

A Cognitive Developmental Approach to Understanding How Children Cope With Disasters

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TOPIC. *This paper applies cognitive developmental theory to explain how preschoolers, school-age children, and adolescents process and respond to disasters.*

PURPOSE. *To help clinicians understand the disaster experience from a child's point of view, recognize age-specific reactions, identify symptoms that may signal coping difficulties, and plan effective interventions.*

SOURCES. *Case examples from the author's work with flood victims illustrate typical reactions for children (preschool to adolescents) within a family context, along with developmentally appropriate interventions.*

CONCLUSIONS. *Children affected by disasters need nursing interventions geared toward their particular developmental level and sensitive to their perception of the disaster.*

Key words: *Adolescents, children, coping, development, disaster*

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A moment's reflection brings to mind many recent examples of earthquakes, floods, fires, volcanoes, and other natural disasters that have touched the lives of families around the world. Recent efforts by the American Red Cross Disaster Mental Health Services and professional organizations in nursing and other disciplines have focused on designing interventions to help families and communities cope with the psychological impact of disasters. The impact of disasters on children, however, is only beginning to be understood. There has been a relative lack of attention to the needs of children, partly because early studies that relied on teacher or parent reports mistakenly concluded that children's reactions to disasters were mild and transient (Vogel & Vernberg, 1993). Current research has documented the substantial emotional impact of disasters on children and called for more developmentally specific interventions (Goenjian et al., 1997; Green et al., 1991; LaGreca, Vernberg, Silverman, & Prinstein, 1996; Pynoos et al., 1993).

Any effort to promote mental health in young people must begin with the awareness that children are not miniature adults. Children process stressful events differently and respond according to their developmental levels (Anthony, 1991). A number of theoretical frameworks could be applied to better understand and research how children cope with disasters, including attachment theory, emotion regulation, stress and coping theory, and family theories. Unfortunately, the developmental viewpoint has been largely ignored in disaster research (Anthony), and only a few studies of children's responses to disaster have applied any of these theories in a systematic way.

As a beginning step in using a developmental approach to understanding how children cope with disasters, this article describes how children cognitively process disaster events, using Piaget's (1960) theory to explain how children's perceptions change as they

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develop. Although current research has challenged the validity of some of Piaget's findings, particularly regarding the minimum ages when children may reach some of his milestones of cognitive development (Flavell, 1992), the sequence of the milestones and the basic tenets of the theory remain well accepted. This paper also describes some of the typical age-specific reactions and symptoms seen in children following disasters. Case examples from the author's volunteer work with flood survivors illustrate the child's view of the disaster experience within a family context. The purpose of the article is to foster an awareness of the child's experience of a disaster and to suggest some developmentally appropriate interventions. The paper concludes with some general guidelines for intervention with children and families.

Studies (Green & Lindy, 1994) suggest that the issues related to human-made disasters (e.g., sexual abuse, accidents, bombings, plane crashes) may be somewhat different from those surrounding natural disasters. This discussion is limited to natural disasters.

Preschool Child's Response to Disaster

Cognitive Processing

Clinicians have long noted that traumas are processed on a sensory level through smells, sights, and sounds. Because preschoolers are just coming out of the sensorimotor period (ages birth to 2 years; Piaget, 1960), they are still inclined to process the world on this level. They may be more vulnerable to sensory overload and less able to buffer the onslaught of traumatic stimuli in their environment. In addition, preschoolers have a limited ability to verbalize their fears and reactions. Instead, they may re-enact the disaster spontaneously through play and drawings as a way of processing their experience.

During the preschool years, children's cognitive processes are dominated by their imagination. Piaget's concept of animism describes how, for children of this age, inanimate objects become personified (e.g., tornadoes are monsters, rivers swallow people, fires snatch and smother). Because of this, the child's mental image of a

disaster can be graphic and terrifying. With the development of animism comes the normal tendency for preschool children to experience transient fears of objects that seem alive to them (e.g., vacuum cleaners, flushing toilets), as well as other common fears (e.g., darkness, insects). These fears can resurface or heighten following disasters, and new disaster-specific fears may develop (Shelby & Tredinnick, 1995).

