Child and Adolescent Mental Health Research in the Context of Hurricane Katrina: An Ecological Needs-Based Perspective and Introduction to the Special Section

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Child and Adolescent Mental Health Research in the Context of Hurricane Katrina: An Ecological Needs-Based Perspective and Introduction to the Special Section

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This article introduces the special section on child and adolescent mental health research in the context of Hurricane Katrina. We outline the purpose and intent of the special section and present an integrative perspective based on broad contextual theories of human development with which to think about the impact of disasters like Katrina. The perspective emphasizes multiple levels of influence on mental health and normal development through the impairment of multiple human needs. The perspective helps show the interconnections among the diverse theoretical and methodological paradigms that are utilized to understand the impact of disasters on youth and may help to guide future research.

Solidarity is not discovered by reflection, but created. It is created by increasing our sensitivity to the particular details of the pain and humiliation of other, unfamiliar sorts of people. Such increased sensitivity makes it more difficult to marginalize people different from ourselves by thinking, “They do not feel as we would,” or “There must always be suffering, so why not let them suffer?”

Richard Rorty (1989, p. xvi)

The purpose of this special section is to bring together a collection of research studies, each with the goal of learning from a horrible disaster by utilizing empirical data on its effects on youth. It is our desire that this special section is one testament to the enduring hopes and aspirations of the people of the U.S. Gulf region who are still rebuilding and growing stronger every day. For those of us who experienced Katrina and its aftermath, if this set of studies helps to mitigate the impact of future disasters by reducing suffering even by the smallest amount we will have succeeded in our task. We therefore wish to start by thanking the youth and families who participated in the studies. It is only from their willingness to share their experiences that we are able to learn.

The idea for this special section was kindled during a graduate seminar series conducted at the University of New Orleans (UNO) in the fall of 2006 and led by Dr. Paul Frick on the mental health needs of youth in the New Orleans area following Hurricane Katrina. The seminar was meant to inform graduate students in the doctoral program at UNO on the research being conducted on the effects of the hurricane and on the many mental health programs being implemented for youth in the area. At times the seminar was uplifting and encouraging, highlighting the fact that so many, both from the New Orleans area and from other parts of the country, were focusing their efforts on trying to meet the mental health needs of youth in New Orleans. However, at more times than not, the seminar was disheartening in illuminating the tremendous unmet needs of youth in the city. Through this seminar, the benefit of a special section on this topic became obvious, as several of the authors in this special section presented preliminary reports of their data. It became clear
that there were a number of researchers doing quality work related to the mental health of youth exposed to Hurricane Katrina that could help guide professionals both in New Orleans and in other areas experiencing similar disasters. This section thus owes both its origins and endorsement to Paul Frick, Editor of JCCAP. We sincerely thank him for his guidance and support during this process.

The research that has come before this set of studies helped shape the work presented here (see, e.g., La Greca, Silverman, Vernberg, & Roberts, 2002), and so we are optimistic about the potential impact of this section. We are very fortunate to be able to present an amazing series of eight empirical articles that cut across age groups from toddlers to adolescents; address issues from assessment to treatment; and are grounded in diverse theoretical and methodological paradigms drawn from experimental, developmental, and clinical psychology. Our hope is that the presentation of these findings in a special section may improve the impact of these efforts by creating a synergy of information and cohesive resource for the field.

The story of two early adolescent girls from New Orleans, who the first author saw at their new school over the 2006–2007 school year, helps to illustrate the goal of this special section. “Jane,” aged 13, and her family rode out the storm in a shelter badly damaged by the storm’s fury. During and after the storm, Jane saw people harmed and was afraid she might even die. Although “Jackie,” aged 14, and her family left New Orleans ahead of the storm, she too felt as though she might die during the storm and witnessed others hurt. The storm and its aftermath wreaked havoc on both Jane’s and Jackie’s lives. They both lost their belongings, their parents lost their jobs, and their families were forced to relocate. After some time, Jane and Jackie moved back to their homes and neighborhoods in New Orleans to face the reality of living in a postdisaster environment. Jane seemed to adjust well; her symptoms of posttraumatic stress disorder (PTSD) according to the PTSD reaction index (Frederick, Pynoos, & Nadar, 1992) dropped from severe to moderate over the course of the year, and she was no longer bothered by the way things looked in her neighborhood. Jackie, however, had more difficulty, and her PTSD symptoms actually increased over time from moderate to severe. Thus, in human terms, the central goals of each of the research projects presented in the section are to understand why Jane is getting better while Jackie is getting worse and to identify the best ways to keep Jane moving forward and to turn Jackie around.

