

Hurricane Hugo Blows Down the Broccoli: Preschoolers' Post-Disaster Play and Adjustment

Conway F. Saylor, PhD

Cynthia Cupit Swenson, Ph.D.

Medical University of South Carolina

Paige Powell, Ph.D.

Texas A & M University

ABSTRACT: This article reports highlights from over 200 parents' observations of their preschoolers' play and verbalizations in the year following Hurricane Hugo. Commonly reported activities included reenactment and discussion of the event in multiple mediums, personification of "Hugo", and expression of fears related to storms. Precocious concern for others, insight, and vocabulary were also noted. In these intact, relatively high functioning families, parents seemed able to facilitate their youngsters' adjustment without outside intervention.

KEY WORDS: Hurricane; preschool; post-traumatic play; Post-Traumatic Stress Disorder.

Throughout the literature, there have been many descriptions of the reactions of children to traumatic events. One common theme that runs through the literature is repetition, the repetitive play and verbalization that enables a child to reenact or reexperience the trauma. The reenactment of the trauma in play has been observed in children who have experienced natural disasters such as those who experienced the Aberfan mine collapse and landslide (1), an earthquake in Italy (2), a tornado in Mississippi (3), and an Australian bushfire (4). In addition, repetitive play with trauma themes were

Received June 5, 1991; For Revision June 15, 1991; Accepted July 16, 1991.

The authors gratefully acknowledge the parents and staff of the Linda O'Quinn schools, as well as our colleagues who assisted in data collection, analysis, and clerical tasks—Kim Foster, Maureen Sullivan, Kim Shimoda, Al Finch, Ron Belter, and Nancy Miller.

Portions of this report were presented in earlier form at the 1991 Society for Research in Child Development meeting in Seattle, Washington.

Reprint requests should be sent to Conway F. Saylor, Ph.D., The Citadel, Department of Psychology, Charleston, SC 29409.

reported in children who had experienced a "man-made" disaster. Terr (5,6) reported that the children involved in the Chowchilla kidnapping would reenact their kidnapping in play. Similarly, children who have experienced traumas often tell and retell stories associated with the traumatic event (2,5,6).

Many authors (5,7,8) have suggested that the repetitive play and discussion that centers on the traumatic event may be an attempt by the child to discharge emotions associated with the event and to master the feelings of helplessness that the child experienced and witnessed in significant others during the trauma. By reenacting the event, children seem to regain a feeling of control over their environment. The literature on coping suggests that this observation is accurate. Suls and Fletcher (9) report that coping strategies that confront rather than avoid the event are more effective for effectively dealing with the trauma. Repetitive play and discussion of the event may be seen as a non-avoidant coping mechanism.

For the most part, the literature on children and traumatic events has focussed on latency aged and older children. Few studies have focussed on the reactions of pre-schoolers. One of the goals of this study was to examine the reactions of pre-schoolers to a natural disaster and to see whether their patterns of adjustment match those of older children.

The present study examined parents' and preschoolers' reactions following Hurricane Hugo, a Class IV hurricane which struck the South Carolina coast on September 21, 1989. The eye of the hurricane centered on the City of Charleston and surrounding barrier islands, bringing with it winds of up to 175 mph and a tidal surge of 12 to 23 feet. Thirty-five people died as a result of the storm, and the property damage was estimated at 5.9 billion dollars. Although many residents of barrier islands and low-lying areas were evacuated to "safe" locations outside Charleston County, many of these areas unexpectedly received significant effects of the hurricane. The destruction was widespread, with an estimated 30,000 people out of their homes, at least temporarily. Recovery from the storm was slow and the stress of living in the aftermath of the storm was significant for all residents of the Charleston area.

A series of studies conducted by professionals at MUSC, most of whom were themselves victims of the storm, sought to document the impact of this widespread disaster on children and families. The studies of these investigators focused specifically on the preschool age group (2-6) as this was an understudied population which, based on

what we know of normal child development, could be expected to be particularly stressed by such an event. Initial examination of data collected eight weeks, six months, and 14 months after the storm has been reported in depth elsewhere, (10) and will be only briefly described below. The rich observations and anecdotal data contributed spontaneously by parents at eight weeks and explicitly solicited at 14 month follow-up are featured here, as they make a unique contribution to our insight into young children's adaptive and maladaptive reaction to a major disaster.