Finally, as preschool children enter Piaget's preoperational phase (ages 2-6), their egocentric thinking causes them to view events as triggered by their own actions. This brings with it the potential for guilt when they misperceive a disaster as being caused by them, or self-blame for not being able to prevent the damage.

Typical Symptoms

Rather than responding with a global change in mood or level of functioning, preschoolers react more frequently with specific, apparently isolated, behavioral symptoms (Green et al., 1991). Although these symptoms may not appear initially to be linked with the disaster, an alert parent or clinician may recognize them as a stress-related sign of regression.

For example, a prospective study (Durkin, Khan, Davidson, Zaman, & Stein, 1993), based on findings from an epidemiological study that happened to be under way before a disaster occurred, showed that more than one third of young children who had achieved bladder control 6 months before a flood in Bangladesh had developed enuresis after the event, and the prevalence of aggressive behavior increased from 1% before the flood to 10% 5 months afterward. These rare data from a prospective design underscore the notion that changes in psychological functioning after a disaster are not a mere artifact of the reporting bias suspected in retrospective studies. Other symptoms that may appear in preschoolers following a disaster include sleep disturbance, fears, somatic complaints, eating problems, separation anxiety, and regressive behaviors such as thumb sucking, crying, and clinging (Burke, Borus, Burns, Millstein, & Beasley, 1982; Green et al., 1991; Ollendick & Hoffman, 1982;

Vogel & Vernberg, 1993). Disasters generally cause young children to experience increased feelings of vulnerability and heightened attachment behavior (Anthony, 1991).

Preschool children's ability to cope with a disaster and accurately process it may be significantly influenced by their parents' reactions to the event. A study by Swenson and colleagues (1996) that followed preschool children and their mothers 14 months after Hurricane Hugo found that the longevity of the children's emotional and behavioral symptoms was significantly related to the mother's level of disaster-related distress, maternal psychiatric symptoms, the degree of property loss, and other stressful life events in the family following the disaster. Therefore, intervention with preschool children should begin with an assessment of the parents' reactions, the level of disaster-related damage, and any other significant losses and stressors affecting the family.

Case example. Tameka, a 4-year-old girl, was staying with her family in a school shelter after a flood destroyed her home. She wandered over while I was talking with another shelter resident and began clinging to my legs, saying, "I want a hot dog." Tameka took me to the corner of the gymnasium where she was living with her mother Mary, three siblings, and an infant niece. When we got there, Mary was methodically cleaning their cots, sweeping the floor, and spraying the area with insecticide. Eager to talk, Mary told me Tameka had a history of sleep problems that had worsened since the flood. She had begun sleepwalking and ending up in strangers' cots, including those of homeless men. To keep her from harm, Mary had begun tying her shoelace to Tameka's ankle at night.

Mary cried as she talked about what the family had been through over the past few days. They had stayed in their home until the last moment, hoping that the flood would not approach it. When the water began to rise, they frantically gathered their belongings and put them on top of the kitchen cabinets to keep them dry. Mary proudly recalled how Tameka calmly approached her with a pillowcase packed with her toothbrush, teddy bear, clothes, and pajamas. Despite having been born with hydrocephalus and being wrongly regarded by the

neighbors as brain damaged, Tameka had shown amazing resourcefulness and common sense under pressure. When the water finally started to rush through the doors and windows, Tameka and the other children began to scream as the fire engines roared, and the family raced outside in terror.

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Now they were trying to put their lives back together, using their mother's faith in God to sustain them. Mary had lost her mother as a young child, and she learned through that experience that the most important thing she could do was to be there for her children.

To assess Tameka's perceptions of the flood, I asked her to draw some pictures. In one of her drawings there were sharks and monsters swimming around her house. When asked about this, she related her belief that the house was filled with monsters that might bite her. This perception was consistent with the tendency of preschool children to process disaster events by using animism and a vivid imagination. I explained to Mary the importance of asking Tameka about her beliefs and fears regarding the flood to assess any misperceptions she may have.

