Factors Effecting the Development of Posttraumatic Stress Symptoms in Children Following Disaster Events

An Honors Thesis (HONRS 499)

By
Christina M. Davis

Thesis Advisor
Dana B. Narter

Ball State University
May, 2003

May 3, 2003
Acknowledgements

First, I owe a great deal of thanks to Dr. Dana Narter for advising me throughout the process of this paper. I appreciated your willingness to devote your time and energy to help me in this endeavor. I am also indebted to you for the guidance and motivation you provided.

I would like to thank my family for their continued support. Particularly, I thank my parents, Barbara and Charles, who patiently listened over the phone to sections of this paper when I was unsure about my choice of wording.

Also, I would like to thank some of my friends who each helped in their individual ways: To Bill for accompanying me on many late night trips to the library. To my roommate, Kelly, for her encouragement. And to Cassandra for volunteering to take some of my shifts at work, so that I was able to devote more time to this paper.
Abstract

Children’s responses to disaster events are a major source of interest to researchers, as well as to parents, educators, and many other adults who are placed in a supervisory role over children. This paper particularly examines the development of posttraumatic stress symptoms (PTSS), in children following a disaster. In order to provide a complete examination of subsequent PTSS, this paper describes the more common symptoms that children exhibit and emphasizes a number of factors that are associated with the development of PTSS. Furthermore, it provides adults with some suggestions on the issue of allowing children to watch media coverage of a disaster. Lastly, if offers suggestions on how adults should talk and interact with children following disasters.
Factors Effecting the Development of Posttraumatic Stress Symptoms in Children Following Disaster Events

Often a person has experienced at least one traumatic event in his or her life, such as the loss of loved one, a terrible car accident, or some kind of disaster. In light of the common occurrence of disasters, this paper seeks to explore their impact on children. Particularly, it focuses on children because some adults may wish to erroneously conclude that children are too young to be as severely impacted as adults. However, before the types of reactions children have can be properly addressed, it is important to be clear on what is meant by the term disaster. For the purposes of this paper, events were considered as disaster events if they were caused in one of three ways; through acts of nature (e.g. hurricane, fire, and earthquake), accidents of technology (e.g. nuclear waste spill, ship sinking, and shuttle explosion), and purposeful actions (e.g. terrorist attacks, such as the Oklahoma City bombing).

A common reaction to traumatic events is the development of posttraumatic stress disorder (PTSD), which will be defined in the following paragraph. Originally, the main purpose of this paper to discuss PTSD and the factors that relate to its development in children following disaster events, however, many of the studies reviewed only diagnosed a small percentage of the children with PTSD. Instead, they were more often found to have posttraumatic stress symptoms (PTSS).

To better understand PTSS, and why many researchers are unable to give a complete PTSD diagnosis, it would beneficial to examine the definition of PTSD. It
PTSS in Children

is defined by *The Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV), as

...the development of characteristic symptoms following exposure to an extreme traumatic stressor involving direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate (American Psychological Association, 1994, p. 463).

The *DSM-IV* continues by describing the characteristic symptoms of PTSD, which can be divided into three basic categories: reexperiencing, avoidance, and arousal. In children, reexperiencing can be in the form of vivid recurrent recollections and recurrent dreams (nightmares). Avoidance can be characterized by deliberately not talking about the disaster or feelings and thoughts associated with it. Finally, arousal symptoms (which were not present before the traumatic event) can be seen in children who have difficulty staying awake or falling asleep, and/or have an exaggerated startle response. In addition to these symptoms, children must exhibit disorganized or agitated behavior, have the full range of symptoms present for longer than one month, and their symptomatic response must cause significant distress or impairment in all or some of the necessary areas of functioning.

Perhaps many researchers were unable to diagnosis children with PTSD due to the lack of symptoms that must be present in all three of the broad categories:
reexperiencing, avoidance, and arousal. Also, in some cases the children may not present the symptoms for the required amount of time (at least one month) for PTSD. Due to the inability of the many of the researchers to make a complete diagnosis of PTSD, the information in this paper will concentrate on PTSS.

This paper is written with the intent to be helpful not only to parents, but to any individual who interacts with children in a supervisory role, such as teachers, counselors, and other family members. In order to accomplish this goal, I hope to provide the reader with a more precise picture of some common posttraumatic stress symptoms in children. The paper will also devote much discussion to the examination of factors that many believe are related to the development of PTSS in children. Lastly, I offer some suggestions on how adults can handle and minimize the psychological effects of disasters on children.

