

# Psychological Impact of Disaster on Children

## Selected Resources on Diagnosis and Treatment for the Children of Katrina

*prepared by*

David N. King, Ph.D., M.S.L.S.  
Director, Research Library  
National Children's Advocacy Center

September 2005

**Part One** of this document is an annotated bibliography. The bibliography compiles a collection of English language resources pertaining to psychological trauma experienced by children as a result of natural disaster. Most of these publications deal with the psychological impact on children as victims, short- and long-term, and strategies for treatment.

This bibliography does not include publications addressing physical injury or the practicalities of disaster relief. The primary emphasis of the bibliography is on victims of hurricanes, especially children, although a selection of more general publications on traumatic stress and working with families are included.

This bibliography is organized alphabetically by last name of the primary author, not chronologically.

**Part Two** of this document is a guide to selected Internet resources and Web sites. This list is of an ephemeral nature, since new sites appear frequently and established sites are reorganized or updated with more current resources.

This resource guide along with copies of especially appropriate guides and publications have been made available to the many Children's Advocacy Centers throughout the southeast that are providing services to victims and refugees. Please consult the web site of the Southern Regional Children's Advocacy Center for timely information regarding the status of Children's Advocacy Centers affected by hurricane Katrina. The Southern Regional Children's Advocacy Center web site is located at

<http://www.nationalcac.org/professionals/srcac/index.html>

## Part One: Selected Annotated Bibliography

Aptekar, L. and J. A. Boore (1990). "The emotional effects of disaster on children: A review of the literature." *International Journal of Mental Health* 19(2): 77-90.

Examines the issues surrounding the mental health of children who are disaster victims. The review focuses on findings and problems associated with the nature and extent of the disaster trauma; influence of family and community; resilience or vulnerability of the child; and symptoms, their onset and duration. Predisaster level of functioning, cross-cultural differences, therapeutic approaches, and methodological considerations are discussed.

Bahrnick, L. E., J. F. Parker, et al. (1998). "The effects of stress on young children's memory for a natural disaster." *Journal of Experimental Psychology: Applied* 4(4): 308-331.

The effects of stress on children's long-term memory for a major hurricane were studied. Stress was objectively defined as low, moderate, or high according to the severity of damage to the child's home. One hundred 34 and 4-year-old children received a structured interview 2-6 months following the hurricane. Older children recalled and elaborated more than younger children. Prompted recall was greater than spontaneous recall. There was a quadratic function, consistent with an inverted U-shaped curve, relating storm severity with overall as well as spontaneous recall. These findings can be applied to the effects of stress on the amount recalled by children giving retrospective accounts of temporally extended, naturalistic events.

Ball, J. and K. Allen (2000). "Consensus recommendations for responding to children's emergencies in disasters." *National Academies of Practice Forum: Issues in Interdisciplinary Care* 2(4): 253-257.

Discusses consensus recommendations for responding to children's emergencies in disasters that emerged from the 1998 Children's Emergencies in Disasters: A National Emergency Medical Service for Children Workshop in Orlando, Florida. Emergency physicians, pediatricians, nurses, emergency medical service and disaster planners, school representatives, and mental health professionals developed the pediatric disaster recommendations. The consensus recommendations include information on medical capabilities, managed care, mental health, community planning, data collection, volunteer services, school and child care, public awareness, and family empowerment.

Bolton, D., D. O'Ryan, et al. (2000). "The long-term psychological effects of a disaster experienced in adolescence: II: General psychopathology." *Journal of Child Psychology & Psychiatry* 41(4): 513-523.

Children and adolescents exposed to trauma can suffer major adverse psychological effects including not only post-traumatic stress but also other psychological disorders. This study investigates the long-term course of general psychopathology following trauma in adolescence using a standardized diagnostic interview and comparisons with a matched control group. 216 11-17 yr olds who had survived a shipping disaster--the sinking of the "Jupiter" in Greek waters--between 5 and 8 years previously and 87 young people as matched controls were interviewed. The survivors showed raised rates of diagnosis in a range of anxiety and affective disorders during the follow-up period. The highest rates were among the survivors who had developed Post-Traumatic Stress Disorder (PTSD), and those survivors who had not were generally similar to controls. Onset of anxiety and affective disorders varied between being indefinitely close to the controls. Onset of anxiety and affective disorders varied between the survivor and control groups had lessened by the time of follow-up but were still apparent, due to continuing distress among the survivors still suffering from PTSD, and to a lesser extent among those who had recovered from PTSD. Generalizability of the findings are discussed.

Bradburn, I. S. (1991). "After the earth shook: Children's stress symptoms 6-8 months after a disaster." *Advances in Behaviour Research & Therapy* 13(3): 173-179.

Studied 22 children's (aged 10-12 yrs) response to an earthquake 6-8 mo after the event, particularly subjects' traumatic stress-related symptoms and factors mediating individual response. Principal variables examined were (1) experience of and proximity to loss of life and severe property damage, (2) family reactions, and (3) psychological vulnerability to having an adverse response, based on previous experience of psychological trauma. Measures administered during interview included a posttraumatic stress reaction index for children. Subjects reported experiencing traumatic stress-related symptoms that appeared associated with the seismic event. Subjects who lived closer to a heavily damaged area were more likely to experience a greater degree of stress than subjects who lived farther away.

Bulut, S. (2004). "Factor Structure of Posttraumatic Stress Disorder in Children Experienced Natural Disaster." *Psychologia: An International Journal of Psychology in the Orient* 47(3): 158-168.

Because Oklahoma has more tornadoes per square mile than any region in the world, children in Oklahoma and other disaster prone areas are at risk for developing posttraumatic stress disorder (PTSD) due to exposure to and threat of tornadoes. Given the gaps in the literature and the risk to children living in Oklahoma, the present study was undertaken to factor analyze items representing underlying dimensions of PTSD. This factor analysis of the responses of children who experienced a tornado indicate that it may be more useful to re-align the DSM-IV symptoms into five underlying dimensions. These dimensions appear to be: (1) blocking/vigilance, (2) affective/adjustment difficulties, (3) re-experiencing/ intrusion, (4) somatic/attachment and (5) sense of foreshortened future. Items of avoidance stimuli, loaded across factors, with avoiding places associated with vigilance, avoiding people associated with adjustment problems, and television stimuli associated with re-experiencing. Psychologists should consider these results when developing interventions.