In summary, this case illustrates a preschool child's experience of a disaster within a family context, including

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how she processed the event and displayed some typical symptoms. Although Tameka developed some new fears, she became more clingy, and her preexisting sleep problems were exacerbated, she and her mother were using many positive coping mechanisms to deal with this disaster. Because Tameka had taken a surprisingly active role by packing her belongings and helping her mother, the family was beginning to change their perception of her as a "damaged" child, allowing this crisis to bring with it the possibility of growth for her and the family. Mary's already positive maternal self-concept was being enhanced by her actions to protect the family by keeping their living area clean and coming up with an ingenious solution to prevent Tameka from sleep-walking. Mary's willingness to verbalize her feelings and concerns about the flood and her ability to draw on her spirituality as a coping resource were some additional strengths.

My interventions with Tameka and her family included allowing them to relate their experience of the flood, giving them concrete assistance with resources (e.g., phone numbers for assistance with food and housing), supporting the family's healthy coping mechanisms, and providing education about children's reactions to disasters. I suggested to Mary that the sights and sounds of the crowded gymnasium may be frightening and overstimulating for Tameka, and the change in her usual routine may be creating some anxiety. Keeping her close by and adhering to as much of a routine as possible would help her feel more secure. In addition, Tameka's focus on food probably signified a heightened need for nurturance. Holding, touching, and maintaining a regular meal schedule would be helpful.

School-Age Child's Response to Disaster

Cognitive Processing

During the school-age years, children enter Piaget's period of concrete operations, marked by an increased ability to use logic to understand events. Because of this, they can grasp the seriousness of a disaster, remember it

more vividly, and imagine what the impact may be for their families (Conway, Bernardo, & Tontala, 1990). This increased understanding creates the potential for a more profound reaction of fear or grief that appears more obviously related to the specific trauma and the losses they have experienced (Newman, 1977). For example, school-age children typically mourn the loss of their belongings and relate fears that they or their families could have been hurt. They may need to discuss their experiences repeatedly and reenact them in play (McFarlane, 1987; Shelby & Tredinnick, 1995).

Children mourn through activity, and they are helped by concrete reminders of the event, such as articles retrieved from their homes. Giving them an opportunity to participate in repairs and healing rituals, such as planting trees, also can help them work through their grief (Vernberg & Vogel, 1993). Piaget (1960) observed that with the attainment of conservation (i.e., the ability to discern that the mass or volume of an object stays the same regardless of its shape or form), school-age children develop the ability to reverse their perspectives and see events from different angles. Thus, children in this age group are more attuned to the viewpoints of the adults around them. Like younger children, they will observe their parents carefully for cues about how to interpret the impact of the disaster; the parents' emotional reactions serve as a gauge for judging its seriousness. Seeing their parents out of control is frightening for children. They may try to comfort their parents, while feeling overwhelmed and unable to soothe themselves. Information from the media and stories they hear also have a great influence on school-age children's perceptions of a disaster. For this reason, it is incumbent on parents, teachers, and other adults to elicit children's perceptions, correct misinformation, and reinterpret the events in healthy ways that convey an ability to cope, repair damage, and move on.

Typical Symptoms

Typical reactions seen in school-age children following a disaster include depression, anxiety, irritability, fears, dis-

tractibility, decreased school performance, sleep difficulties, somatic complaints, oppositional behavior, regression, and separation anxiety (Conway et al., 1990; Green et al., 1991; Ollendick & Hoffman, 1982; Vogel & Vernberg, 1993). A recent study of 5,687 children ages 9 to 19 exposed to a hurricane in South Carolina showed that younger and female children were more likely than older or male children to report post-traumatic stress symptoms, such as intrusive memories, nightmares, and re-experiencing the event (Shannon, Lonigan, Finch, & Taylor, 1994). Additionally, a high level of trait anxiety and emotional reactivity was the strongest predictor of psychiatric symptomatology in children following the hurricane; a high level of exposure to damage and displacement also was correlated with greater morbidity (Lonigan, Shannon, Taylor, Finch, & Sallee, 1994). Further large-scale epidemiological studies are needed to investigate possible gender, age, cultural, and trauma-related variables that may influence symptom patterns in school-age children.