Symptoms

In order to be able to diagnosis a child with PTSS, it is necessary for the symptoms of PTSD to be identified and understood. As previously noted, the presence of PTSS is documented when a child exhibits the symptoms of PTSD, but does not exhibit enough of the symptoms in each category of PTSD, and/or the criteria for a diagnosis of PTSD is not met. In this section, symptoms common to children in each broad category of PTSD will be identified and discussed.

Rohen (2002) discussed PTSD as it relates to children. Some of the symptoms that fall under 1) reexperiencing are intrusive thoughts, theme related repetitive play, distressing dreams related to the event (or generalized nightmares), intense psychological distress (e.g. experiencing fear) at exposure to reminders of the
PTSS in Children

trauma, and trauma-specific reenactments. Rohen continued by stating that 2) avoidance symptoms are characterized by the avoidance of discussions, thoughts, feelings, activities, places and people related to the traumatic event. Furthermore, a numbing of general responsiveness may occur, such as, inability to recall an important aspect of the trauma, decreased interest in once enjoyed activities, feelings of detachment, and a sense of a foreshortened future (not thinking they will live long enough to do typical adult things, like getting married). Included in the last category, 3) arousal, are difficulties sleeping and concentrating, irritability or angry outbursts, hypervigilance (extreme watchfulness), and an exaggerated startle response. Also noted is the possible presence of somatic complaints like headaches and stomach aches.

While all three of the categories of symptoms are found in disaster literature, reexperiencing and arousal are the more prevalent ones (Jones, Ribbe, Cunningham, Weddle, & Langley, 2002; Korol, Green, & Gleser, 1999; Norris, Friedman, Watson, Bryne, Diaz, & Kaniasty, 2002; Pfefferbaum, Nixon, Tivis, Doughty, Pynoos, Gurwitch, & Foy, 2001; Pfefferbaum, Nixon, Tucker, Tivis, Moore, Gurwitch, Pynoos, & Geis, 1999). However, some of the research presents the idea that reexperiencing is the more prevalent of the two (Jones et al., 2002; Norris et al., 2002). In addition, Jones et al. (2002) report thinking a lot about the disaster, dreaming about it, a sense of it reoccurring, and being upset by reminders as dominant reexperiencing symptoms. Also, Jones et al. (2002) stated that the presence of physical reminders of disasters, like destroyed homes or buildings, could be a contributing factor to children’s increased thinking about the disaster.
More specific examples of reexperiencing symptoms can be found in Terr, Bloch, Michel, Shi, Reinhardt, and Metayer (1999). In this study they interviewed children after the *Challenger* space shuttle explosion. Their study revealed that dreams relating to the *Challenger* occurred in 62% of their East Coast participants. They also found that the most common form of play for adolescents was writing, and drawing for children ages eight to ten. In addition to this discovery, researches found varied forms of behavioral reenactments. One such reenactment involved a nine year old boy, “I did something weird. I baked something with the wrong ingredients. I put in salt-I didn’t realize it. I set the oven on high. And the whole thing exploded!” (p.1539).

The next most noted category was arousal (Jones et al., 2002; Korol et al., 1999; Norris et al., 2002; Pfefferbaum et al., 2001; Pfefferbaum et al., 1999); this could be because symptoms of reexperiencing and arousal are often connected. For example, when a child often thinks about the disaster event and has nightmares related to the event (reexperiencing), it may result in the child having difficulties concentrating and falling or staying asleep (arousal). The more common arousal symptoms found in disaster literature included clinginess, hyperactivity, and trouble falling or staying asleep (Jones et al., 2002; Norris et al., 2002; Swenson, Saylor, Powell, Stokes, Foster, & Belter, 1996). Many children will exhibit these symptoms in conjunction with each other, such as a child who is very clingy with a parent and cannot fall asleep unless that parent is sleeping with her. Along with these symptoms, Korol et al. (1999) reported irritability, jumpy and nervous behavior, and being easily startled as the most frequently reported arousal symptoms.
The fact that avoidance is seen as the least prevalent category could be due to the inability of reporters of children’s behavior (e.g. parents and teachers) to recognize symptoms of avoidance. For instance, a parent might report that a child does not seem to exhibit symptoms of avoidance, but how can they be sure if they never talk about the disaster event with their child. Often, this occurs because a parent might be fearful of upsetting the child again by asking them to talk about it, or recall certain events related to the disaster. This leads to the assertion that researchers are more likely to get accurate reports of avoidance from the children themselves. In the study conducted by Terr et al. (1999), which assessed symptoms based on self-report, they found that children who had observed the Challenger disaster, either directly or indirectly, still exhibited avoidance symptoms (as well as the other two categories). One 9 year old girl reported, “I’ll die. Maybe at 60. That’s old. My grandparents are already in their 50s, but they’re not going to die so soon. I might get killed. Shot, maybe” (p.1541).