Burke, J. D., P. Moccia, et al. (1986). "Emotional distress in fifth-grade children ten months after a natural disaster." *Journal of the American Academy of Child Psychiatry* 25(4): 536-541.

10 mo after a blizzard and flood disaster struck their town, 19 5th-grade children in a church wrote stories about the coming winter. Stories were also written by 28 5th graders from a nearby but unflooded town. These were assessed blindly by 6 mental health clinicians for signs of distress, including fear, depression, and anxiety. Children from the flooded area demonstrated more distress than those from the nonflooded area. Only girls showed this effect; for boys, there was no difference between flooded and nonflooded groups. These results, which suggest that distress can persist as long as 10 mo after a natural disaster, corroborate and extend the findings of an earlier study of younger children in this community conducted by J. D. Burke et al

Chemtob, C. M., J. Nakashima, et al. (2002). "Brief treatment for elementary school children with disaster-related posttraumatic stress disorder: A field study." *Journal of Clinical Psychology* 58(1): 99-112.

Evaluated the effectiveness of a brief intervention for disaster-related posttraumatic stress disorder (PTSD). At 1-yr follow-up of a prior intervention for disaster-related symptoms, some previously treated children were still suffering significant trauma symptoms. Using a randomized lagged-groups design, 3 sessions of Eye Movement Desensitization and Reprocessing (EMDR) treatment were provided to 32 of these children (ages 6-12 yrs) who met clinical criteria for PTSD. The Children's Reaction Inventory (CRI) was the primary measure of the treatment's effect on PTSD symptoms. Associated symptoms were measured using the Revised Children's Manifest Anxiety Scale (RCMAS) and the Children's Depression Inventory (CDI). Treatment resulted in substantial reductions in both groups' CRI scores and in significant reductions in RCMAS and CDI scores. Gains were maintained at 6-mo follow-up. Health visits to the school nurse were significantly reduced following treatment. Psychosocial intervention appears useful for children suffering disaster-related PTSD. Conducting controlled studies of children's treatment in the postdisaster environment appears feasible.

Dollinger, S. J. and P. Cramer (1990). "Children's defensive responses and emotional upset following a disaster: A projective assessment." *Journal of Personality Assessment* 54(1-2): 116-127.

Tested the validity of P. Cramer's Defense Mechanism Manual (1982, unpublished manuscript) by using it to evaluate children's reactions to a life-threatening traumatic event (lightning strike). The defense mechanisms of 27 boys (aged 10-13 yrs) who were victims of a lightning strike were assessed. Subjects were interviewed 1-2 mo following the incident (in which one boy died), rated on degree of emotional upset based on behavior in the interview, and constructed projective stories from pictures of lightning bolts. Denial, projection, and identification, in combination, were inversely related to clinical upset, as was the age and sex-appropriate individual defense of projection. Results provide evidence for the validity of the Defense Mechanism Manual and support the hypothesis that defense mechanisms protect children from emotional upset.

Durkin, M. S., N. Khan, et al. (1993). "The effects of a natural disaster on child behavior: Evidence for posttraumatic stress." *American Journal of Public Health* 83(11): 1549-1553.

Examined 162 children (aged 2-9 yrs) both before and after a flood disaster to test the hypothesis that stressful events play a causal role in the development of behavioral disorders in children. Six months before the disaster, structured measures of selected behavioral problems were made during an epidemiological study. Subjects were reevaluated 5 mo after the disaster. Findings show that the prevalence of aggressive behavior and enuresis in Subjects rose sharply after the disaster, thereby supporting the hypothesis.

Flynn, B. W. and M. E. Nelson (1998). "Understanding the needs of children following large-scale disasters and the role of government." *Child & Adolescent Psychiatric Clinics of North America* 7(1): 211-227.

No one who experiences a disaster is untouched by it. Children and their families are often among the most affected. This article explains how mental health and medical professionals can assist families and communities in dealing with common disaster-related stress reactions in children. An overview of disaster research and examples of special concerns about children are given. In addition, an overview of the role of local, state, and federal governments, as well as other organizations, is provided.

Frederick, Calvin J. (1985) "Children traumatized by catastrophic situations." In: Eth, S. and Pynoos, R.S., eds. *Post-Traumatic Stress Disorder in Children* (p. 73-99). Washington, DC: American Psychiatric Press.

This book chapter discusses post-traumatic stress disorder in a variety of traumatic and catastrophic situations, with particular emphasis upon problems occurring in children. The experiences discussed are based upon a wide spectrum of calamitous events including natural disasters.

Galante, R. and D. Foa (1987). "An epidemiological study of psychic trauma and treatment effectiveness for children after a natural disaster." *Annual Progress in Child Psychiatry & Child Development*: 349-364.

Surveyed 300 4th-6th grade earthquake victims in 6 Italian villages. In one village, a treatment program was initiated, including a gradual series of steps that led to a replaying of the earthquake. The hypothesis that the number of subjects shown to be at risk for developing neurotic or antisocial problems would be positively correlated with the amount of destruction in a village was not supported. The hypothesis that treatment would reduce earthquake fears and the number of children at risk was verified. The village where treatment was carried out for 1 academic year showed a significant drop in the at-risk scores. It is concluded that treatment alleviated symptoms but that the number of children at risk seemed to be related to the length of time needed for the community to reorganize after the disaster.

Green, B. L., M. Korol, et al. (1991). "Children and disaster: Age, gender, and parental effects on PTSD symptoms." *Journal of the American Academy of Child & Adolescent Psychiatry* 30(6): 945-951.

Psychiatric reports of 179 children (aged 2-15 yrs) who were exposed to the Buffalo Creek (West Virginia) dam collapse in 1972 were rated for posttraumatic stress disorder (PTSD) symptoms 2 yrs after the disaster. Age and gender effects and the impact of the level of exposure and parental functioning were examined according to a conceptual model addressing factors contributing to adaptation to a traumatic event. Results show fewer PTSD symptoms in the youngest age group and higher symptom levels for girls than boys. Approximately 37% of the children were given a probable diagnosis of PTSD. Analysis showed that life threat, gender, parental psychopathology, and an irritable and/or depressed family atmosphere all contributed to the prediction of PTSD symptomatology in the children.

