating better organizational assistance programs that will help children to recover. In reviewing the known health impacts and trauma indicators children face and display, we understand more clearly the specific needs of children who are recovering from major life events and can work to mitigate unfavorable outcomes that negatively influence youth's future development.

Youth Physiological, Behavioral, and Emotional Health Effects

This paper begins with a review of literature on physiological, behavioral, and emotional effects of disasters on children and youth. In this paper, children and youth are used interchangeably, but they both refer to all persons under the age of 18.

Physiological:

Youth may be affected by exposure to disaster because of their age and stage of development. Early childhood development research has much to say about the impacts that adversity and stress can play in the lifelong successes of children. In short, a growing body of evidence shows that experiences you have as a young child can play a key role in deciding future life outcomes. Developmental processes are now being seen as a blend of nature and nurture overtime, and the Center on the Developing Child at Harvard University is working to understanding the complex “interaction between biology (as defined by genetic predispositions) and ecology (as defined by the social and physical environment)” a conceptual framework known as EBD (Shonkoff et al. 2011. p. 234).

Children are still learning to navigate the world and their ability to cope with stressful situations is limited because they have had fewer experiences in a more restricted social world than their adult counterparts. However, even with limited exposure to stress, children show indicators of lifelong impairments from what Shonkoff and colleagues (2011) refers to as “toxic levels” of stress. Toxic stress is defined by a “strong, frequent, or prolonged activation of the body’s stress response systems in the absence of the buffering protection of a supportive, adult relationship” (Shonkoff et. al. 2011. p. 236). The defining factor that separates toxic stress from more positive forms

of stress response lies on the supportive relationship formed with adults. Those children without such supportive relationships are missing key “buffers” that could help mitigate the physiological indicators of stress.

Prolonged activation of these stress systems in the body are linked to physiological disruptions of immune functions, inflammation, and overall riskier future behavior and unhealthy lifestyles (Shonkoff et. al. 2011). Therefore, we can conclude that supportive adult-child relationships are vital to children’s ability to have more normal responses to distress. Under the EBD framework the link between children’s social and physical world, physiological adaptations, and their life trajectories are realized to have more relational overlap than originally thought. “Toxic stress in early childhood plays an important causal role in the intergenerational transmission of disparities in educational achievement and health outcomes” (Shonkoff et. al. 2011, p. 238).

Behavioral and Emotional:

Disasters impact children more than adults by introducing “multi-faceted stressors” and the “disruption of ties to civic institutions such as schools and medical care, can negatively affect a child’s physical, mental, and social development” (Abramson et al. 2010, p. 1-2). In the process of natural disasters, external factors can induce unfavorable health outcomes. For the purpose on this research, we will focus on the concept of displacement as an intermediary factor to behavioral and emotional health. Displacement is defined as the forced movement from one’s home before or after a natural disaster accompanied by the inability to return for an extended period of time (see Weber and Peek, 2012 for a thorough discussion of post-disaster displacement).

Initial physical displacement after Hurricane Katrina in 2005, interfered with children's ability to attend school, return to homes, and in some instances, displacement was permanent. The total number of children who were displaced as a consequence of the storm fluctuates depending on the source, however the US Census Bureau estimates that more than 160,000 children experienced displacement for at least three months after Katrina (Abramson et al. 2010). School enrollment in Mississippi and Louisiana was found to be roughly 55,000 students below pre-Katrina rates. Even four years after the storm, over 10% of families with children were still living in hotels or trailers and had not re-established permanent housing (Abramson et al. 2010).

The number of children who were displaced and living in less than positive conditions has enormous implications regarding the ongoing instability of physical shelter that induces behavioral and emotional problems; displacement sets the stage for the following health impacts, as described below.

In a difference-in-difference analysis, Xian-Liang Tian and Xian Guan (2015), found that behavioral disorders of children who experienced the displacement of Hurricane Katrina heightened the possibility of school discipline infractions by 7.3%. Tian and Guan used The Louisiana Department of Education database to access records of discipline infractions from 2000-2008, tracking the linear changes in those affected by the storm. Interestingly enough, the data revealed a spike in discipline infractions in 2006, roughly a year after Hurricane Katrina. Attending school creates structure and predictability for youth. When that familiar routine is gone, sometimes acting out is the only way children know how to handle the disruption.