In relation to the prevalence of reexperiencing, avoidance, and arousal symptoms, it is necessary to discuss the factors that influence their development. Furthermore, it is important to note that many of the reactions discussed are typical in children following disaster events. Although some of the reactions discussed might seem odd, parents or other authority figures should not be alarmed if they observe any in their children. Factors influencing the development of PTSS and how parents should deal with children in regards to these types of behavior will be addressed in-depth in the following sections.
Factors Effecting PTSS

Direct Exposure

When considering the development of PTSS, exposure is a necessary factor. What varies is the type and amount of exposure a child may have to a disaster. The two main types of exposure are direct and indirect. Direct exposure is defined as being directly involved in the disaster event (e.g. being present in the area when a hurricane occurred, or in a building bombed by terrorists). Also, knowing someone killed or injured (usually close family members or friends) in the disaster event places a child in the direct exposure category.

Once a child has been categorized into the direct exposure group, there are still many other aspects within that group that should be assessed. One aspect, that encompasses many variables within direct exposure, is the extent to which a child was directly exposed to the disaster event (Asarnow, Glynn, Pynoos, Nahum, Guthrie, Cantwell, & Franklin, 1999; Chemtob, Nakashima, & Carlson, 2002; Jones et al., 2002; Norris et al., 2002; Pfefferbaum et al., 1999; Schlenger, Caddell, Ebert, Jordan, Rourke, Wilson, Thalji, Dennis, Fairbank, & Kulka, 2002; Swenson et al., 1996; Terr et al., 1999). Many types of questions are asked in order to accurately assess the extent of direct exposure. For example, in a Northridge earthquake study (Asarnow et al., 1999), researchers assessed direct exposure by asking questions related to separation from parents, being trapped, injury to self, injury to others, witnessing injury to others, pet lost, damage to house, and evacuation of house. Of course the types of questions asked will vary according to the type of disaster. For instance, while most disaster studies will question injury to self or others, studies of
technological disasters (e.g. terrorist attacks) are less likely to question damage to house or loss of pets.

When asking questions regarding the extent of exposure, researchers focus on different aspects as measurements of the extent to which a child was exposed to a disaster event. In several studies, actual or perceived injury to self was used as a measure of the extent of direct exposure (Asarnow et al., 1999; Chemtob et al., 2002; Jones et al., 2002; Jones, Frary, Cunningham, Weddle, & Kaiser, 2001). Along with actual or perceived injury to self, overall resource loss was examined (Jones et al., 2002). Those that experienced more resource loss (e.g. destruction of property) were categorized as being at a higher level of direct exposure than those that experienced lower levels of resource loss.

Other studies examined interpersonal loss as a means of measurement (Pfefferbaum et al., 1999; Schlenger et al., 2002; Swenson et al., 1996). In particular, the Pfefferbaum et al. (1999) study compared children who lost a parent to children who lost a friend. Children who lost parents were considered to be at a greater level of interpersonal loss; therefore they were classified as having a greater extent of direct exposure.

Although all of the studies reviewed assessed direct exposure and its extent somewhat differently, their findings promoted the same conclusion. The closer a child is to a disaster the more likely it is that PTSS will develop (Asarnow et al., 1999; Chemtob, et al., 2002; Jones et al., 2002; Norris et al., 2002; Pfefferbaum et al., 1999; Schlenger et al., 2002; Swenson et al., 1996; Terr et al., 1999). These findings hold true not only for children, but for adults as well. For example, a month to two
months after the September 11th terrorist attacks, Schlenger et al. (2002) found that the probable PTSD prevalence rates (which would certainly be associated with rates of PTSS) for adults in the New York City metropolitan area were 2.9 times higher than those for the rest of the country. These findings suggest that following a disaster event not only do parents need to be aware of the effects that direct exposure may have on their child(ren), but they must be aware of the possible effects it may have on themselves.