Existing research on traumatic stress and PTSD in youth has shaped our understanding of the severe nature of traumatic stressors like the Katrina disaster on child health in terms of the potential for negative behavioral, cognitive, and neuro-developmental outcomes in youth. For example, research has demonstrated that youth who have experienced severe stressors are more likely to display smaller cerebral brain volumes (Carrión et al., 2001; De Bellis et al., 1999) and to show decreases in specific brain regions involved in cognitive processing such as the hippocampus (Carrión, Weems, & Reiss, 2007). However, the extent of the Katrina disaster forces us to look beyond individual responses and try to understand the individual child within multiple contexts. The articles in this special section are exemplary in this regard and contribute to the existing literature on disaster-related traumatic stress by (a) examining a number of possible outcomes (e.g., health complaints, aggression), (b) exploring the role that multiple contexts (e.g., poverty, discrimination) play in a child’s reaction to stress, and (c) testing a number of potential mediators (e.g., emotional dysregulation) and moderators (e.g., anxiety sensitivity, parenting) of the link between traumatic stress and children’s adjustment.

The far-reaching effects of Katrina and its aftermath challenge the applicability of many specific theoretical models in psychology to capture the complexity of youth adaptation. For example, past mental health research has tended to focus on the impact of disasters on the functioning of the individual, and most commonly in terms of PTSD symptoms (Norris, Friedman, & Watson, 2002). One of Katrina’s lessons is that attempts to capture the entirety of the impact or the complexity of individual adaptation will require similarly complex integrative frameworks. For example, the massive scale of the Katrina disaster raised the question, “What are the social systems that are impacted and how does context play a role in shaping adaptation following catastrophe?” Thus, we feel that broad contextual models of lifespan human development (e.g., Bronfenbrenner, 1979) and broad models of risk and resilience to stress (e.g., Hobfoll, 1989; Sandler, 2001) are important guiding frameworks for integrating knowledge about child and adolescent mental health services and research in the context of a disaster like Hurricane Katrina. Drawing from these theoretical models, we term our integrative framework an ecological needs-based perspective.

AN ECOLOGICAL NEEDS-BASED PERSPECTIVE

This perspective draws its basic premises from Bronfenbrenner’s ecological systems theory, which posits that individuals function within multiple contexts, or “ecologies,” that influence each other and human development. These ecologies vary in their proximity
to the individual (e.g., a child) and include the macrosystem, which is the most distal ecology and includes cultural values and beliefs; the exosystem, which consists of processes taking place between two or more contexts, one of which does not directly involve the child but has implications for child development; the mesosystem, which represents the linkages between proximal ecologies (e.g., school and home); and the microsystem, which represents the proximal ecologies within which the child develops, including the family and school environments and peer relationships. The ontogenic level is the ecology of the individual and represents factors within the individual that influence developmental adaptation.

The perspective also posits that disasters such as Hurricane Katrina impact development and mental health by threatening basic human needs and goals. Underlying healthy adaptation at the individual level is the ability to meet four basic needs, including physical safety, self-worth, control/efficacy, and a sense of social relatedness according to Sandler’s (2001) risk and resilience model. When these needs are met, an individual is more likely to be resilient in the face of adversity. However, threats to these basic needs present challenges to healthy development and mental health. In the case of Hurricane Katrina and its aftermath, threats to the basic needs emanated from every ecology surrounding the child, increasing the risk for negative developmental outcomes and mental health problems. The articles included in this special section utilize diverse methodologies and theoretical perspectives; however, an ecological needs-based perspective can be used to integrate the knowledge gained from these diverse approaches. Specifically, each study can be seen as examining how various factors within different ecologies surrounding the child act alone and/or in conjunction with other ecologies to either impede or foster the child and family’s ability to meet the child’s basic needs.