Larger emotional impacts are also found in children who experience traumatic events. These serious emotional disturbances like post-traumatic stress disorder (PTSD) are diagnosed by symptoms of “re-experiencing the event, experiencing hyper arousal, experiencing emotional numbing, exhibiting avoidance” and relate to a specific event, or phenomena (Abramson et al. 2010, p. 2). Indicators of distress from natural disasters include behavioral changes like irritability and disobedience, and regressive behaviors such as “irrational fears that coalesce with the pattern of PTSD” (Bandoroff et al. 1993, p. 323). Symptoms of trauma related disorders were found after Hurricane Katrina in multiple studies. In Louisiana and Mississippi, over 37% of children has received a diagnosis of a clinical mental health diagnosis (Abramson et al. 2010). In another, child victims of Katrina were more likely to develop a non-PTSD disorder of oppositional defiant disorder (ODD) and 98% of those who reported non-PTSD disorders, were also PTSD cases (Scheeringa 2014). There is persuasive evidence that negative health impacts on youth occur after traumatic disaster-related experiences leading to a push for PTSD intervention and support following disasters (Scheeringa 2014).

Fothergill and Peek (2015), in their seven-year ethnographic study of children after Katrina, found that those children who experienced an “accumulation of disadvantages” in various spheres of their lives were the most likely to be on a so-called declining trajectory. These were the children who experienced the most severe psychological, physiological, and behavioral ramifications of the disaster.

In her seminal 2008 paper on children and disaster, Peek laid out a model of cumulative vulnerability for children and disaster. She argued there that children who

were living in the most disadvantages circumstances were the ones most likely to be injured or killed, to suffer from short and long-term emotional problems, and to live in the most disrupted family and neighborhood environments.

Exposed Outliers:

In this section of the paper, I present original empirical data collected from the WaTCH study.¹ This project entails a random sample survey of nearly 700 children and their mothers or other female caregivers. These children live in six of the hardest hit parishes in Louisiana following the 2010 BP oil spill. The children and their mothers were surveyed at two points in time (in 2012-13 and in 2014-15).

From the broader quantitative sample, six exposure outlier cases were selected for further analysis. These children and their mothers were asked all endorsed that the child had experienced three or more major disasters (e.g., Hurricane Katrina, Hurricane Rita, Hurricane Gustav, Hurricane Ike, and/or the BP Oil Spill). Only six children out of the many hundred cases said they had experienced three or more major disasters. They were thus selected as ‘theoretical cases’ for further analysis.

As part of my project, I analyzed the data for the following question, which was asked of the female caregivers during Wave 1 and Wave 2 of the survey, *“During the past 12 months, how many times has [CHILD]’s school contacted you or another adult in your household about any academic or behavior problems he/she was having at school?”* relating to the behavioral impacts of disasters. My analysis showed that in Wave 1 and Wave 2, 4/6 or 67% of cases reported contact from their children’s school

¹ For more information about the WaTCH study, visit <http://disaster.colostate.edu/women-and-their-childrens-health.aspx>

between 2-5 times and 2-10 times, respectively. Half (50%) of cases reported a higher number of school contact in Wave 2, farther from the initial oil spill date, while 33% had less calls home as time went on. Only one case had zero contact from their school in either wave of surveys. These findings support that disasters can play a large role in youth's behavioral issues and their academic success. Other factors such as age, race, gender, and type of school might also attribute to the initial responses. However, we can infer a relationship between schools contacting caregivers about behavioral problems based on their classification as exposed outliers.

Analyzing Natural Disaster Relief

While there is a literature gap on youth-focused programs for disaster recovery, analysis on currently available programs act as a guideline and reference for future development for agencies or organizations tasked with caring for children after disaster. Organizational assistance, both governmental and non-governmental, play a role in disaster recovery, but studies also find that social networks show an increasingly important role in relief effort too (Forgette et al. 2008). In this section of the paper, I outline the institutional structures of disaster response to uncover the major actors in the relief and recovery process. Second, I review past organizational aid and explore the idea of social networks and their role in recovery. Lastly, I look at a case study from a South Carolinian school-based intervention program and analyze its effectiveness in providing children with disaster relief.

Institutional structure:

The organizational framework that identifies responders in disasters is extremely important to understand who will respond when a disaster hits and who stays long term.