Indirect Exposure

As with direct exposure, there are two ways in which a child can be defined as having indirect exposure. Indirect exposure can be in the form of watching or reading media coverage relating to the disaster event. Also, having a friend who knew someone killed or injured as a result of the disaster (called indirect interpersonal exposure) is considered another form of indirect exposure (Pfefferbaum, Seale, McDonald, Brandt, Rainwater, Maynard, Meierhoefer, & Miller, 2000).

Originally, many individuals did not recognize the impact that indirect exposure has on children following disaster events. A previously mentioned study (the Challenger study), conducted by Terr et al. (1999), is often cited by other researchers for specifically examining the difference in responses between groups of children who had different types of exposure. The first group was present at the explosion (East Coast children who students of Christa McAuliffe, a teacher onboard), the second group watched it live on television (East Coast children who were not students), and the third group heard about it later (West Coast children).
Their finding of PTSS responses in children not present at the explosion highlighted the importance of examining children who have been indirectly exposed to a disaster.

The most common way to assess the level of indirect exposure was by examining the amount of media exposure (Pfefferbaum et al., 2001; Pfefferbaum et al., 1999; Pfefferbaum et al., 2000; Schlenger et al., 2002). When examining children with no direct exposure, these studies all reported similar findings. Children with more media exposure suffered from higher levels of PTSS than children with less media exposure. Also, Pfefferbaum et al. (2001) found that the same was true for children who were directly exposed to the event, whether the direct exposure was through presence or knowing someone killed or injured. Moreover, they concluded that children with direct exposure, and higher levels of media exposure, had more PTSD related symptoms than children with either direct or indirect exposure alone.

In a study conducted by Pfefferbaum et al. (2000), they examined not only the amount of media exposure, but the type of media exposure. They were able to further assess media exposure by parsing it into two broad categories, broadcast media and print media. Broadcast media encompasses any television and radio news, along with any special television or radio programming related to coverage of the disaster. Print media includes magazines, newspapers, and journals that contain disaster related coverage (Pfefferbaum et al., 2000).

The same study, conducted by Pfefferbaum and colleagues (2002), found that immediately following the Oklahoma City bombing, children’s reported levels of broadcast and print media exposure were predictive of their current levels (of media exposure) two years later. Additionally, they found a correlation between the number
of symptoms in children and the amount of broadcast and print media exposure immediately following the bombing. Meaning, both broadcast and print media exposure were predictive of higher numbers of posttraumatic stress symptoms. More specifically, they established that children who had high levels of print media exposure also reported more PTSS than children with high levels of broadcast media exposure. Furthermore, children who had indirect interpersonal exposure (e.g. having a friend who knew someone killed or injured) were likely to report more PTSD symptoms than children who had no indirect interpersonal exposure.

Even though these studies provided significant conclusions concerning media exposure effects, the Pfefferbaum et al. (2001) study emphasized the need to determine causal effects. At this stage there can be only speculation on whether children’s increased PTSS will be predictive of increased media exposure, or if the reverse it true. For example, will a child who watches a lot of television related to the disaster develop more symptoms, or does having more symptoms result in increased disaster related television viewing? As of yet there is no definitive answer. However, it is still necessary that society (not just parents) remains sensitive to the possible harmful effects that indirect exposure, especially media exposure, can have on children.

Also, it is important to note that all of the studies that examined media exposure did so following terrorist disaster events. Although, all types of disasters may result in similar PTSS, terrorist disaster events are different from natural or technological disasters because they have the added component of intent (Norris et al., 2002). As opposed to natural disasters, which are seen as occurring as a result of
nature, and technological disasters, which usually occur as a result of human error. Therefore, when discussing these studies it is crucial to keep in mind that they may report more severe reactions related to media exposure than other types of disasters. 