Case example. John was a 9-year-old boy living with his family in a shelter where I volunteered during a flood. I met him when his mother asked for help finding antihypertensive medication for her elderly father, who had left his pills in their flooded home. After checking his blood pressure and arranging to get medication for him, I talked with her about the family's experience. John's father was a Vietnam veteran with a history of repeated hospitalizations for post-traumatic stress disorder. He was having flashbacks of Vietnam, paranoid thoughts, and difficulty sleeping in the crowded shelter. John's mother was trying to manage the father's and grandfather's symptoms until the family could reach some relatives with whom they planned to move in temporarily.

When I met John, he was quietly playing with a video game that had been donated to the shelter by a local church. As we began to talk, he revealed his fear that the family dog, "Smokey," had been killed. When they left their home, there was no time to find Smokey, and now John was afraid that his dog had drowned like the animals in the shelter he had heard about on television. He tried to convince his parents to look for Smokey, but they did not seem to think it was important.

John recalled that when the flood warnings appeared on television, his parents began arguing, and his mother blamed his father for not purchasing flood insurance. He worried that his father would lose his temper and hit his mother, so he pleaded with them to stop, but was told to go to his room. When the water began to rise, the family evacuated the house while his parents continued to argue and struggle to get his frail grandfather safely out the door. John said the look on his mother's face was the scariest he had ever seen. He pleaded with her to get Smokey, but she told him they didn't have time, and he was afraid they were all going to die from the way she said it.

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Now that they were living in the shelter, they had stopped arguing, but he was worried that his father and grandfather seemed sick. Would his father have to go back into the hospital? Where were they going to live? Would he ever see his room again or had it been completely destroyed like the ones he had seen on TV? Why didn't anyone care about Smokey? He had lots of questions, but he didn't want to bother his mother because she seemed too worried right now.

In summary, John illustrated some of the typical features of school-age children following a disaster. He was

able to process the disaster events cognitively in a logical way, analyze the possible implications for his family, and realize the dangers involved. His reactions to the flood were strongly linked to his concerns about his family. He was closely attuned to his parents' moods and behaviors and judged the seriousness of the disaster by their reactions. The media reports had heightened his concerns, but he was afraid to bother his parents with questions about the flood because he did not want to make them angry or upset. Seeing them argue and seeing his mother so scared had terrified him.

Children often identify with animals as childlike symbols of their own vulnerabilities. During a disaster, they may erroneously assume that if their parents do not seem to take an interest in protecting their pets, they may also be too overwhelmed to care for their children.

Like many school-age children, John withdrew from the family and internalized his feelings about the disaster. If I had not made a point of talking with him, I would never have known he was upset. It would be easy for his parents to overlook his concerns in light of his deliberate attempts to conceal them and their own overwhelming problems. However, John was mourning the loss of his beloved pet, his belongings, his home, and his sense of safety in the world. Like many children, he was focused on the loss of Smokey as both a tangible loss and a symbolic representation of his own feelings of being lost and drowning in his own worries and fears.

In my experience, children often identify with animals as childlike symbols of their own vulnerabilities. During a disaster, they may erroneously assume that if their parents do not seem to take an interest in protecting their pets, they may also be too overwhelmed to care for their children. John misperceived his parents as not caring about the loss of Smokey. When I talked with his mother, she related that she had contacted an animal shelter to see if he was there but was not able to get a clear answer. She planned to go there to look for him, but had not mentioned this to John, not wanting to get his hopes up.

My interventions with John included encouraging him to express his fears and perceptions of the disaster and its impact on his family, facilitating his getting questions answered by his parents, educating his parents about children's responses to disaster, and supporting the family's efforts to locate their dog (which, fortunately, they did on their own a few days later). By taking John's questions and concerns seriously, his mother was able to reassure him that she was coping adequately and she was still there for him. Other interventions with the family included helping the father get in touch with mental health personnel at the VA Medical Center, and working with the nursing staff in the shelter to monitor the grandfather's blood pressure. Slowly, John began to believe that everything would be OK; even if his father had to go back into the hospital, the family would handle it as they had before.