Method

Approximately six weeks following the hurricane, questionnaire packets were sent to parents of 632 children enrolled in three preschools in Charleston County. The preschools represented populations in three different parts of town—the east, where island and low-lying residential areas were severely hit, the west, where tree damage caused varied impact from minimal to total devastation of homes, and downtown, at a preschool for families of downtown hospital employees, many of whom worked through the storm. Two hundred thirty-eight families completed the questionnaires, providing information about 278 children (200 families with 1 child in preschool, 36 families with 2 children in preschool, and 2 families with 3 children in preschool). This represents a return rate of 41.8%. Descriptive information about the sample is presented in Table 1. As described elsewhere (10), nearly all of the respondents had experienced some phase of Hugo's destruction and disruptive aftermath to varying degrees. Thus the entire sample was studied.

A year later follow-up questionnaires were distributed in the two largest of these three schools with comparable return rates. The ideas and findings below were drawn both from unsolicited comments under "other behaviors" on the initial questionnaire, and from the follow-up form where parents were asked to write observations of conversation and play relating to the hurricane and any new or unusual fears or behaviors that seemed hurricane related.

Results and Discussion

On a child behavior checklist completed eight weeks after the storm, parents endorsed the frequency of 50 child behaviors before and after the hurricane. An additional item asked parents to list and rate other behaviors not mentioned. Table 2 summarizes the most commonly reported problem behaviors. Sixty seven percent of the sample added behaviors under "other", with most being new or unusual fears since the hurricane. These ranged from relatively mild fears of storms, night-time, and separation from parents to extremely

Table 1
Descriptive Characteristics of Sample—With Average (and range)

	<i>Responding Parents</i>	<i>Spouses</i>
Age	34.5 years (24 to 49 years)	36.6 years (24 to 64 years)
Race	96.2% White 2.1% Black 1.3% Hispanic 0.4% Other	97.7% White 1.4% Black 0.5% Hispanic 0.5% Other
Years Education	15.61 years (10 to 17+ years)	15.85 years (10 to 17+ years)
Marital Status	85.3% Married 10.5% Divorced 2.5% Single 1.7% Separated	

disruptive fears such as fear of any water (even the tub or shower), total refusal to leave the parent, and preoccupation with death and loss.

Many of the behaviors reported on the checklist and added spontaneously seemed to us to be downward extensions of the behaviors noted in older children after a trauma, and milder presentations of symptoms present in Post Traumatic Stress Disorder (PTSD). At the

Table 2
Problem Behaviors Endorsed by 50% or More of Parents Following the Hurricane

<i>Item</i>	<i>% Scoring 1</i>	<i>% Scoring 2</i>
Clings to adults or too dependent	34.6	16.3
Demands must be met immediately	41.9	24.2
*Easily frustrated	41.3	15.2
Doesn't want to sleep alone	31.2	24.3
*Resists going to bed at night	41.3	24.6
Subborn, sullen, or irritable	40.1	11.1
Temper tantrums or hot temper	41.4	10.3
Whining	43.9	18.9

*Endorsed by 50% prior to the hurricane.

same time, play and conversation noted by parents seemed to be the preschool version of the repeated replaying of trauma that is associated both with trauma's impact on children and, in controlled therapeutic settings, with the reduction of trauma's negative impact. One graphic example was featured in the title of this article. Eight weeks after the storm a mother reported her four year old's repeated replay of Hugo with every medium available, including the broccoli spears at dinner, which represented the trees being ravaged again and again.

A year later 37% of the responding parents reported at a general level that the business of Hugo was still not behind them. One mother wrote:

My 3 year old still calls out at night in her sleep such things as "no, Hurricane Hugo", or "Go away, Hurricane Hugo". Also on very windy days both my daughter and my 7 year old son show concern that another hurricane is coming, and my daughter says "Hurricane Hugo is back." (3 y.o. female)

On both surveys, patterns emerged in the responses of these relatively high functioning, well-supported preschoolers. These patterns are briefly identified below, with sample quotes from the 14 month surveys. So little is known and understood about the reaction of normally developing preschoolers to trauma, that these anecdotes were seen as valuable contributions to our insight into the qualitative, not just the quantitative, aspects of traumatized preschoolers' activities.