Demographics: Age, Gender, and Race

When considering the demographic of factor, age, it is important to place consideration on a child’s developmental level. For instance, an older child, such as a high school student, is less likely develop PTSS because they have reached a higher developmental stage. Rohen (2002) states, that children who are at a higher developmental stage are equipped with the cognitive capabilities that enable them to cope more effectively with the emotions and situations brought on by a disaster event. Furthermore, due to their lack of cognitive maturation, children younger than four years of age are less likely to be effected because they cannot fully comprehend the impact of a disaster event. For this reason, most the studies reviewed for this paper did not conduct research on younger than school age children. In fact, Norris et al. (2002) supported this finding when they noted the presence of behavior problems in preschool aged children, but stated that overall they were minimally.

Also, another study conducted by Swenson et al. (1996), found a significant increase in the presence of nine types of behaviors in preschool children after exposure to a hurricane: whining, wanting things immediately, refusing to sleep alone, trouble going to bed, fear without good reason, hyperactivity, acting younger than formerly for age, and being easily startled. While some of these behaviors are noted in the DSM-IV as PTSD related, they were not significant enough for a diagnosis of PTSD or PTSS. The findings of this study combined with the findings of
Norris et al. (2002), demonstrate that although younger than school children are not commonly diagnosed with PTSS they do develop some kind of post-disaster responses.

Even though it is evident that children younger than school-aged and older than middle school are less at risk for PTSS, the question of who is more at risk is still left unanswered. The safest conclusion would have to be that research does not provide us with a definite answer, but some studies have shown a trend. This trend leans towards children between the ages of eight and ten as exhibiting the most PTSS following disasters (Norris et al., 2002; Rohen, 2001; Terr et al., 1999).

Gender, has also been a major source of controversy in the disaster-related literature. It seems that for almost every study that reports a gender effect, another study can be found that reports no gender effects. Although, the findings of the research on this topic are mixed, there has been one general tendency. This tendency in disaster studies shows that when gender effects are present, girls are more often severely impacted than boys (Bolton, O’Ryan, Udwin, Boyle, & Yule, 2000; Jones et al., 2001; Korol et al., 1999; Koplewicz, Vogel, Solanto, Morrissey, Alonso, Abikoff, Gallagher, & Novick, 2002; Norris et al., 2002; Pfefferbaum et al., 1999; Pfefferbaum et al., 2000).

Because the research is inconclusive, two main aspects of gender effects require further examination. The first aspect focuses on whether or not girls really are more prone to suffer from PTSS. The second aspect concerns the reasons behind the propensity for girls to be more severely effected. There are many speculations as to why the research keeps demonstrating this gender effect. One of the most valid
speculations relates to the differences in the socialization process of boys and girls. Korol et al. (1999) propose, "...boys learn to contain, suppress, or deny psychological symptoms, while girls become more emotionally expressive as they grow older" (p. 373). This assertion is very plausible because a majority studies rely on children's self-reports of PTSS. If children have been conditioned through society to believe it is acceptable for girls, more so than boys, to be expressive with their emotional reactions, then girls would be more likely to report their PTSS.

The final demographic factor taken into account was race. An interesting finding was that among the research studies reviewed for this paper, 61% (eight) had predominately Caucasian participants (Asarnow et al., 1999; Bolton, O'Ryan, Udwin, Boyle, & Yule, 2000; Jones et al., 2002; Koplewicz et al., 2002; Korol et al., 1999; Pfefferbaum et al., 2000; Schlenger et al., 2002; Swenson et al., 1996). 30% (four) had equal or predominately minority participants (Chemtob et al., 2002; Jones et al., 2001; Pfefferbaum et al., 2001; Pfefferbaum et al., 1999), and 14% (one) did not include the race of their participants (Terr et al., 1999). The other references used for this paper did not contain any actual studies conducted by the researchers themselves, so they were not included in this calculation. This fact alone should point to the need for more investigation of the effect of race on PTSS.

Despite the lack of available research pertaining to race, it is still essential to discuss what is available on the interaction between race and PTSS. Jones et al. (2001) state that previous findings (March, Amaya-Jackson, Terry, & Constanzo, 1997; Lonigan et al., 1991; Shannon, Lonigan, Finch, & Taylor, 1994) found African Americans as more likely to exhibit posttraumatic stress than Caucasian or other
ethnic minority youths. However, contrary to past research, the study conducted by Jones and colleagues (2001) suggested that Caucasian females exhibited much higher levels of intrusion (considered under the same category as reexperiencing) than any other combination of gender or race group. Additional research regarding race shows that belonging to an ethnic minority group is more influential in developing PTSS than being Caucasian, especially, if that child is a Mexican female (Norris et al., 2002).