Adolescents' Response to Disaster

Cognitive Processing

Adolescents are in Piaget's stage of formal operations, which is marked by a growing ability to use abstract thinking to examine the complexities of events. They revel in their increasing ability to analyze issues, often retreating to their rooms or listening to intense music as they reflect on the problems and inconsistencies they encounter in life (Kagan, 1984). Partly due to hormonal changes, and also because they are learning to deal with the paradoxes of life that emerge with a deeper consider-

ation of events, adolescents tend to see things in polarities and engage in moral idealism (Deering & Scahill, 1998). Things are either good or bad; people are either for them or against them. When a disaster occurs, adolescents tend to process it according to these extremes. They look for heroes and villains, signs of hope and catastrophe.

During adolescence, the defensive structure that has been forming throughout childhood begins to solidify (Erickson, Feldman, & Steiner, 1997). Teenagers dealing with disasters rely on their more intact defensive system to modulate their intense feelings of anxiety, rage, sadness, and confusion (Conway et al., 1990). They are prone to intellectualize, and they love to engage in debates about issues (Kagan, 1984). For example, adolescents may enjoy arguing about the rules for disaster-related curfews or about ordinances restricting them from returning to their damaged neighborhoods until inspections are completed. They may talk about these issues dispassionately, as if their own feelings and experiences are irrelevant. Their intellectualization often masks significant anger, helplessness, and sadness about their personal losses.

In the author's experience, another common defense mechanism used by adolescents coping with disasters is projection. Because they are going through a period of questioning authority and attempting to separate from their parents, they may blame the adults around them for not adequately planning for or dealing with the disaster. For example, one adolescent in a shelter where I volunteered was consumed with the need to find the person responsible for shutting off the air-conditioning system, despite the shelter management's explanation that it had broken. After I spent some time listening to him vent his rage at the conditions in the shelter, he was able to reveal his own feelings of sadness and helplessness for not being able to save his home and possessions.

Typical Symptoms

Despite the emergence of a more complex set of defense mechanisms, adolescents remain in a state of transition from more childlike methods of coping. Under

the stress of a disaster, they may be prone to impulsive acting out. While this usually takes the form of mildly oppositional behavior, in some cases adolescents may violate disaster curfews, engage in alcohol/drug abuse, participate in looting, or organize protests against perceived inadequacies in the disaster service system. Younger adolescents may regress into previous childhood coping mechanisms and develop symptoms such as bed-wetting, fears, separation anxiety, and tantrums (Shelby & Tredinnick, 1995). Those who do not act out or regress may take on a counterdependent posture with their families, where they pretend not to have needs and reverse the roles to care for their parents (Conway et al., 1990).

Other common reactions to disasters in adolescence include depression, withdrawal, social isolation, somatization, irritability, decreased academic performance, sleep difficulties, and interpersonal conflicts with peers and family (Green et al., 1991; Vogel & Vernberg, 1993). Nurse researchers (Hardin, Carbaugh, Weinrich, Pesut, & Carbaugh, 1992) postulate that adolescents affected by Hurricane Hugo experienced an increased sense of vulnerability following the disaster, and many of them were not able to pinpoint the source of their distress (Grant, Hardin, Pesut, & Hardin, 1997). The combination of experiencing the maturational crisis of adolescence, the situational crisis of the disaster, and an apparent lack of ability to accurately appraise these stressors appeared to increase their risk of coping difficulties following the hurricane (Grant et al.).

Case example. Denise was a 13-year-old girl whom I met on the evening she had been moved into a Red Cross shelter after the church shelter where she had been staying had closed. The announcement of the move was sudden, and took place while Denise's mother was away at work. Although the shelter personnel had called Denise's mother to inform her of the move, Denise was afraid her mother would not be able to find her in the new shelter. As night fell, Denise became increasingly fearful that her mother had drowned in the flood. She sat crying on her cot, as she explained she was all alone. She had only one sibling, a brother who had died 2 years ago. Ever since her brother's death, she feared something would happen to her mother, and now she was sure it had.