While the national government is often looked to as a first responder, in reality they are often secondary in terms of initial relief efforts. The Federal Emergency Management Agency (FEMA) and the Department of Homeland Security (DHS) within the federal government only respond to disasters after local authorities and private organizations have asked for assistance (Stephenson 2007). Concluding, that local and state governments take the primary role in disaster recovery efforts before any other organizational help is present. A “bottom-up approach” of community participation in disaster preparedness and response is critical for long-term recovery and local control can implement more immediate responses (Brennan & Flint 2007, p. 112).

Furthermore, disaster relief is a combination of local efforts and federal governmental aid when they are called upon for resources. However, response efforts are not quite that simple because FEMA has “very little capacity to provide direct aid and assistance to disaster victims;” instead they act more as a managerial agency that relies on resources from other departments and organizations (Stephenson 2007, p. 215). Having a multi-layer relief framework can become problematic because there are many actors moving towards the same goal of relief recovery, but they can lack cohesive communication to work effectively at all levels. At the same time, multi-layer of service delivery structures can promote cooperation between inter-organizational networks and levels of government (Stephenson 2007). An excellent example of this is in Community Emergency Response Teams, or CERTSs. In this program, “bottom-up appreciation” for the role of local residents meets “top-down institutional framework” from institutions like FEMA to create a promising disaster recovery system (Brennan & Flint 2007, p. 112). This further underscores that organizational disaster recovery is a

continually growing blend of a multi-layer institutional framework between government levels and first and second responders.

Sometimes an unclear structure of responders creates talk and perception of “FEMA fiascos” or delayed governmental aid stories start to appear (Forgette et al. 2008, p. 37). When negative perceptions of governmental and non-governmental aid surface, communities turn elsewhere for assistance and start to rely on social networks. One study that assessed Hurricane Katrina relief, found that survivors perceived that social networks, personal and group relationships, provided greater sources of psychological and social disaster relief than government sources did (Forgette et al. 2008). This accentuates that social relationships are extremely important in dealing with the stresses of natural disasters and ultimately, disaster recovery.

In regards to children, we can even link the earlier discussed health impacts to social networks. Shonkoff and colleagues find that riskier-behavior in youth, which is a direct consequence of higher toxic stress levels, affects their ability to maintain strong social networks. We can gather that mitigating early childhood stresses through policy and programs directly affects children’s ability to have strong social relationships; an important aspect for successful futures. Abramson and Shonkoff urge policymakers to use the available data of health impacts to create better programs for children. Also, Tian argues that government assistance programs should link up with schools to better support the mental health and behavioral needs of children (Tian 2015). Additionally, I push for organizations to highlight the importance of social relationships and incorporate them into their future relief framework to increase positive outcomes for children.

South Carolina: A case study

In South Carolina after Hurricane Hugo hit in 1989, a school-based intervention project was implemented in two rural elementary schools to help children who were victims of disaster to “cope with negative emotional reactions” and prevent further development of emotional problems (Bandoroff et al. 1993, p. 321). Through the use of creative school assembly, small discussion groups, and a teach-in service, the project uncovered several positive outcomes. Over 90% of survey respondents found school assembly and small group discussions as an effective way to help normalize children’s response to the disaster. Also, results showed a teacher appreciation for the material given to them on the in-service day, finding it relevant to the issues they faced as educators. Overall, the hardest part of this project was identified as gaining access to schools through administrative positions in order to implement this disaster intervention program (Bandoroff et al. 1993). This unique study illustrates the complexity of providing adequate access to relief programs, but also, the positive outcomes that youth experience when programs meet their needs after disaster strikes.

Limitations

A limitation of this research is a more in-depth analysis on youth tailored relief programs because of the limited amount of literature on this topic. The scholarly shortage reflects the real world gap of programs available for children facing disaster and demonstrates the importance of further research in this area. Other limitations include an intersectional analysis of other variables such as, race, gender, socioeconomic status, and county/parish location of those studied. By addressing multiple variables in future research, a more in-depth understanding about access to relief programs can be established. In future analysis, a more comprehensive

comparison between WaTCH survey data and the available literature is sought to gain deeper insight into exposure outlier cases.

Conclusion

After reviewing the given research about the health effects children experience in disaster related events and reviewing the organizational structure of relief programs, the following conclusions can be made.