**Macrosystem Influences**

Hurricane Katrina laid bare societal prejudices toward people of color and people living in poverty (Bobo, 2006; Huddy & Feldman, 2006; Lieberman, 2006). Although one might expect broad, unqualified support for victims of a natural disaster, national polls and research studies found evidence of racial bias toward storm victims. For example, surveys of American citizens revealed that Whites were more likely than Blacks to place some blame on the victims for their plight and less likely to be sympathetic toward those stranded in New Orleans (Huddy & Feldman, 2006). Consistent with these national trends, surveys of adults residing in the Gulf region in the early months following Katrina indicated that ethnic minorities perceived more discrimination than nonminorities and that, regardless of ethnicity, individuals living in New Orleans perceived less social support and perceived more discrimination than those living along the Gulf Coast of Mississippi (Weems, Watts, et al., 2007).

Prejudice, discrimination, and lack of social support represent factors within the macrosystem that pose a powerful threat to one’s sense of physical safety, self-worth, self-efficacy, and social relatedness. The perception of prejudice or intergroup conflict can limit support seeking from others in the postdisaster environment (Norris et al., 2002; Rabalais, Ruggiero, & Scotti, 2002) and lead to feelings of low self-worth and poor self-efficacy (Greene, Way, & Pahl, 2006; Umaña-Taylor & Updegraff, 2006), all of which have negative implications for youths’ ability to cope adaptively with the disaster. However, very few studies have empirically examined the impact of perceived discrimination on youth adaptation to disasters (Norris et al., 2002). The article by Pina et al. (this issue) makes a contribution to this area of study through their examination of whether perceived discrimination impacts posttraumatic stress reactions among youth survivors of Katrina. The authors found that although Black participants perceived more discrimination than White participants, it was only modestly associated with posttraumatic stress symptoms in the study. Of importance, Black participants in the sample also reported high levels of extraschool social support. Such findings suggest that future research examine whether the potentially negative contextual effects of discrimination might be mitigated by a supportive proximal environment.

**Exosystem Influences**

Exosystem influences on child adaptation are indirect in nature; they originate in contexts that do not involve the child (e.g., parent’s workplace, government agencies) and have their effects by creating disruptions in contexts that do involve the child (e.g., family, school). These indirect effects on the microsystems that surround the child are potentially potent risk factors for healthy child adaptation. For example, the inadequate and inept governmental response to Katrina, in combination with the complete failure of communication systems, severely challenged the ability of families to communicate a sense of safety and control to their children (Bourque, Siegel, Kano, & Wood, 2006). In addition, the nature of the response called into question the worth of certain groups, communities, and challenged feelings of social connectedness (Bourque et al., 2006; Huddy & Feldman, 2006).

Two of the studies in the special section address additional exosystem influences on child mental health, although both reveal surprising findings. First, Scheeringa
and Zeanah (2008/this issue) demonstrate that workplace demands were the primary reason for parent–child separations during the evacuation and recovery periods following Katrina in their New Orleans sample. Although previous studies have found that parent–child separations during trauma present a risk factor for child mental health (Klingman, 2002; see also Osofsky, Osofsky, & Harris, 2007), Scheeringa and Zeanah found that parent–child separation during the evacuation period was associated with fewer symptoms of PTSD for both the parent and the child. Given the chaotic and deplorable conditions in New Orleans in the immediate aftermath of the storm, parent–child separation during the evacuation period may have resulted in less trauma exposure for the child and less caregiver stress for the parent, which might have served to buffer against the development of PTSD symptoms. Second, the article by Scaramella, Sohr-Preston, Callahan, and Mirabile (2008/this issue) demonstrates that exosystem factors of financial strain and neighborhood violence create disturbances in the family environment, which increase the risk of child maladaptation. However, the authors did not find evidence that these risks were worsened by the post-Katrina environment. The authors speculate that for some families the chronic stress associated with extreme poverty may already be so pervasive that incremental impact of the disaster on child functioning is difficult to detect (see also Aber, Gershoff, Ware, & Kotler, 2004; Steptoe & Hammer, 2007).