After reviewing the studies related to these demographic factors the need for further research is evident. Mainly, the current research points towards the capability of these factors to influence the development of PTSS at some level. However, the extent to which these demographic factors impact children still remains to be determined. Even though the research on demographic factors is somewhat inconclusive, a vague picture of a child who is more at risk for developing PTSS can be obtained. Most likely, a child who is at a higher risk would be between the ages of eight and ten (Norris et al., 2002; Rohen, 2001; Terr et al., 1999), female (Bolton et al., 2000; Jones et al., 2001; Korol et al., 1999; Koplewicz et al., 2002; Norris et al., 2002; Pfefferbaum et al., 1999; Pfefferbaum et al., 2000), and be Mexican (Norris et al., 2002).

Psychopathology

The term psychopathology can encompass any number of DSM-IV diagnosable disorders, such as depression, schizophrenia, specific phobias, and generalized anxiety disorder. Researchers who want to assess psychopathology as an influencing factor in the development of PTSS encounter several problems. The first
of these is the availability of children with preexisting psychopathologies. Usually, when a disaster event occurs there is little forewarning on where and whom it will strike. This gives the prospective researchers very little control over who their participants will include or what a priori psychopathology they will have. Secondly, parents of children with preexisting psychopathologies may perceive a study of their children’s subsequent reactions as additional stress and not wish to subject them to it.

In spite of the difficulties some researchers face, Asarnow et al. (1999) were presented with a unique opportunity to assess various psychopathologies as a relevant factor to the development of PTSS, following an earthquake. Their participants included children who were involved in a family-genetic study of depression and other disorders. They divided the participants into four groups according to preexisting psychopathology: depression, anxiety disorders (e.g. panic disorder), disruptive behavior disorders (e.g. attention deficit disorder), and siblings who were not diagnosed with any psychopathology. Their finding was that predisaster anxiety disorders were the only ones to be significantly associated with the development of PTSS. Asarnow and colleagues suggest that a major reason for this finding is that preexisting anxiety may cause a child to be more prone to exaggerate perceived threat, and possibly derive less comfort from efforts of safety and personal reassurances.

Since preexisting psychopathologies have been addressed, it is only fair that the tables be turned, and PTSS is examined as a factor that influences the development of other psychopathologies. In one such study Bolton et al. (2000) specifically examined this occurrence following the sinking of a ship called the
“Jupiter” in Greek waters. The participants (five to eight years post sinking) were divided into those who had developed PTSD as a result of the sinking and those who had not. Both were compared to a control group. They found that 61.8% in the PTSD group developed “Any anxiety disorder”, 63.6% developed “Any affective disorder”, and 81.8% could be diagnosed with “Any psychopathology (except PTSD). The rates of the participants who had not developed PTSD were similar to those of the control group. Furthermore, they found evidence indicating that recovery from PTSD was associated with recovery from other disorders. Although, this study specifically examined PTSD, these findings can still be generalized to research examining PTSS because it is often a precursor to PTSD.

The findings from both Asarnow et al. (1999) and Bolton et al. (2000) provide some interesting conclusions. First, a preexisting psychopathology does not necessarily make a child more susceptible to the development of PTSS. Second, it has been demonstrated that preexisting anxiety disorders do place a child at a higher risk for developing posttraumatic stress symptoms, but this makes sense in light of the fact that PTSD itself is under the main category of anxiety disorders in the DSM-IV. Finally, children who do develop PTSS as a result a disaster might be at a much greater risk for the development of various other psychopathologies.

Family

When considering family as a factor that effects the development PTSS, it is important to recognize the discrepancy between child and parent reports. Parents tend to underestimate the number of symptoms and overall negative impact that disasters can have on children (Jones et al., 2002; Koplewicz et al., 2002; Korol et al.,
There are several plausible explanations as to why, after a disaster, parents underreport any kind of distress in children. It could be that the majority of parents underscore the extent to which their child is effected because it is too emotionally difficult for them to perceive their child as suffering. Other reasons for this parent-child discrepancy include younger children’s limited verbal expression skills, the unwillingness of children to talk to their parents about the disaster, and the parent’s own disaster experiences (Korol et al., 1999; Rohen, 2002).