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Denise explained the family had lost everything in the flood. As a present for finishing the eighth grade, she had just got a new purple bike that she had ridden only three times. Now it was gone forever, along with all her clothes and stuffed animals. The only things she had were the clothes she was wearing and one doll. She was angry with her mother because she was saving the clothing vouchers she got from the Red Cross to buy her school clothes in the fall. For the rest of the summer, Denise would have only one outfit to wear, and she had no barrettes or rubber bands to fix her hair. As she stroked her doll's hair, she said tearfully, "Don't I look awful?"

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Denise's mother had left her in the shelter to care for her frail 80-year-old grandmother while she was trying to maintain her job. The grandmother had been constipated for 5 days, and Denise had spent the day taking her back and forth to the bathroom. By this point, she was losing patience with her grandmother and feeling hopeless about the situation.

Denise's story illustrates how many young adolescents process and respond to a disaster. Typical of this age group, she was self-conscious about her appearance and saddened to have lost her favorite clothes. She took the extreme view that she was ugly, and she projected

her anger about the flood onto her mother for not immediately replacing her clothes. In a counterdependent manner, she was denying her own wish to be cared for and self-sufficiently handling her grandmother's problems. Despite this apparent maturity, she was still a little girl inside, with her own fears and needs. Currently, she was experiencing separation anxiety, and her behavior was somewhat regressed as she sat frozen in fear, clinging to her doll. Her grief and anxiety about the disaster appeared to be compounded by the previous loss of her brother, which contributed to her heightened sense of vulnerability.

My interventions with Denise included encouraging her to express her fears and sadness, bolstering her self-esteem by pointing out how responsibly she was taking care of her grandmother, giving her a stuffed animal that had been donated to the shelter, finding some rubber bands for her hair, introducing her to the shelter manager so that he could watch her closely when I had to leave at curfew time, and getting a laxative for the grandmother. It was important to remind Denise that no matter how grown up she was trying to be, it was OK to feel afraid and to seek assistance from the shelter staff. I reassured Denise that her mother was not in danger and that she would return soon. Her mother arrived later that evening, and they went to stay with some nearby relatives.

General Guidelines for Intervention

Nurses working with disaster survivors have stressed the need for structured, directive nursing interventions that meet their immediate needs (Weinrich, Hardin, & Johnson, 1990). Maslow's (1970) needs hierarchy is a useful framework for interventions with disaster survivors. There is no point in trying to counsel people who are hungry, ill, or unsafe. Nurses have the advantage of being able to address both the physical and mental healthcare needs of disaster survivors. Helping families with concrete needs for medication, resources, and information goes a long way toward renewing their sense of control and hope. The American Red Cross is renowned

for providing this kind of vital assistance to families affected by disaster (Weaver, 1995), and nurse volunteers have been important contributors to their work.

Other general intervention strategies with children and adolescents include gratifying their basic needs for touch, food, and reassurance; preventing separation from parents and siblings whenever possible; providing transitional objects (e.g., toys, photos, blankets); helping children return to a routine; eliciting their understanding of the disaster and correcting misperceptions; providing accurate information that is not overinclusive and is geared toward their level of understanding; using play or group activities to allow them to work through feelings surrounding the disaster; monitoring television and other media exposure; teaching relaxation techniques and coping skills; and providing anticipatory guidance for parents (Conway et al., 1990; Horowitz, Stinson, & Field, 1991). Group interventions that focus on helping young people understand their experience and learn coping mechanisms also may be helpful, especially for adolescents who rely heavily on peer relationships (Stewart et al., 1992).

Controlled studies comparing treated and untreated children have shown that school-based programs that combine psychoeducational approaches with brief individual and group therapy can significantly reduce symptoms of post-traumatic stress and depression in adolescents following a disaster (Goenjian et al., 1997). If youngsters show persistent signs of hyperarousal (sleep and concentration problems, startle reaction), reexperiencing (intrusive thoughts or dreams about the disaster), and avoidance or detachment (psychic numbing symptoms), they may meet full diagnostic criteria for the diagnosis of post-traumatic stress disorder, which warrants specialized treatment (Yule & Williams, 1990).

A final point illustrated by the case examples is the strong role that parents and other significant adults play in determining a child's response to disaster. Research shows that the quality of the postdisaster family environment is a strong predictor of children's recovery (Green et al., 1991; LaGreca et al., 1996). Children are uniquely

dependent on the adults around them for their sense of safety. Any intervention with children must include attention to the level of emotional support that the adults in their environment can provide.