First, as one might predict given their early stages of communication development, drawing was a commonly reported means of sharing thoughts and feelings:

She still draws Hugo—he's always black and big. (4 y.o. male)

My child drew a picture of what was left of our house. It was a blank paper with the brick slab left. (4 y.o. male)

Although non-verbal activities were noted, particularly in the younger ages, many of these preschoolers also seemed to use conversation directly—to share feelings, to try to sort the events out cognitively, to seek reassurance from external sources, and even to provide comfort to themselves:

Whenever we have a real windy storm or even a blustering day, he might say, "this is a very windy day but not like Hugo—nothing is as

windy as Hugo. We would always say, "Yes, Hugo was very exceptional. Even most hurricanes are not as strong as Hugo was." He seemed to be looking for reassurance that it was unlikely that Hugo would happen again. (2 ½ y.o. male)

Last week (November 3, 1990), she laid down 4 small wooden houses that I keep on the coffee table and told me that that was what Hurricane Hugo did. I was amazed! After 14 months, she still remembers, I never called the storm by name; I hate saying it; I call it the bad storm, so I was really surprised she knew it by name. (2 ½ y.o. female)

Both of my children often remark on the weather in terms of similarity to "Hugo". "Those look like Hugo clouds." "The water is flooding like Hugo." "This is wind like Hugo." In addition they pay close attention to weather reports and are fearful of *all* storms or storm warnings. (5 y.o. male-subject; 7 y.o. female-sibling)

My child was sound asleep during the worst part of the storm, in fact for the whole night. We spent the time 75 miles away from Charleston thinking we would miss most of the bad winds. In the night while all the adults were awake, the wind blew a tree down on the roof of the house—right over the room where she would have been sleeping under normal circumstances—directly over her bed. Although she was not sleeping in that room nor was she even awake during the incident, she tells the story that she woke up in time to run back to her room and watch the tree fall on the house and then she ran back to the mattress where she slept the rest of the night. She acts as if she believes that is the way it actually happened. (3 y.o. female)

A very common pattern for these youngsters was to personify Hugo in play and conversation. While this process probably provided a concrete means of understanding the phenomenon, it also seemed to provide a vehicle for facing the feared entity, and safely filing it away:

She never understood who or what Hugo was. No matter what we said, Hugo was a real person—a very bad (person) who destroyed everything and then died. (2 ½ y.o. female)

She talked frequently about Hurricane Hugo, not really meaning to come here—as if he "couldn't help himself". She asked me (in the same conversation) if he was *bad*. I said yes. She became upset and implored me not to say he was bad. I asked if she was afraid he would come back if we said mean things about him. She said "yes". She often said he did not really mean to come to Charleston. We had this conversation *frequently*. I spent a lot of time explaining that "he" was not alive but was just a storm with a lot of wind. (3 y.o. female)

She put “Hugo” in “time out” many times for blowing her house away . . . she equated Hugo with the “big bad wolf” from *The Three Little Pigs* who huffed and puffed and blew her house down——and was quite traumatized that the wolf was at the window at night. (3 y.o. female)

Perhaps one of the most gratifying findings in our studies, with this age group, and those of our colleagues with older age groups, was that children seemed to use these kinds of activities to adaptively work out their fears and questions, presumably with minimal intervention from anyone other than family members. Our conclusion across studies has been that very little true PTSD, diagnosable at severe clinical levels, was observed in the thousands of children studied after Hugo. (10,11,12) Although anywhere from 50% (by parent report) to 90% (by child report) of the older children studied reported PTSD-like symptoms, massive follow-up is showing little hurricane related PTSD on the magnitude of that seen in victims of more serious life threatening disasters such as shootings or victims of child abuse. (12) Perhaps one reason for the relatively healthy picture is the spontaneous use of the very techniques we use in clinical work with traumatized children. Take these examples:

Our children used to (still do at times) play what they call “Hurricane.” They pretend the hurricane is coming—they go to their grandparents (there is no electricity, the juice is hot, etc.—and they have conversations about all of this). Now they have a new version where they are doing repairs—one is the workman, one is the homeowner who cannot live in the house and moves away while the work is being done. In “Hurricane” they also verbalize the noises, trees falling, wind, rain, etc. The children were in Charlotte when the storm hit. (2 y.o. male-subject; 3 y.o. female-sibling)

July ‘90—Two friends of my child (age 3 and 4) began playing “Hurricane” while at our house. This consisted of getting up top to loose objects on my porch and taking them into my daughter’s playhouse and putting sheets at the windows of the playhouse. My child withdrew from the play and crawled into my lap and said, “this kind of scares me.” She subsequently played “Hurricane” as described above on many occasions until she seemed to feel safe with the idea. (2 y.o. female)

In the spring I watched my 3 children act out living through Hugo. After their play was over I noticed a calmer feeling as if they had let go of something. (2 ½ y.o. male-subject; 8 y.o. female and 11 y.o. male-siblings)

Besides the use of play, drawings, and conversation to adjust to this trauma in relatively adaptive fashion, other trends in young children's behavior were noted and are potentially of interest to those interested in this developmental period. Particularly in the three- and four- year olds, a tendency to overgeneralize about the storm was reported:

Christopher seems to be concerned that all trees are going to fall down for no reason. I'm not sure he saw the connection that a storm caused the damage. He is still interested in standing trees and points out that they are tall and have limbs and leaves. (2 y.o. male)

For the past year, when my child has misplaced something, he will blame it on the storm—he lost many of his toys in the storm. He refused to watch Hugo stories on T.V. "Rescue 911" is one of his favorites but he absolutely refused to look at them. Like all of us, he fears a thunder storm and high winds, especially at night time. He still recalls exactly where we were positioned in my mother's home 40 miles inland during the storm, i.e. laying together on the floor and hearing roof shingles blow away. (3 y.o. male)

In keeping with beliefs about children being self-centered in these earlier years, it was also interesting to note how personal, and specific to day-to-day needs and interests, children's concerns about the storm could be:

She was upset with the hurricane causing the T.V. not to work and then later when cable wasn't repaired and her Disney and Nickelodeon channels weren't available for 3 months. (4 y.o. female)

We used to have a little red car before Hugo. Unfortunately, a pine tree smashed it completely. It was my child's favorite color and his favorite to ride in. Every time we see a red car on the road we have to hear the story about how Hugo smashed our car. Unfortunately, our replacement car was not red. (2 y.o. male)

It is important to note that relatively positive changes were also observed in these young children as part of their hurricane experience. While the relatively self-centered concerns above were noted, far more parents reported that their children had developed a precocious interest in others. They would reportedly express concern about their peers, known and unknown, who might not have their houses or toys. Children were encouraged in this by a community-wide trend in the adults to cut across usual boundaries and lend aid where it was

needed. Young children developed precocious insight into basic human needs—food, clothing, shelter, fuel, security—as well as some insight into how they are provided:

We often discuss the positive aspects of the hurricane—like it made more firewood for everyone. (4 y.o. male)

Before Christmas a first grade class was making gingerbread houses in school. One child was decorating his house by putting little cookie bears on the roof. When asked why, he said that they were the roofers! (5 y.o. male)

Perhaps one of the more humorous developments was a rapid expansion of youngsters vocabularies to include such words and concepts such as contractor, insurance adjuster, and generator.

