

Serious Emotional Disturbance Among Youths Exposed to Hurricane Katrina 2 Years Postdisaster

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ABSTRACT

Objective: To estimate the prevalence of serious emotional disturbance (SED) among children and adolescents exposed to Hurricane Katrina along with the associations of SED with hurricane-related stressors, sociodemographics, and family factors 18 to 27 months after the hurricane. **Method:** A probability sample of prehurricane residents of areas affected by Hurricane Katrina was administered a telephone survey. Respondents provided information on up to two of their children ($n = 797$) aged 4 to 17 years. The survey assessed hurricane-related stressors and lifetime history of psychopathology in respondents, screened for 12-month SED in respondents' children using the Strengths and Difficulties Questionnaire, and determined whether children's emotional and behavioral problems were attributable to Hurricane Katrina. **Results:** The estimated prevalence of SED was 14.9%, and 9.3% of the youths were estimated to have SED that is directly attributable to Hurricane Katrina. Stress exposure was associated strongly with SED, and 20.3% of the youths with high stress exposure had hurricane-attributable SED. Death of a loved one had the strongest association with SED among prehurricane residents of New Orleans, whereas exposure to physical adversity had the strongest association in the remainder of the sample. Among children with stress exposure, parental psychopathology and poverty were associated with SED. **Conclusions:** The prevalence of SED among youths exposed to Hurricane Katrina remains high 18 to 27 months after the storm, suggesting a substantial need for mental health treatment resources in the hurricane-affected areas. The youths who were exposed to hurricane-related stressors, have a family history of psychopathology, and have lower family incomes are at greatest risk for long-term psychiatric impairment. *J. Am. Acad. Child Adolesc. Psychiatry*, 2009; 48(11):1069–1078. **Key Words:** Hurricane Katrina, SED, natural disaster, child mental health.

Hurricane Katrina was the most devastating natural disaster in the United States in the past half century.

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The effects of the hurricane on New Orleans and affected Gulf Coast areas were unprecedented. The hurricane killed more than 1,000 people, displaced more than 500,000, and cost more than \$100 billion.¹ Individuals in hurricane-affected areas were exposed to a wide range of stressors including serious risk of death, property loss, difficulty obtaining food and clothing, and exposure to violence after the storm.² Elevated stress exposure persisted for many individuals because of forced relocation, difficulty obtaining housing, and prolonged community disruption.

In the first 3 to 6 months after a hurricane, more than 50% of children exposed to the disaster exhibit symptoms of posttraumatic stress disorder (PTSD), disruptive behaviors, or other manifestations of psychological distress.^{3–5} The prevalence of psychiatric disorders is lower but still elevated. After Hurricanes Andrew and Hugo, the prevalence of PTSD among the youths living

in hurricane areas, and who therefore experienced some exposure to hurricane-related stressors, was estimated at 3% to 9%.^{6,7} Previous research has identified exposure to disaster-related stressors as an important predictor of psychiatric symptoms among youths after natural disasters.^{5,8,9} Given the scope of Hurricane Katrina and the magnitude of stress exposure, one would expect the prevalence of mental health problems among the youths in affected areas to be high. Indeed, in a survey conducted 6 months after the hurricane, approximately 50% of parents in hurricane-affected areas reported emotional or behavioral problems in their children that were not present before the disaster.¹⁰

For many children, symptom elevations after natural disasters are relatively short lived, with substantial decreases occurring during the first year postdisaster.⁴ Nearly 30% of children exposed to Hurricane Andrew reported severe symptoms of PTSD, defined as 10 or more symptoms, 3 months after the storm.⁹ At 7 months posthurricane the prevalence of such symptoms had dropped to 18%, and at 10 months posthurricane, 13% of the children still reported severe symptoms.⁹ Identification of factors that distinguish children who experience chronic symptoms from those whose distress is more transient represents an important goal, given its implications for targeting postdisaster interventions. Previous research after other natural disasters has identified female sex, younger age, nonwhite race/ethnicity, parent psychopathology, and degree of stress exposure as predictors of long-term symptom elevation in youths.^{7,9,11–13}

To date, there have been few published reports examining the long-term effects of Hurricane Katrina on child mental health. Elevations in PTSD symptoms and aggressive behavior in the year after the storm have been reported,^{14,15} but epidemiological data regarding the prevalence and severity of psychiatric symptoms among children at longer intervals posthurricane are lacking. The extent to which risk factors identified in previous disasters are associated with long-term symptoms also remains to be determined.

We use data from the Hurricane Katrina Community Advisory Group (CAG), a representative sample of pre-hurricane residents of the areas in Louisiana, Mississippi, and Alabama designated by the Federal Emergency Management Administration as the official disaster area, who participated in a series of surveys to provide estimates of serious emotional disturbance (SED) among

children exposed to Hurricane Katrina 18 to 27 months after the storm. *Serious emotional disturbance* is a term that refers to children and adolescents who have a diagnosable mental disorder that results in significant impairment or decreased role functioning in family, school, or community activities.¹⁶ We were interested in examining the prevalence of youth mental health problems sufficiently severe to warrant public health attention because of the large magnitude of the likely problem and the lack of treatment resources in the hurricane area. We examine the distribution of exposure to a wide range of hurricane-related stressors and evaluate whether such exposure is associated with SED. Sociodemographic and family factors also are examined as predictors of SED.

METHOD

Sample

We recruited English-speaking adults (≥ 18 years of age) for the baseline survey either by random-digit-dial telephone calls of households in the Federal Emergency Management Administration–defined disaster area or by a random selection of families applying for assistance from the American Red Cross's database. The baseline CAG was performed in three waves. The first wave was collected between January and March 2006, 5 to 7 months after the hurricane. Approximately 1,043 respondents completed the interview, representing an estimated 41.9% of the eligible households screened. The second wave was performed 7 to 10 months after the hurricane (between April and June 2006). Approximately 724 subjects completed the interview, representing an estimated 33.1% of eligible households screened. The third wave of data collection occurred between December 2006 and April 2007 (15–19 months posthurricane), and the 1,322 completed interviews represented an estimated 32.3% of the eligible households screened. The three waves together resulted in 3,089 completed baseline CAG interviews with an estimated response rate of 35.2%. This low cooperation rate is due in part to our requirement that respondents make a long-term commitment to involvement in the CAG to participate in the baseline survey, as the goal of the CAG was to track the progress of recovery over time.

A nonresponse survey found that individuals who did not participate in the baseline CAG were similar to participants on sociodemographic variables but had a somewhat higher level of hurricane-related stress exposure (assessed by asking respondents to rate their hurricane-related stress exposure on a scale of 0–10 where 0 meant “no stress at all” and 10 meant “the most stress you can imagine a person having”) and more psychological distress (assessed with a short series of questions about frequency of common anxiety-mood symptoms, scored on a scale of 0–10). The median and interquartile range of hurricane-related stress exposure were 8.0 (6.0–10.0) among nonrespondents and 7.0 (5.0–9.0) among the first wave of baseline CAG members, and those of psychological distress were 2.9 (1.2–4.4) among nonrespondents and 1.7 (0.6–3.5) among CAG members. A weight was applied to the baseline CAG data to adjust for these response biases. A

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