**Mesosystem Influences**

The immediate impact of Hurricane Katrina severed the ties (i.e., mesosystems) between the various microsystems in children’s lives. Along the Gulf Coast, entire neighborhoods were swept away, and in New Orleans, residents were under a forced evacuation for at least 5 weeks (DeSalvo et al., 2007). Hurricane Katrina and the failure of the levees in New Orleans displaced more than 2.5 million people throughout the United States (Larrance, Anastario, & Lawry, 2007). Children and their families were separated from peer groups, extended family networks, neighborhoods, schools, and day care centers, and these separations tended to be extended. For example, 9 months after the disaster, 85,000 people remained housed in temporary FEMA trailer communities, resulting in continued separations from their original neighborhoods, schools, and extended family groups (Larrance et al., 2007). In the New Orleans area, 2 years after the disaster, 55% of public schools remained closed, as did two thirds of the city’s child care centers (Liu & Plyer, 2007), forcing many families to enroll their children in new schools and day care centers. In contrast, many high school students returned to the city to complete the academic year at their former school, but at the cost of returning without their parents (Nossiter, 2006), resulting in obvious challenges to maintaining close ties between the home and school environments.

Weak or disrupted mesosystem connections may result in a lack of congruency in the belief systems, expectations, and influences of the different microsystems, limiting the ability of these systems to act in concert to influence child adaptation. This lack of consistency and connectedness can challenge youths’ sense of interrelatedness and self-efficacy as they attempt to navigate their various developmental contexts. The article by Salloum and Overstreet (2008/this issue) illustrates the challenges to mesosystem connections in the post-Katrina environment and the potential of school-based mental health services to increase those connections. For example, most parents of the children receiving the intervention in their study found it difficult to come to the school for a meeting, so the intervention incorporated a community-based parent meeting (i.e., parent’s home or work) scheduled at the parent’s convenience. This flexibility in service provision resulted in successful parent meetings for 73% of the sample, which allowed the opportunity to strengthen connections and ensure consistency between the home and school environments. The study also shows the potential of interventions for improving child functioning. Youth in the intervention groups had significant reductions in posttraumatic stress symptoms, depression, and traumatic grief.

**Microsystem Influences**

Disasters indirectly affect child adaptation by increasing risk in contexts proximal to the child, such as the family, school, and neighborhood environments. It is all too clear that disasters the scale of Hurricane Katrina create disruptions in all of the microsystems within which youth develop. However, research on the microsystems impacted by disaster has tended to focus on the family environment (Norris et al., 2002). For example, previous research has shown that marital stress, domestic violence, and parental psychopathology increase after disasters (Larrance et al., 2007; Norris et al., 2002), making it more difficult for youth to maintain their sense of safety, control, and interconnectedness (Sandler, 2001). The Scheeringa and Zeanah (2008/this issue) and Spell et al. (2008/this issue) articles speak to the importance of parental mental health for child functioning at two distinct developmental points. Scheeringa and Zeanah found that the onset of new mental health problems in preschool children was significantly correlated with the onset of new mental health problems in their caregivers. Spell et al. obtained a similar finding among a sample of school-aged children in which overall maternal
psychological distress served as a significant predictor of child mental health following Hurricane Katrina. As noted by Scaramella et al. (2008/this issue), parental emotional distress and mental illness undermine parenting efficacy, resulting in increases in parental irritability and decreases in consistent discipline, both of which increase the risk for child mental health problems. In fact, in their article, they found evidence for the mediating role of parenting efficacy in the relation between maternal depression and toddlers’ internalizing and externalizing problems.