Returning to family as an effecting factor, a parent’s reactions to the disaster and subsequent disaster related problems have a predictive value of children’s PTSS (Jones et al., 2002; Koplewicz et al., 2002; Korol et al., 1999; Norris et al., 2002). In these studies, it was the mother who provided the parent report. This parental predictive value can be better interpreted as, the more distress a mother exhibits after a disaster, the more likely her child is to develop PTSS. Interestingly, Koplewicz et al. (2002), also found that parents’ levels of distress are influenced by their child’s PTSS.

The research has demonstrated that parent’s levels of distress are associated with the development of PTSS in children (Jones et al., 2002; Koplewicz et al., 2002; Korol et al., 1999; Norris et al., 2002). However, as previously stated, most studies included the mother’s report of the child’s symptoms and overall distress and called it “parent report”. This presents a problem because maternal reports are not necessarily reflective of today’s continually changing family structure. What would the research show when fathers are the primary caregiver? Would it yield the same results? What about children who have more daily interaction with a babysitter, an older sibling, or
even grandparents? These questions are still left unanswered. Future research would benefit from examining different types of family structures and their association with a child’s reaction to disasters.

Suggestions for Adults to Minimize Effects on Children

*Children and Media*

Often initial media coverage of disasters is graphic and unedited. As demonstrated by Pfefferbaum et al. (2002), seeing this footage either on television or in print can not only worsen an already exposed child’s PTSS, but it can influence the development of symptoms in children not present at the disaster. Therefore, one of the most important steps adults can take to minimize the effects of a disaster is to monitor a child’s exposure to the media. Usually, a child’s parents are the best judges of whether or not their child possesses the cognitive capabilities to process the media coverage accurately, however, there are a few suggestions concerning age.

First, adults should take precautions not to expose children under the age of six to any disaster related media coverage. Also, it might be beneficial not to allow children in this age group to watch other kinds of frightening television programs or movies (Hambien, 2002). Secondly, children six to eleven (elementary school-aged children) should have very limited exposure to disaster-related media coverage. Even though this age group is permitted exposure, it should in the presence of an adult who can explain and describe the images being seen or text being read. Finally, it is more difficult to control media exposure in children who are eleven years and older. Often this age group is not under constant adult supervision, and they have access to many forms of media. This means it is extremely important for adults to make themselves
available and to provide other opportunities for children to discuss the media coverage and their reactions to it (Zagelbaum, Alexander & Kruczek, 2002).

While it is essential to remember that children do react different to disaster-related media coverage, exposure to all types of media (including possible internet sources) should be monitored. In order to accomplish this, schools, parents, and other authority figures in a child’s life have to work together. For example, many schools today have television sets in their classrooms, which would allow teachers and students to view disaster-related coverage as it occurs. However, if the schools have not obtained pre-approval from parents to let their child watch the coverage then it is in everyone’s best interest to keep the televisions sets off while children are present in the room. Also, parents should convey their feelings on media exposure to any others who might be in a supervisory role over their child.

_Talking and Interacting with Children_

Many times adults are reluctant to discuss the disaster event with children for fear of re-traumatizing them. Not talking with children about the disaster can be even more harmful because it might give them the impression that they are not supposed to talk about it (Rohen, 2002). This can lead to avoidance coping (e.g. keeping feelings to oneself and denying occurrence or impact), which was found to be associated with higher levels of PTSS (Asarnow et al., 1999). Additionally, adults can be unsure as to how they should approach disaster-related issues or how they can help children better cope with disasters in general.
Although the following suggestions are taken from sources that discuss how to talk to or interact with children after terrorist attacks, many of the suggestions are broad and can be generalized to most types of disasters.

- **Be open when talking to children about the disaster and modify adult language** (Hambien, 2002). It is important that children know that they can come to adults with questions and get honest answers. It is equally important, that when answering questions adults use appropriate developmental language. For instance, following a disaster like 9/11, a parent might tell a six year old child that something very terrible has happened and that many people were hurt or killed, but a parent would not explain to the child the concept of Islamic Jihad.