First of all, evidence of physiological, behavioral, and emotional health related impacts are apparent in youth who have experienced trauma. Physiological differences in children who experience toxic stress responses can lead to unfavorable future life trajectories. Youth behavioral and emotional health impacts show up in the form of disciplinary infractions and more serious diagnoses such as post-traumatic stress disorder (PTSD) and oppositional defiant disorder (ODD). Here, displacement can also play an intermediary role. We also found that the exposure outlier cases identified from the WaTCH study support the literature on behavioral problems surfacing in the context of school. Secondly, we can conclude that the organizational structure of disaster relief programs is a complex multi-layer system. Between managerial federal government departments and local response there is often disconnect and inefficiency. Yet, there is also massive room for growth in effective access to disaster relief if cooperation between all major actors is achieved. Social networks of relationships play a role in disaster recovery and this is an important characteristic that needs to be kept in mind when creating future programs and policy. Lastly, by analyzing the case study from South Carolina we can see the positive outcomes that children experience when their specific needs are met through adequate access to relief programs.

Overall, we conclude that working simultaneously in a top-down and bottom up approach implementing school-based programs can possibly be the most effective way to mitigate the known health outcomes for children; making a positive difference in their future lives. South Carolina can act as a guide for others to follow suit when faced with less than ideal post-disaster situations on how to respond to meet the needs of children.

Works Cited

- Abramson, D. M., Park, Y. S., Stehling-Ariza, T., & Redlener, I. (2010). Children as Bellwethers of Recovery: Dysfunctional Systems and the Effects of Parents, Households, and Neighborhoods on Serious Emotional Disturbance in Children After Hurricane Katrina. *Disaster Medicine and Public Health Preparedness* *Disaster Med. Public Health Prep.*, 4(S1). doi:10.1001/dmp.2010.7
- Bandoroff, S., McIntosh, J., Moncher, F. J., Peavler, K., Rotunda, R., & Sebastian, J. (1993). Secondary Prevention: Implementation of a School-Based Intervention Designed to Cope with the Effects of Hurricane Hugo. *Journal of Social Behavior and Personality*, 8, 321-332.
- Brennan, M., & Flint, C. G. (2007). Uncovering the Hidden Dimensions of Rural Disaster Mitigations: Capacity Building Through Community Emergency Response Teams. *Southern Rural Sociology*, 22(2), 111-126.
- Forgette, R., Dettrey, B., Boening, M. V., & Swanson, D. A. (2008). Before, Now, and After: Assessing Hurricane Katrina Relief. *Population Research and Policy Review*, 28(1), 31-44. doi:10.1007/s11113-008-9113-6
- Fothergill, A. & Peek, L. (2015). *Children of Katrina*. Austin: University of Texas Press.
- Peek, L. (2008). Children, Youth, and Disasters: Understanding Vulnerability, Developing Capacities, and Promoting Resilience. *Children, Youth and Environments* 18(1): 1-29.
- Scheeringa, M. S. (2014). Untangling Psychiatric Comorbidity in Young Children Who Experienced Single, Repeated, or Hurricane Katrina Traumatic Events. *Child & Youth Care Forum*, 44(4), 475-492. doi:10.1007/s10566-014-9293-7
- Shonkoff, J. P., Garner, A. S., Siegel, B. S., Dobbins, M. I., Earls, M. F., Garner, A. S., Wood, D. L. (2011). The Lifelong Effects of Early Childhood Adversity and Toxic Stress. *Pediatrics*, 129(1). doi:10.1542/peds.2011-2663
- Stephenson, M. (2007). Bridging the Organizational Divide: A Comparative Institutional Analysis of United States and International Humanitarian Service Delivery Structures. *Voluntas International Journal of Voluntary and Nonprofit Organizations*, 18(3), 209-224. doi:10.1007/s11266-007-9041-9
- Tian, X., & Guan, X. (2015). The Impact of Hurricane Katrina on Students' Behavioral Disorder: A Difference-in-Difference Analysis. *International Journal of Environmental Research and Public Health IJERPH*, 12(5), 5540-5560. doi:10.3390/ijerph120505540

Weber, L. & Peek, L. (2012). *Displaced: Life in the Katrina Diaspora*. Austin: University of Texas Press.