Although disasters create disruptions within the microsystems surrounding the child, negative developmental outcomes are not always observed in youth exposed to disasters. The occurrence of negative outcomes depends on the balance between protective and vulnerability factors within the different contexts surrounding the child. For example, increased risk created by disasters within the family environment can be offset by the presence of protective factors within the family context or within the other microsystems surrounding the child. School-based mental health services represent a protective factor within the school microsystem that can offset the negative developmental outcomes associated with disaster exposure (Abramason & Garfield, 2006; Pynoos, Goenijian, & Steinberg, 1998). In fact, Salloum and Overstreet (this issue) demonstrate the effectiveness of a school-based grief and trauma focused intervention for children in a postdisaster environment. In addition, Pina et al. (this issue) found that as perceived helpfulness from extrafamilial sources of support (e.g., teachers, friends, church members) increased, posttraumatic stress reactions in youth (i.e., PTSD, anxiety, and depression) decreased.

### Ontogenic Influences

Although disasters indirectly influence child adaptation through their impact on contexts both proximal and distal to the child, they also have a direct impact on the child. A consistent dose–response relationship has been observed in which more severe and intense traumatic experiences during a disaster are associated with the development of more severe symptoms (La Greca, Silverman, & Wasserstein, 1998; Weems, Pina, et al., 2007), which most likely result from the challenges to the basic needs of youth (e.g., physical safety, efficacy, self-worth, and social relatedness). Thus, disruptions in the basic needs of the child represent the mechanisms through which disaster exposure leads to negative adaptation. For example, as perceived life threat during the disaster increases, the development of PTSD becomes more likely (La Greca, Silverman, Vernberg, & Prinstein, 1996). Disaster experiences that involve life threat challenge one’s sense of control and self-efficacy in containing the threat, leading to emotional reactions that may be difficult to regulate (Norris et al., 2002), ultimately increasing the risk for the development of psychopathology. Researchers have linked emotional dysregulation to conduct problems and aggression (Cole & Zahn-Waxler, 1992; Frick & Morris, 2004), as well as internalizing problems such as depression and anxiety (Suveg & Zeman, 2004). However, Marsee (2008/this issue) is the first to empirically test emotional dysregulation as a mediator of the relation between disaster exposure and aggression in adolescents. Her results were consistent with the theory that exposure to a disaster, along with posttraumatic stress, result in emotional regulation difficulties, which in turn lead to an increase in reactive aggression.

Marsee’s (2008/this issue) study also highlights another important issue: understanding individual adaptation to disasters requires looking beyond PTSD to a broader range of potential psychological outcomes (Yehuda, McFarlane, & Shalev, 1998). As demonstrated by a number of the studies in this issue, disaster exposure precipitates the development of many different forms of maladaptation. For example, Spell et al. (2008/this issue) reported that 13% of their school-aged sample of youth demonstrated clinically significant externalizing symptoms, which were only moderately correlated with PTSD symptoms. Scheeringa et al. (this issue) found that PTSD in their preschool sample was comorbid with at least one of four disorders in 88.6% of the sample. The study by Hensley and Varela (2008/this issue) extends this issue even further by illustrating that disaster exposure also has implications for physical adaptation. Their study moves the research on disaster reactions to new areas through their finding that hurricane exposure was a significant predictor of PTSD symptoms but was also associated with somatic symptoms.