Myers (1994), an expert in disaster nursing, describes three beginning phases of an adult's response to disaster: (1) the honeymoon phase, when shock and denial shield survivors from intense emotion and the focus is on heroism and gratitude for survival; (2) the inventory phase, when they seek out the facts of the disaster and try to understand what happened; and (3) disillusionment, when anger and frustration emerge and they cannot see the meaning in their experience. Although parents and other adults may rise to the occasion when a disaster first occurs, they may become depressed or angry later when the reality of their losses sinks in. As they work through their grief, adults may find meaning in the disaster and share these insights with children (Coffman, 1996). Noting which adults are most able to support children during the inevitable ebb and flow of their own grief is one key to intervention. In addition, teaching families to anticipate the typical phases of responding to a disaster may help normalize their experiences, so they do not feel alone.

Conclusion

The cases described in this article highlight the need to design interventions that are sensitive to the child or adolescent's cognitive processing of disaster events, specific to their developmental level, and responsive to the physical and emotional needs of the family as a whole. Children process disaster events in unique ways that may not be obvious to adults. Understanding the disaster from the child's perspective is the key to effective intervention.

References

- Anthony, E.J. (1991). The response to overwhelming stress in children: Some introductory comments. In A. Monat & R.S. Lazarus (Eds.), *Stress and coping: An anthology* (pp. 307-318). New York: Columbia University Press.