Gurwitch, R. H., M. A. Sullivan, et al. (1998). "The impact of trauma and disaster on young children." *Child & Adolescent Psychiatric Clinics of North America* 7(1): 19-32.

In the past few decades, the study of the impact of trauma and disaster on children has grown; however, information about the effects on very young children is still scarce in the literature. In some regards, the characteristics of stress in young children are similar to those of older children and adults; in other ways, their reactions are unique. These characteristics, as well as mediating factors and interventions with young children, are discussed. Suggestions for future research are offered.

Gurwitch, R. H., J. F. Silovsky, et al. (2002). "Reactions and guidelines for children following trauma/disaster." *Communication Disorders Quarterly* 23(2): 93-99.

Presents guidelines and reactions for children following a traumatic event or disaster. The guidelines are for elementary school students, middle school students, high school students, and teachers in all 3 levels of school.

Hamada, R. S., V. Kameoka, et al. (2003). "Assessment of elementary school children for disaster-related posttraumatic stress disorder symptoms: The Kauai recovery index." *Journal of Nervous & Mental Disease* 191(4): 268-272.

Reports the first and second stage results of a project to establish the psychometric properties of a posttraumatic stress disorder symptom scale for children designed to be used community-wide after disasters. In Study 1, the first-generation measure, The Child Reaction Index (CRI), was developed. 452 children (aged 6-12 yrs) in grades 1 through 6 completed the CRI 3 to 4 mo after Hurricane Iniki, devastated the island of Kauai, Hawaii. In Study 2, the second-generation measure, The Kauai Recovery Index (KRI), was psychometrically evaluated. The participants were 3,732 children (aged 6 to 15 yrs) in grades 2 through 6 who participated in a screening of Kauai public school children conducted 26 mo after Hurricane Iniki. The psychometric soundness of the KRI was confirmed.

Jeney-Gammon, P., T. K. Daugherty, et al. (1993). "Children's coping styles and report of depressive symptoms following a natural disaster." *Journal of Genetic Psychology* 154(2): 259-267.

Examined the relationship between children's coping styles and self-reported levels of depressive symptoms following a major stressor. 257 3rd-5th grade children participated in the study, 5 mo following a hurricane. subjects responded to the Children's Depression Inventory and Kidcope (a checklist to assess children's coping styles). The number of coping strategies employed was positively related to depression scores, whereas coping efficacy was negatively related to depression scores. Social withdrawal, self-blaming, and emotional regulation were associated with more severe depressive symptoms. Lower levels of symptomatology were found among subjects who sought social support and engaged in cognitive restructuring. The overall symptom level in the sample did not exceed that of normative samples.

Johnson, K. (1998). *Trauma in the Lives of Children: Crisis and Stress Management Techniques for Counselors, Teachers, and Other Professionals*. 2<sup>nd</sup> Ed. Alameda, CA: Hunter House.

This book discusses the impact of traumatic events upon children and strategies for addressing the problems they experience. Chapters include: what we know about crisis, children's reactions to trauma, what schools can do, and what therapists can do. It also addresses the impact of disaster mental health impact on workers and methods for managing professional stress.

Jones, R. T., D. P. Ribbe, et al. (2002). "Psychological impact of fire disaster on children and their parents." *Behavior Modification* 26(2): 163-186.

Six weeks following a major wildfire, 22 children's (aged 7-12 yrs) psychosocial functioning was examined. Employing a multimethod assessment approach, the short-term mental health consequences of the fire were evaluated. Individual adjustment was compared between families who reported high levels of loss as a result of the fire (high-loss group) and families who reported relatively low levels of loss resulting from the fire (low-loss group). Standardized assessment procedures were employed for children and adolescents as well as their parents. In general, high-loss participants reported slightly higher levels of post-traumatic stress disorder (PTSD) symptoms and significantly higher scores on the Impact of Events Scale. PTSD symptoms reported by parents were generally significantly correlated with (but not concordant with) PTSD symptoms reported by their children. The high-loss group scored significantly higher on the Resource Loss Index than did the low-loss group. Preexisting and comorbid disorders and previous stressors are described. A methodological framework for future studies in this area is discussed.

Kreuger, L. and J. Stretch (2003). "Identifying and helping long term child and adolescent disaster victims: Model and method." *Journal of Social Service Research* 30(2): 93-108.

This paper reports on secondary analysis of data collected as part of an effort by social work providers and a major parochial school system to assess longer term impact and possible Post Traumatic Stress Disorder (PTSD) among children and adolescents in 17 schools heavily affected by flooding. The assessment protocol, implemented by classroom teachers, measured self-reported amount of damage from a major flood along with two standardized measures of PTSD. Discussed are findings regarding factors that predict PTSD including amount of harm and ability of family to recover, whether loss of residence was related to recovery and PTSD and other variables from this field screening of 3876 children and adolescents in the Midwest who lived in areas impacted by an extensive flooding.

Laor, N., L. Wolmer, et al. (2003). "Facing war, terrorism, and disaster: Toward a child-oriented comprehensive emergency care system." *Child & Adolescent Psychiatric Clinics of North America* 12(2): 343-361.

Disasters, war, and terrorism are destructive phenomena that usually show up precipitously and involve massive damages and human suffering. Disaster intervention calls for responsible preparation that must be managed from the top down and from the bottom up. Based on ecologic systems theory and principles borrowed from public health, preventive medicine, communal welfare, education and urban planning, this article offers a theory of disaster that proposes a common intellectual matrix for medical, psychological, educational, and social interventions. The authors describe a case study model in the city of Tel-Aviv for trauma and disaster intervention in which they designed and implemented a community mental health program that empowers agents within various child care institutions as mediators to intervene after emergencies and major disasters.

Lee, O. (1999). "Science knowledge, world views, and information sources in social and cultural contexts: Making sense after a natural disaster." *American Educational Research Journal* 36(2): 187-219.