Individual youth characteristics are also important in shaping the developmental adaptation to disasters (Norris et al., 2002). In support of this, research has consistently indicated that pre-existing characteristics of the child can determine the impact of disaster exposure on adaptation. For example, previous research has documented that prehurricane trait anxiety levels predict PTSD symptoms above and beyond exposure to the trauma (LaGreca et al., 1998; Weems, Pina et al., 2007). Presumably, high trait anxiety taxes cognitive resources and interferes with the children’s ability to cope with traumatic events and related emotions (La Greca et al., 1998). In the current issue, Hensley and Varela (2008/this issue) extend this work by providing evidence that anxiety sensitivity, which is the fear that anxiety-related symptoms will lead to extremely negative consequences, moderated the relationship between trait anxiety and PTSD in a sample of sixth- and seventh-grade students. The authors argue that high...
trait anxiety coupled with anxiety sensitivity creates a cycle of anxiety amplification, resulting in extremely high levels of net anxiety that renders children less likely to adequately process and cope with the traumatic experience than children with high trait anxiety alone.

Another pre-existing factor that can shape adaptation to disaster exposure is developmental level. Although it is generally believed that children tend to be more severely affected by disasters than adults, no consensus has emerged regarding developmental differences in mental health problems prior to adulthood (Norris et al., 2002). Historically, researchers believed that preschool children were not highly affected by trauma exposure and our knowledge of how very young children respond to life-threatening traumatic events has lagged behind that of other age groups (Scheeringa & Zeanah, 2008/this issue). Assessment of PTSD in preschool-aged children requires a developmentally sensitive approach. For example, Sprung (2008/this issue) demonstrated that young children’s knowledge about the mind and its operations underlies their ability to monitor and report unwanted intrusive thoughts. Findings from the study by Sprung are consistent with the argument that certain symptoms of posttraumatic stress disorder (e.g., intrusive thinking, emotional numbing, and avoidance) can easily be overlooked in preschool children (Scheeringa, Zeanah, Myers, & Putnam, 2003). In fact, Scheeringa et al. (2003) have empirically validated alternative, developmentally sensitive diagnostic criteria for PTSD in young children. In their study reported in this issue, they found that 50% of the children in their sample aged 3 to 6 years met criteria for PTSD following Katrina using those criteria. The rates of clinically significant PTSD observed among samples of school-aged children in two different studies in the current issue were 12.6% (Hensley & Varela, 2008/this issue) and 11% (Spell et al., 2008/this issue). These findings suggest that younger children may actually be at higher risk of negative developmental outcomes, which highlights the need for more research with preschool samples in postdisaster environments.

Youth coping behaviors represent another potential moderator of psychological outcomes following natural disasters. For example, avoidant coping such as withdrawal is associated with greater PTSD symptoms (e.g., La Greca et al., 1996; Vernberg, La Greca, Silverman, & Prinstein, 1996) while active coping such as problem-focused coping is associated with lower depression symptoms in youth hurricane survivors (e.g., Jeney-Gammon, Daugherty, Finch, Belter, & Foster, 1993). In the current issue, Pina et al. (2008/this issue) found that avoidant coping behaviors (i.e., repression, avoidant actions) predicted post-Katrina PTSD and anxiety symptoms, which is consistent with other research (Norris et al., 2002). However, they did not find evidence that active coping strategies (i.e., positive cognitive restructuring, problem focus coping) buffer youths’ posttraumatic stress reactions.

SUMMARY

We feel that the articles in this special section contribute to child and adolescent mental health knowledge at each level of influence posited by an ecological needs-based perspective. Indeed the emphasis of analysis is often focused on the individual child in most of the articles, and in many respects this makes a great deal of sense. Researchers with interests in child health and mental health rightly focus on the child. Together, however, the articles do show that the impact of the Katrina disaster was felt at societal, community, family, and individual levels. Thus, one of the main lessons learned from the Katrina experience is that we must consider these multiple levels of impact when designing and implementing future research and prevention efforts. A very positive lesson is that interventions can be effective even in the wake of a storm like Katrina. Yet applying this empirical knowledge to the realm of policy suggests that efforts to prevent and minimize suffering in the wake of disaster will benefit from addressing these multiple levels of impact. The perspective we have delineated and the data presented in the articles that follow suggest that future researchers will benefit from considering, not just in passing, all of the contextual and individual influences on the child exposed to disaster.

REFERENCES


INTRODUCTION TO SPECIAL SECTION