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- Burke, J.B., Borus, J.F., Burns, B.J., Millstein, K.H., & Beasley, M.C. (1982). Changes in children's behavior after a natural disaster. *American Journal of Psychiatry*, 139, 1010-1014.
- Coffman, S. (1996). Parents' struggle to rebuild family life after Hurricane Andrew. *Issues in Mental Health Nursing*, 17, 353-367.
- Conway, A., Bernardo, L.M., & Tontala, K. (1990). The effects of disasters on children: Implications for emergency nurses. *Journal of Emergency Nursing*, 16, 393-397.
- Deering, C.G., & Scahill, L. (1998). Mental health promotion with children and adolescents. In M.A. Boyd & M.A. Nihart (Eds.), *Psychiatric nursing: Contemporary practice* (pp. 838-869). Philadelphia: Lippincott.
- Durkin, M.S., Khan, N., Davidson, L.L., Zaman, S.S., & Stein, Z.A. (1993). The effects of a natural disaster on child behavior: Evidence for posttraumatic stress disorder. *American Journal of Public Health*, 11, 1549-1553.
- Erickson, S., Feldman, S.S., & Steiner, H. (1997). Defense reactions and coping strategies in normal adolescents. *Child Psychiatry and Human Development*, 28, 45-56.
- Flavell, J.H. (1992). Cognitive development: Past, present, and future. *Developmental Psychology*, 28, 998-1005.
- Goenjian, A.K., Karayan, I., Pynoos, R.S., Minassian, D., Najarian, L.M., Steinberg, A.M., & Fairbanks, L.A. (1997). Outcome of psychotherapy among early adolescents after trauma. *American Journal of Psychiatry*, 154, 536-542.
- Grant, S.M., Hardin, S.B., Pesut, D.J., & Hardin, T. (1997). Psychological evaluations, referrals, and follow-up of adolescents after their exposure to Hurricane Hugo. *Journal of Child and Adolescent Psychiatric Nursing*, 10(1), 7-16.
- Green, B.L., Korol, M., Grace, M.C., Vary, M.G., Leonard, A.C., Gleser, G.C., & Smitson-Cohen, S. (1991). Children and disaster: Age, gender, and parental effects on PTSD symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry*, 30, 945-951.
- Green, B.L., & Lindy, J.D. (1994). Post-traumatic stress disorder in victims of disasters. *Psychiatric Clinics of North America*, 17, 301-309.
- Hardin, S.B., Carbaugh, L., Weinrich, S., Pesut, D., & Carbaugh, C. (1992). Stressors and coping in adolescents exposed to Hurricane Hugo. *Issues in Mental Health Nursing*, 13, 191-206.
- Horowitz, M.J., Stinson, C., & Field, N. (1991). Natural disasters and stress response syndromes. *Psychiatric Annals*, 21, 556-562.
- Kagan, J. (1984). *The nature of the child*. New York: Basic Books.
- LaGreca, A.M., Vernberg, E.M., Silverman, W.K., & Prinstein, M.J. (1996). Symptoms of posttraumatic stress in children after Hurricane Andrew: A prospective study. *Journal of Consulting and Clinical Psychology*, 64, 712-723.
- Lonigan, C.J., Shannon, M.P., Taylor, C.M., Finch, A.J., & Sallee, F.R. (1994). Children exposed to disaster: II. Risk Factors for the development of post-traumatic symptomatology. *Journal of the American Academy of Child and Adolescent Psychiatry*, 33, 94-105.
- Maslow, A.H. (1970). *Motivation and personality* (2nd ed.). New York: Harper & Row.
- McFarlane, A.C. (1987). Posttraumatic phenomena in a longitudinal study of children following a natural disaster. *Journal of the American Academy of Child and Adolescent Psychiatry*, 26, 764-769.
- Myers, D. (1994). Psychological recovery from disaster: Key concepts for delivery of mental health services. *National Center for Post-Traumatic Stress Disorder Clinical Quarterly*, 4, 1-5.
- Newman, C.J. (1977). Children of disaster: Clinical observations at Buffalo Creek. *Annual Progress in Child Psychiatry and Child Development*, 10, 149-161.
- Ollendick, D.G., & Hoffman, S.M. (1982). Assessment of psychological reactions in disaster victims. *Journal of Community Psychology*, 10, 157-167.
- Piaget, J. (1960). *The child's conception of the world*. Totowa, NJ: Littlefield.
- Pynoos, R.S., Goenjian, A.K., Tashjian, M., Karakashian, M., Manjikian, R., Manoukian, G., Steinberg, A.M., & Fairbanks, L.A. (1993). Post-traumatic stress reactions in children after the 1988 Armenian earthquake. *British Journal of Psychiatry*, 163, 239-247.
- Shannon, M.P., Lonigan, C.J., Finch, A.J., & Taylor, C.M. (1994). Children exposed to disaster: I. Epidemiology of post-traumatic symptoms and symptom profiles. *Journal of the American Academy of Child and Adolescent Psychiatry*, 33, 80-93.
- Shelby, J.S., & Tredinnick, M.G. (1995). Crisis intervention with survivors of natural disaster: Lessons from Hurricane Andrew. *Journal of Counseling and Development*, 73, 491-497.
- Stewart, J.B., Hardin, S.B., Weinrich, S., McGeorge, S., Lopez, J., & Pesut, D. (1992). Group protocol to mitigate disaster stress and enhance social support in adolescents exposed to Hurricane Hugo. *Issues in Mental Health Nursing*, 13, 105-120.
- Swenson, C.C., Saylor, C.F., Powell, M.P., Stokes, S.J., Foster, K.Y., & Belter, R.W. (1996). Impact of a natural disaster on preschool children: Adjustment 14 months after a hurricane. *American Journal of Orthopsychiatry*, 66, 122-130.
- Vernberg, E.M., & Vogel, J.M. (1993). Task force report: Part 2—Intervention with children after disasters. *Journal of Clinical Child Psychology*, 22, 485-498. (!AU: is there an overall unifying title for this two-parter? !)
- Vogel, J.M., & Vernberg, E.M. (1993). Task force report: Part 1—Children's psychological responses to disasters. *Journal of Clinical Child Psychology*, 22, 464-484.
- Weaver, J.D. (1995). *Disasters: Mental health intervention*. Sarasota, FL: Professional Resource Press.
- Weinrich, S., Hardin, S., & Johnson, M. (1990). Nurses respond to Hurricane Hugo victims' disaster stress. *Archives of Psychiatric Nursing*, 4, 195-205.
- Yule, W., & Williams, R.M. (1990). Post-traumatic stress reactions in children. *Journal of Traumatic Stress*, 3, 279-295.

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