Examined children's views of the world after they personally experienced a natural disaster--specifically, Hurricane Andrew in South Florida during the summer of 1992. The study addressed 3 issues: (1) children's knowledge of the hurricane; (2) children's views of the world, especially the causality of the hurricane; and (3) children's sources of information in social and cultural contexts. The study was conducted in the early spring of 1994. It involved 127 4th and 5th

grade students in 2 elementary schools located in areas that were particularly hard hit by the hurricane. The student sample was representative of various ethnic, socioeconomic, and gender backgrounds. Both quantitative and qualitative research methods were used for data collection and analysis. Results show significant differences as well as similarities in children's knowledge, world views, and information sources by ethnicity, SES, and gender. Implications for promoting scientific literacy for all students, including socially and culturally diverse students, are discussed.

Lieberman, A.F.; van Horn, P. (2004). "Assessment and treatment of young children exposed to traumatic events." In: Osofsky, J.D., ed. *Young Children and Trauma: Intervention and Treatment*. (pp. 111-138). New York: Guilford Press.

The impact of traumatic events on infants, toddlers, and preschoolers is only beginning to be systematically documented and understood. Children respond to trauma in ways that reflect the particular developmental tasks and challenges they are attempting to master. This chapter describes assessment strategies designed to identify traumatic responses in a developmental and contextual framework, and presents forms of intervention aimed at alleviating traumatic responses in the present and at preventing the consolidation of these responses into chronic patterns of emotional, social, and cognitive dysfunction.

Lonigan, C. J., M. P. Shannon, et al. (1991). "Children's reactions to a natural disaster: Symptom severity and degree of exposure." *Advances in Behaviour Research & Therapy* 13(3): 135-154.

Self-report data for 5,687 children (aged 9-19 yrs) were collected approximately 3 mo after a hurricane devastated the children's community. Information about the children's perceptions of hurricane severity, degree of home damage suffered as a result of the hurricane, and hurricane-related parental job loss was used to categorize children into 4 levels of hurricane exposure. Anxiety was measured via the Revised Children's Manifest Anxiety Scale, and reports of posttraumatic stress disorder (PTSD) symptoms were obtained via the Reaction Index. Significantly higher anxiety scores and significantly more PTSD symptomatology were found for children experiencing more or more severe exposure to the hurricane. Girls reported more anxiety and PTSD symptoms than boys, and Black children were more likely than White children to report PTSD symptomatology.

Lonigan, C. J., M. P. Shannon, et al. (1994). "Children exposed to disaster: II. Risk factors for the development of post-traumatic symptomatology." *Journal of the American Academy of Child & Adolescent Psychiatry* 33(1): 94-105.

Three months after Hurricane Hugo, 5,687 school-aged children were surveyed about their experiences and reactions to the hurricane. subjects were divided into 3 age groups: preadolescents (aged 9-12 yrs), early adolescents (aged 13-15 yrs), and late adolescents (aged 16+ yrs). Self-reports of posttraumatic stress disorder (PTSD) symptoms were obtained by use of a PTSD Reaction Index. The presence of PTSD symptoms was strongly related to children's reported severity of the hurricane, degree of home damage sustained, and continued displacement; however, children's level of trait anxiety and their reported emotional reactivity during the hurricane were more strongly related to the presence of PTSD symptoms than were the exposure factors. Different sets of risk factors appeared to differentially influence the development of the 3 Diagnostic and Statistical Manual of Mental Disorders-III-Revised (DSM-III-R) PTSD symptom clusters.

Lonigan, C. J., J. L. Anthony, et al. (1998). "Diagnostic efficacy of posttraumatic symptoms in children exposed to disaster." *Journal of Clinical Child Psychology* 27(3): 255-267.

Examined 5 conditional probability indices to determine the diagnostic efficacy of 48 symptoms associated with posttraumatic stress disorder (PTSD) in 5,687 children exposed to Hurricane Hugo, of whom 5.5% had a diagnosis of posttraumatic stress syndrome (PTSS). Moderate levels of sensitivity and high levels of specificity were obtained for most symptoms. Odds ratios more precisely demonstrated that some Diagnostic and Statistical Manual of Mental Disorders (DSM) symptoms of PTSD, especially when combined, were useful for identifying children with PTSS but that anxiety symptoms and some DSM symptoms of PTSD had poor diagnostic utility. Satisfying criteria for the DSM-III-R numbing/avoidance cluster and symptoms

from the numbing/avoidance cluster had the highest diagnostic efficacy, suggesting that avoidance may be the hallmark of severe posttraumatic reactions. These results suggest which symptoms should be conceptualized as central versus peripheral to the disorder and which symptoms and symptom combinations clinicians should attend to most when diagnosing or screening PTSD in children.

McDermott, B. M. C. and L. J. Palmer (1999). "Post-disaster service provision following proactive identification of children with emotional distress and depression." *Australian & New Zealand Journal of Psychiatry* 33(6): 855-863.

Proactive, school-based psychological testing for emotional distress, posttraumatic stress disorder (PTSD), and depression was employed 6 mo after a bushfire disaster. Hypotheses tested were that the prevalence of emotional distress and depression would be elevated 6 mo postdisaster; that emotional distress would be correlated with traumatic events, and that depression would be related to experiences of loss. 601 grade 4, 5, and 6 students participated in screening using a test battery measuring emotional distress, depressive symptoms and trait anxiety 6 mo after a bushfire. 72 (12%) of children experienced severe emotional distress 6 mo after the bushfire. Rates of depression were similar to rates in nontraumatized child community samples. Multivariate analysis suggested that emotional distress was significantly associated with trait anxiety, evacuation experience, the perception that parents may have died during the bushfire, and depressive symptoms. Depressive symptoms were associated with total distress score, trait anxiety and perception of threat to the parents. Substantial mental health morbidity was identified 6 months after a bushfire disaster. The usefulness of post-disaster service provision influenced by proactive screening is discussed and reasons for further research highlighted.

McDermott, B. M., E. M. Lee, et al. (2005). "Posttraumatic Stress Disorder and General Psychopathology in Children and Adolescents Following a Wildfire Disaster." *Canadian Journal of Psychiatry* 50(3): 137-143.