I thought it was interesting to hear all of the new vocabulary that my child picked up. Words such as shingles, slate, storm surge, etc. had not previously found a way into his vocabulary until the aftermath of Hugo. (4 ½ y.o. male)

Indeed, some parents even reported suddenly expanded utterance length as well as vocabulary:

My two and a half year old had barely used 2 - 3 word sentences until the weeks we spent at Grandma's with no electricity. One night she sat bolt upright in her sleep and shouted, "No, that's MY flashlight, give it to me!" (2 ½ y.o. female)

Finally, in their usual role of being good models for us all, these young survivors managed to see humor and opportunity in scenes that made adults' blood run cold. One parent reported her apprehension the morning after the storm as she showed her four year old the uprooted and fallen trees in the yard. After a brief sober pause, the youngster went after his GI Joe soldiers and spent the better part of the day setting up forts and games in the exciting new "play yard" of roots and logs. Children laughed aloud at scenes like steps to nowhere, houses dropped in the middle of the road (reminiscent of "Wizard of Oz"), and boats hanging up in trees. For all their difficulty, presented in other studies, these preschoolers as a group managed to assimilate this along with other life adventures, at least in cases where severe disruption to family and destruction of home was not part of the picture.

The children of Charleston appear to have much in common with the children of Aberfan, Buffalo Creek, Lombardy and Chowchilla. This study has shown that preschool children who experience a natural disaster engage in repetitive play and discussion about their trauma in much the same way as the older children reported in the literature (2,5,6,7,8). In addition, a second phenomena was noted. The pre-schoolers in this study also appeared to develop a precocious concern for others and their experience of the trauma. This finding is similar to that of Newman (7) who found that the children who experienced the Buffalo Creek flood developed an awareness of how fragile life is. Thus it appears that pre-school children respond to traumatic events in similar ways as the older children.

Summary

Eight weeks and fourteen months after a major hurricane, parents of preschoolers were surveyed about their observations of the children's behavior. The 238 parents who responded initially wrote about play and coping activities that resembled behaviors described in older children after a trauma. Retrospective observations solicited a year later revealed several patterns to the youngsters' responding including re-enactment of the event, drawings and conversations about the hurricane, personification of "HUGO", over-generalization, and expression of new fears. Positive changes including precocious concern for others, as well as expanded insight and vocabulary. These qualitative observations suggest that young children are affected in negative ways by a major disaster such as Hurricane Hugo. However, the high-functioning, well supported youngsters in the largely intact families studied here show developmentally appropriate attempts to cope with their distress. When this effort is supported by insightful parents it appears that many young children can be assisted to process their experience in healthy fashion, and even, in some cases, to profit from it. Certainly further study of this age group in different types of disasters and trauma is warranted before any major conclusions about the impact of stress and trauma can be made.

References

1. Lacey GN: Observations on Aberfan. *J of Psychosom Res*, 16:257-260, 1972.
2. Galante R, Foa D: An epidemiological study of psychic trauma and treatment effec-

- tiveness in children after a natural disaster. *J Am Acad of Child Psychiat*, 25:357-363, 1986.
3. Bloch DA, Silber E, Perry SE: Some factors in the emotional reactions of children to disaster. *Am J Psychiat*, 133:416-422, 1956,
 4. McFarlane AC: Posttraumatic phenomena in a longitudinal study of children following a natural disaster. *J Amer Acad Child and Adol Psychiat*, 26:764-769, 1987.
 5. Terr LC: The children of Chowchilla. *Psychoan Study Child*, 34:547-623, 1979.
 6. Terr LC: "Forbidden Games": Post-traumatic child's play. *J Am Acad of Child Psychiat*, 20:741-760, 1981.
 7. Newman CJ: Children of disaster: Clinical observation at Buffalo Creek. *Am J of Psychiat*, 133:306-312, 1976.
 8. Sugar M: Children in a disaster: An overview. *Child Psychiat and Hum Develop*, 19:163-179, 1989.
 9. Suls J, Fletcher B: The relative efficacy of avoidant and non-avoidant coping strategies: A meta-analysis. *Health Psych*, 4:249-288, 1985.
 10. Sullivan MA, Saylor CF, Foster KY: Post-hurricane adjustment of preschoolers and their families. *Advances in Behav Res and Ther*, in press.
 11. Belter RW, Dunn SE, Jeney P: The psychological impact of Hurricane Hugo on children: A needs assessment. *Adv in Behav Res and Ther*, in press.
 12. Lonigan CJ, Shannon MP, Finch AJ, Daugherty TK, Taylor CM: Children's Reactions to a Natural Disaster: Symptom severity and degree of exposure. *Adv in Behav Res and Ther* in press.