Objective: To report on the use of the Post Traumatic Stress Disorder Reaction Index (PTSD-RI) and the Strengths and Difficulties Questionnaire (SDQ) in identifying children and adolescents who may require psychological interventions following exposure to a wildfire disaster. Method: Six months after a wildfire disaster, we conducted a school-based program to screen for wildfire-related events, such as exposure to and perception of threat, posttraumatic stress disorder (PTSD), and general psychopathology. Results: The screening battery was completed by 222 children (mean age 12.5 years, SD 2.48; range 8 to 18 years). Severe or very severe PTSD was reported by 9.0% of students, while 22.6% scored in the abnormal range on the Emotional Symptoms subscale of the SDQ. Younger children and individuals with greater exposure to and perception of threat experienced higher levels of PTSD and general psychopathology. Female students reported a greater perception of threat but did not report higher levels of PTSD or other symptoms. Conclusions: Screening was well received by students, parents, and staff and proved feasible in the postdisaster environment. The PTSD-RI and SDQ demonstrated different individual risk associations and functioned as complementary measures within the screening battery. The identification of children at greatest risk of mental health morbidity enabled service providers to selectively target limited mental health resources.

McFarlane, A. C. (1987). "Family functioning and overprotection following a natural disaster: The longitudinal effects of post-traumatic morbidity." *Australian & New Zealand Journal of Psychiatry* 21(2): 210-218.

Examined the longitudinal impact of a natural disaster on interaction patterns in 183 families with latency-aged (7-12 yrs of age) children. An 11-item questionnaire was developed and 2 factors (irritable distress and involvement) were isolated. The disaster-affected families were contrasted with 497 families not exposed to the disaster. Eight months after the disaster, interaction in the disaster-affected families was characterized by increased levels of conflict, irritability, and withdrawal. Maternal overprotection was also a common feature of care in these families. Posttraumatic morbidity in parents was the major determinant of the observed changes in family functioning and overprotection.

McFarlane, A. C. (1987). "Posttraumatic phenomena in a longitudinal study of children following a natural disaster." *Journal of the American Academy of Child & Adolescent Psychiatry* 26(5): 764-769.

The prevalence of posttraumatic phenomena (PTP) and how they relate to symptomatic and behavioral disorders were examined in 808 schoolchildren (mean age 8.2 yrs) at 2, 8, and 26 mo after being exposed to an Australian bushfire. The prevalence of PTP did not change over an 18-mo period, suggesting that they were markers of significant developmental trauma. Mothers' responses to the disaster were better predictors of the presence of PTP than the subjects' direct exposure to the disaster. Both the experience of intrusive memories by the mothers and a changed pattern of parenting seemed to account for this relationship.

McFarlane, A. C., S. K. Policansky, et al. (1987). "A longitudinal study of the psychological morbidity in children due to a natural disaster." *Psychological Medicine* 17(3): 727-738.

Examined the psychological impact of a bushfire disaster on a group of 808 5-12 yr olds. Contrary to prediction, the prevalence of behavior and emotional problems 2 mo after the fire was less than the prevalence in a carefully selected comparison group. Rather than decrease with time, the prevalence of psychological morbidity increased significantly, being as great 26 mo after the disaster as at 8 mo.

National Child Traumatic Stress Network and National Center for PTSD. (2005). *Psychological First Aid Field Operations Guide*. [Los Angeles: The Center].

Psychological First Aid (PFA) is an evidence-informed modular approach for assisting children, adolescents, adults, and families in the immediate aftermath of disaster and terrorism. PFA is designed to reduce the initial distress caused by traumatic events, and to foster short- and longterm adaptive functioning. Principles and techniques of PFA meet four basic standards. They are: (1) consistent with research evidence on risk and resilience following trauma; (2) applicable and practical in field settings; (3) appropriate to developmental level across the lifespan; and (4) culturally informed and adaptable. PFA is designed for delivery by mental health specialists who provide acute assistance to affected children and families as part of an organized disaster response effort. These specialists may be imbedded in a variety of response units, including first responder teams, incident command systems, primary and emergency health care providers, school crisis response teams, faith-based organizations, Community Emergency Response Teams (CERT), Medical Reserve Corps, the Citizens Corps, and disaster relief organizations.

Newman, M. (2004). "Helping children cope with disasters and terrorism." *Journal of Child Psychology & Psychiatry* 45(1): 172.

The reviewer explains that this book (A. M. La Greca, W. K. Silverman, E. M. Vernbert and M. C. Roberts [Eds], 2002) is a timely and welcome addition to the literature on disasters, terrorism and war. The first section of the book considers conceptual and practical issues when discussing children's reactions to disasters, and includes PTSD and other post-disaster reactions, such as depression, anxiety, grief and bereavement. The second part of the book considers the effects of various natural disasters (hurricanes, floods, fires), whilst the third and fourth sections look at human-made and technological catastrophes (including road traffic accidents, nuclear accidents, and mass transportation disasters) and at the consequences of violence in society (shootings, hostage-taking, terrorism and war). The reviewer concludes that in short, the book is packed with information and is recommended as a useful resource, for both individuals and libraries.

Pfefferbaum, B. (1998). "Caring for children affected by disaster." *Child & Adolescent Psychiatric Clinics of North America* 7(3): 579-597.

The child and adolescent psychiatrist must play an essential role in the wake of disaster. The focus of the community and the world understandably turns to the physical devastation wrought, and emergency and medical efforts take center stage. Physical evidence of the past may be lost, but the child psychiatrist is able to maintain focus on what cannot be seen. He or she may be the only one to advocate the child's emotional needs. It may be too difficult for others who

lack the specialized expertise of mental health training to attend to both the child's physical and emotional needs, and it may be impossible for those without medical training to impress on medical personnel the importance of emotional issues. The child and adolescent psychiatrist, with his or her understanding of medical, mental health, and developmental concerns, is well positioned to support the child, the child's community, and the helpers whose own responses may complicate recovery.

Prinstein, M. J., A. M. La Greca, et al. (1996). "Children's coping assistance: How parents, teachers, and friends help children cope after a natural disaster." *Journal of Clinical Child Psychology* 25(4): 463-475.

Examined the construct of coping assistance, defined as actions taken by significant others to help children cope with stressful events, in the aftermath of Hurricane Andrew. The Children's Coping Assistance Checklist (CCAC) was developed to assess 3 types of coping assistance (Emotional Processing, Roles and Routines, and Distraction) from 3 sources (Parents, Teachers, and Friends). The CCAC and measures of children's social support, coping, and posttraumatic stress disorder (PTSD) symptomatology were administered to 506 3rd-5th graders 7 mo after Hurricane Andrew. Roles and Routines coping assistance was reported most frequently, followed by Distraction and Emotional Processing. Coping assistance from parents and friends was reported more frequently than from teachers. Third graders reported significantly more Emotional Processing from parents and friends than did 4th or 5th graders. As expected, children with more severe levels of PTSD symptomatology reported more Emotional Processing and Distraction coping assistance. Findings suggest that coping assistance is an important construct for understanding children's reactions to natural disasters.

Reijneveld, S. A., M. R. Crone, et al. (2003). "The effect of a severe disaster on the mental health of adolescents: A controlled study." *Lancet* 362(9385): 691-696.

Background: Disasters greatly affect the mental health of children and adolescents, but quantification of such effects is difficult. Using prospective pre-disaster and post-disaster data for affected and control populations, we aimed to assess the effects of a severe disaster on the mental health and substance use of adolescents. Methods: In January, 2001, a fire in a cafe in Volendam, Netherlands, wounded 250 adolescents and killed 14. In the 15 months before the disaster, all grade 2 students (aged 12-15 years) from a school in Volendam (of whom 31 were in the cafe during the fire), and from two other schools, had been selected as controls for a study. 124 Volendam students and 830 from the other two schools had provided data for substance use, and completed the youth self-report (YSR) questionnaire about behavioural and emotional problems. 5 months after the disaster, we obtained follow-up data from 91 (response rate 73.4%) Volendam adolescents and 643 (77.5%) controls from the other two schools. The primary outcome measures were changes in score in YSR categories of total problems, alcohol misuse, smoking, and substance use. We compared changes in scores between groups using logistic regression. Findings: Volendam adolescents had larger increases in clinical scores than controls for total problems (odds ratio 1.82, 95% CI 1.01-3.29,  $p=0.045$ ) and excessive use of alcohol (4.57, 2.73-7.64,  $p<0.0001$ ), but not for smoking or use of marijuana, MDMA (ecstasy), and sedatives. Increases in YSR scores were largest for being anxious or depressed (2.85, 1.23-6.61), incoherent thinking (2.16, 1.09-4.30), and aggressive behaviour (3.30, 1.30-8.36). Intention-to-treat analyses showed significantly larger for increases in rates of excessive drinking and YSR symptom subscales in Volendam adolescents than controls. Effects were mostly similar in victims and their classmates. Interpretation: Mental health interventions after disasters should address anxiety, depression, thought problems, aggression, and alcohol abuse of directly affected adolescents and their peer group.

Saylor, C. F., C. C. Swenson, et al. (1992). "Hurricane Hugo blows down the broccoli: Preschoolers' post-disaster play and adjustment." *Child Psychiatry & Human Development* 22(3): 139-149.

Reports highlights from over 200 parents' observations (as expressed in comments entered into the other behavior section of a follow-up questionnaire) 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.

Smith, E.M., North, C.S. (1993). Posttraumatic stress disorder in natural disasters and technological accidents. In: Wilson, J.P., Raphael, B., eds. *International Handbook of Traumatic Stress Syndromes*. (p. 405-419). NY: Plenum Press.

Shen, Y.-J. and C. A. Sink (2002). "Helping elementary-age children cope with disasters." *Professional School Counseling* 5(5): 322-330.

Considers elementary-age children's reactions to disasters and their needs for mental health assistance, specifically school counseling interventions. This paper suggests guiding principles that school counselors can use as they initiate disaster assistance and presents various suggestions for helping school children cope. A case study of a traumatized 1st-grade male student is also provided, demonstrating how child-centered play therapy can be used in school settings.

Stubenbort, K., G. R. Donnelly, et al. (2001). "Cognitive-behavioral group therapy for bereaved adults and children following an air disaster." *Group Dynamics* 5(4): 261-276.

On September 8, 1994, USAir Flight 427 from Chicago crashed on its descent to the Pittsburgh International Airport. All 132 passengers and crew were killed. This crash was unique in that more than 80% of the victims were residents of the greater Pittsburgh area. In this regard, the need for professional intervention became vital. Group intervention allowed the professionals to promptly serve a large number of affected families. It was hypothesized that the group experience would lead to bonding and support that would persist beyond the time limits of the group. A group-based intervention program for adult and child survivors is described, including its administrative structure, therapeutic objectives and interventions, and group process. A direct outcome of this group was the establishment of The USAir Flight 427 Disaster Support League and, subsequently, the development of the National Air Disaster Alliance.

Sugar, M. (1988). "A preschooler in a disaster." *American Journal of Psychotherapy* 42(4): 619-629.

Describes the effects of a plane crash about 75 ft from his home on a 4.5-yr-old boy. S's treatment involved issues of anger, reenactment, verbal repetition, time skews, regression, and resumption of development. A countertransference of helplessness occurred, which may be a central issue posing difficulties in evaluating and treating disaster victims.

Sugar, M. (1989). "Children in a disaster: An overview." *Child Psychiatry & Human Development* 19(3): 163-179.

Presents an overview of children's reactions to disaster based on the literature and the evaluation and treatment of 7 children (aged 3-12 yrs) who experienced a plane crash. Children's psychopathological reactions to disasters are individually-based and vary according to age, developmental level, proximity to family members, specifics of their situation, losses during and after the disaster, and the responses of the family and community. Treatment should be individualized since children's improvement is not determined by parental response. Countertransference features may influence the awareness and accurate assessment of the child's reactions and need for treatment.

Swenson, C. C., C. F. Saylor, et al. (1996). "Impact of a natural disaster on preschool children: Adjustment 14 months after a hurricane." *American Journal of Orthopsychiatry* 66(1): 122-130.

Examined the duration of emotional and behavioral problems among children (aged 2-6 yrs) 14 mo after they had experienced hurricane Hugo and assessed factors that predicted longevity of these problems. Mothers of subjects who had experienced the storm provided information on their children's behavioral problems, trauma symptoms, effects of the hurricane, life stressors, and duration of symptoms; this information was compared with information provided

by mothers of control children (aged 2-10 yrs) who had not experienced the storm. subjects who had experienced the storm showed significantly higher anxiety and withdrawal and more behavior problems than did children who had not. Behavioral problems decreased steadily over the 6 mo following the storm. Mothers' distress in the hurricane's aftermath was associated with longevity of their children's emotional and behavioral difficulties.

Udwin, O., S. Boyle, et al. (2000). "Risk factors for long-term psychological effects of a disaster experienced in adolescence: Predictors of Post Traumatic Stress Disorder." *Journal of Child Psychology & Psychiatry* 41(8): 969-979.

Examines risk factors for the development of posttraumatic stress disorder (PTSD), and its severity and chronicity, in a group of 217 young adults (aged 11-17 yrs) who survived a shipping disaster in adolescence. The survivors were followed up 5-8 years after the disaster. Risk factors examined fell into 3 main categories: pre-disaster child and family vulnerability factors; objective and subjective disaster-related experiences; and post-disaster factors. Developing PTSD following the disaster was significantly associated with being female, with pre-disaster factors of learning and psychological difficulties in the child and violence in the home, with severity of exposure to the disaster, survivors' subjective appraisal of the experience, adjustment in the early post-disaster period, and life events and social supports subsequently. Measures of the degree of exposure to the disaster and of subjective appraisal of life threat, and ratings of anxiety obtained 5 mo post-disaster, best predicted whether survivors developed PTSD. For those survivors who developed PTSD, its duration and severity were best predicted by pre-disaster vulnerability factors of social, physical, and psychological difficulties in childhood together with ratings of depression obtained 5 mo post-disaster.

U.S. Department of Health and Human Services. Children's Bureau. (1995). *Coping With Disasters: A Guide for Child Welfare Agencies*. Washington, DC: The Bureau. 11 p.

Vernberg, E.M., Vogel, J.M. (1993). Psychological response of children to natural and human-made disasters: II. Interventions with children after disasters. *Journal of Clinical Child Psychology* 22(4): 485-498.

Provides a summary and evaluation of disaster-related psychological interventions with children and adolescents. Intervention models are grouped in temporal sequence in relation to the disaster event (pre-disaster phase, impact phase, short-term adaptation phase, and long-term adaptation phase). It is noted that most interventions are based on plausible conceptual assumptions, and convergence often can be seen in the content of interventions derived from diverse theoretical perspectives. Relatively little evaluation of disaster-related interventions with children has been published, and recommendations for research are presented.

Vogel, J.M., Vernberg, E.M. (1993). Psychological response of children to natural and human-made disasters: I. Children's psychological responses to disasters. *Journal of Clinical Child Psychology* 22(4): 464-484.

Provides a summary and evaluation of disaster-related psychological interventions with children and adolescents. Intervention models are grouped in temporal sequence in relation to the disaster event (pre-disaster phase, impact phase, short-term adaptation phase, and long-term adaptation phase). It is noted that most interventions are based on plausible conceptual assumptions, and convergence often can be seen in the content of interventions derived from diverse theoretical perspectives. Relatively little evaluation of disaster-related interventions with children has been published, and recommendations for research are presented.

Wolmer, L., N. Laor, et al. (2003). "School reactivation programs after disaster: Could teachers serve as clinical mediators?" *Child & Adolescent Psychiatric Clinics of North America* 12(2): 363-381.

Despite the numerous advantages in implementing school-based interventions after a trauma or disaster, particularly interventions mediated by teachers, only a few articles have been published on this subject. This article reviews the relevant literature and offers a conceptual framework for implementing teacher-mediated mental health clinical intervention programs

among school-age children. The authors propose a process that mental health professionals and teachers may need to go through and the adaptation of roles required to be placed in an educational-therapeutic position within a school reactivation program. The authors describe such a program carried out in the city of Adapizari, Turkey, after the 1999 earthquakes in which estimates of posttraumatic stress disorder decreased from 30% to 18% within 4 weeks.

Yule, W., D. Bolton, et al. (2000). "The long-term psychological effects of a disaster experienced in adolescence: I: The incidence and course of PTSD." *Journal of Child Psychology & Psychiatry* 41(4): 503-511.

This paper is the first of a series reporting on the long-term follow-up of a group of young adults who as teenagers had survived a shipping disaster--the sinking of the "Jupiter" in Greek waters--between 5 and 8 years previously. The general methodology of the follow-up study as a whole is described, and the incidence and long-term course of Post-Traumatic Stress Disorder (PTSD). It is the first study of its kind on a relatively large, representative sample of survivors, using a standardized diagnostic interview, and comparing survivors with a community control group. 217 survivors of the Jupiter disaster, and 87 young people as controls, were interviewed using the Clinician Administered PTSD Scale (CAPS). Of the 217 survivors, 111 had developed PTSD at some time during the follow-up period, compared with an incidence in the control group of 87. In the large majority of cases of PTSD in the survivors for whom time of onset was recorded, 110, onset was not delayed, being within 6 months of the disaster. About a third of those survivors who developed PTSD recovered within a year of onset, though another third were still suffering from the disorder at the time of follow-up, between 5 and 8 years after the disaster.

## Part Two: Internet Resources

The resources listed in this section are loosely grouped into three categories, but within each category are listed in no particular order other than the order in which they were identified by the author.

### A. Counseling Children Traumatized by Natural Disasters

The National Child Traumatic Stress Network (NCTSN) offers mental health services to children who have suffered traumatic events, including natural disaster, deprivation, loss and abuse. NCTSN centers are located throughout the country.

[http://www.nctsnet.org/nccts/nav.do?pid=abt\\_ntwk](http://www.nctsnet.org/nccts/nav.do?pid=abt_ntwk)

NCTSN has also prepared an assortment of brief guides regarding child victims of hurricanes, in both English and Spanish, and information for teachers in helping students after a hurricane.

[http://www.nctsnet.org/nctsn\\_assets/pdfs/parents\\_guidelines\\_talk\\_children\\_hurricanes.pdf](http://www.nctsnet.org/nctsn_assets/pdfs/parents_guidelines_talk_children_hurricanes.pdf)

[http://www.nctsnet.org/nctsn\\_assets/pdfs/reports/ParentGuidelines\\_SpanishVersion.pdf](http://www.nctsnet.org/nctsn_assets/pdfs/reports/ParentGuidelines_SpanishVersion.pdf)

[http://www.nctsnet.org/nctsn\\_assets/pdfs/teachers\\_guidelines\\_talk\\_children\\_hurricanes.pdf](http://www.nctsnet.org/nctsn_assets/pdfs/teachers_guidelines_talk_children_hurricanes.pdf)

And NCTSN has materials pertaining to childhood traumatic grief and on impact of the media.

[http://www.nctsnet.org/nctsn\\_assets/pdfs/reports/InformationforParentsonChildhoodTraumaticGrief.pdf](http://www.nctsnet.org/nctsn_assets/pdfs/reports/InformationforParentsonChildhoodTraumaticGrief.pdf)

[http://www.nctsnet.org/nctsn\\_assets/pdfs/edu\\_materials/MediaTipsforParents.pdf](http://www.nctsnet.org/nctsn_assets/pdfs/edu_materials/MediaTipsforParents.pdf)

The American Psychological Association has put together some help pages related to Katrina. Documents on managing traumatic stress associated with natural disasters in general and after Katrina in particular, including particularly advice for working with children.

<http://www.apahelpcenter.org/articles/article.php?id=69>

<http://www.apahelpcenter.org/articles/article.php?id=107>

<http://www.apahelpcenter.org/articles/article.php?id=109>

The National Institutes of Mental Health has prepared a document on helping children cope with violence and disasters.

<http://www.nimh.nih.gov/publicat/violence.cfm>

The National Mental Health Information Center has prepared tips for helping children after a traumatic event, including terrorist attack or natural disaster, interventions for children and adolescents, and coping strategies, for parents, teachers and disaster response workers.

<http://www.mentalhealth.samhsa.gov/cmhs/TraumaticEvents/tips.asp>

The Centers for Disease Control has links to disaster-related mental health resources

<http://www.bt.cdc.gov/mentalhealth/>

The International Medical Corp, drawing upon recommendations of the WHO and the Sphere Project, offer mental health guidelines for working with those affected by Hurricane Katrina.

[http://www.imcworldwide.org/pdf/Mental\\_Health\\_Guidelines\\_Katrina\\_assistance.pdf](http://www.imcworldwide.org/pdf/Mental_Health_Guidelines_Katrina_assistance.pdf)

The National Center for PTSD has many publications and factsheets for working with Katrina disaster victims. Although most are oriented toward adults, information for families is also available.

<http://www.ncptsd.va.gov/topics/katrina.html>

The American Academy of Child and Adolescent Psychiatry has prepared a guide for helping children after a disaster.

<http://www.aacap.org/publications/factsfam/disaster.htm>

The National Mental Health Association has prepared a brief factsheet about Helping Children Handle Disaster-Related Anxiety

<http://www.nmha.org/reassurance/children.cfm>

The National Center for Grieving Children and Families at The Dougy Center offer a concise guide to understanding and helping grieving children.

<http://kidsaid.com/dougypage.html>

The National Counseling Association has also authored information related to counseling children in the aftermath of Katrina.

[http://www.counseling.org/Content/NavigationMenu/RESOURCES/HELPINGCHILDRENCOPEWITHTRAUMA/Crisis\\_Fact\\_Sheet.htm](http://www.counseling.org/Content/NavigationMenu/RESOURCES/HELPINGCHILDRENCOPEWITHTRAUMA/Crisis_Fact_Sheet.htm)

Child Trauma Academy provides an assortment of publications in PDF form related to trauma, grief and mourning, for caregivers, teachers, first responders, counselors, and civic officials.

<http://www.childtrauma.org/CTAMATERIALS/katrina.asp>

The National Education Association has written a series of booklets dealing with children in crises. Of greatest relevance is the one on "Being Diligent – Moving Beyond Crisis" which can be downloaded as a PDF here:

<http://www.nea.org/crisis/images/crisisguide-b3.pdf>

## **B. Reconnecting Children with Family and Helping Displaced Children**

The National Center for Missing and Exploited Children has set up a database to help locate people, both children looking for parents as well as families/caregivers looking for children.

[http://www.missingkids.com/missingkids/servlet/PageServlet?LanguageCountry=en\\_US&PageId=2077](http://www.missingkids.com/missingkids/servlet/PageServlet?LanguageCountry=en_US&PageId=2077)

The Red Cross has also set up a database to help locate family and relatives

<http://www.familylinks.icrc.org/katrina>

The federal government has compiled an extensive list of sources, both governmental and non-governmental, for searching for family and friends affected by Katrina, as well as lists of people reported safe and their location.

[http://www.firstgov.gov/Citizen/Topics/PublicSafety/Hurricane\\_Katrina\\_Recovery.shtml#vgn-find-family-and-friends-government-sources-vgn](http://www.firstgov.gov/Citizen/Topics/PublicSafety/Hurricane_Katrina_Recovery.shtml#vgn-find-family-and-friends-government-sources-vgn)

The National Resource Center for Family-Centered Practice and Permanency Planning has compiled links to websites to assist efforts to work with children following Katrina, including links to state agency websites and also information on fostering and adopting displaced children.

[http://www.hunter.cuny.edu/socwork/nrcfcpp/disaster\\_relief.html](http://www.hunter.cuny.edu/socwork/nrcfcpp/disaster_relief.html)

### **C. Contacting State Agencies**

Alabama <http://www.dhr.state.al.us/page.asp?pageid=750>

Mississippi <http://www.mdhs.state.ms.us/>

Louisiana <http://www.dss.state.la.us/>

Texas [http://www.dfps.state.tx.us/About/Releases\\_and\\_Newsletter/2005/2005-09-07\\_Katrina\\_update.asp](http://www.dfps.state.tx.us/About/Releases_and_Newsletter/2005/2005-09-07_Katrina_update.asp)