- **Help children separate fact from fiction** (U.S. Department of Education, 2002). This is a key concept when dealing with terrorist attacks. Through the venues of television, newspapers, and the internet, children can have repeated exposure to the same terrorist event. As a result, younger children may believe that the event is happening again, or is a frequent occurrence (Rohen, 2002). Discuss the media and information children hear from other people, and help them distinguish the difference between what is a known fact and what is speculation or possible exaggeration.

- **Create a safe environment** (Hambien, 2002; U.S. Department of Education, 2002). Often times if children are in a more familiar
environment they will feel safer. If a disaster has physically displaced a child from his/her home (e.g. a fire) staying at a close relative’s house would be preferred to staying at a hotel. Also, adults should reassure children that measures are being taken to make sure they stay safe.

- **Maintain already established routines** (Zagelbaum et al., 2002).
  This suggestion is in conjunction with creating a safe environment. If children are familiar with their environment and stick to normal routines, they will feel more comfortable and safe. It also gives children stability and predictability in their lives, which will help reduce anxiety levels.

- **Be aware of the various symptoms** (Hambien, 2002). It may take time for some symptoms to appear. Sometimes symptoms may be more generalized, so it is important that adults stay attuned to their children’s behavior. Not every behavioral change exhibited will lead to a PTSS diagnosis, but adults should be aware of some of the common symptoms and seek professional help when needed.

- **Be aware that children’s distress is influenced by adults’ distress** (Hambien, 2002; U.S. Department of Education, 2002). As evidenced earlier, a parent’s reactions impacted their child’s reaction. It is imperative that if an adult is having difficulties dealing with the disaster event that they seek help immediately. This does not mean that adults should hide their distress from children, but be able to find
a balance between sharing their feelings about the disaster and overwhelming children with their anxieties

- Allow children opportunities to help victims (U.S. Department of Education, 2002; Zagelbaum et al., 2002). Helping victims or families of victims is something all children can do. Adolescents may be able to donate blood or volunteer at places like the Red Cross. Middle school or elementary school children can help by participating in fundraisers or drives, such as car washes and collecting canned goods. Younger children can draw pictures or send cards to those affected by the disaster.

Overall, the best step that adults can take in order to help children cope with disasters is to keep the lines of communication open. Adults need to communicate not only with their children, but also with other adults. By doing this they are demonstrating to children that it is normal to talk about the disaster and for people to have different reactions to it. If children perceive this type of behavior as normal and acceptable, they are less likely to use forms of avoidance coping and will have a decreased likelihood of developing PTSS.

Conclusions

As previously stated, this paper explored the impact that disaster events can have on children. It accomplished this by examining PTSS, and addressing in-depth the factors that are related to its development. Also, I provided some suggestions on how adults can minimize the psychological effects of disasters.
During this exploration, I found that among PTSS the most common category of symptoms was reexperiencing, followed by arousal, and then avoidance (Jones et al., 2002; Korol et al., 1999; Norris et al., 2002; Pfefferbaum et al., 2001; Pfefferbaum et al., 1999). As a reason for the higher prevalence rates of the reexperiencing, Jones et al. (1999) presented the idea that physical reminders of disasters, like destroyed homes or buildings, contribute to children's increased thinking about the disaster. Also, Terr et al. (1999) found that the most common forms of reexperiencing through play were writing for adolescents and drawing for latency-aged (elementary school) children.

The first factor to be discussed, direct exposure, was defined as being directly involved in the disaster event, either through presence or through the loss of a loved one. Often, researchers looked at many variables within direct exposure to assess its extent. Ultimately, the research showed that the greater the extent of the direct exposure, the more likely children were to develop PTSS (Asarnow et al., 1999; Chemtob et al., 2002; Jones et al., 2002; Norris et al., 2002; Pfefferbaum et al., 1999; Schlenger et al., 2002; Swenson et al., 1996; Terr et al., 1999). Furthermore, Schlenger et al. (2002) demonstrated that the same was true for adults in a survey conducted shortly after the 9/11 terrorist attacks.

Indirect exposure was defined as a factor that effects the development of PTSS either through media exposure or having a friend who knew someone killed or injured as a result of the disaster, known as indirect interpersonal exposure (Pfefferbaum et al., 2000). When examining indirect exposure, media coverage related to the disaster played a very influential role. Higher levels of media exposure
were predictive of higher levels of PTSS ((Pfefferbaum et al., 2001; Pfefferbaum et al., 1999; Pfefferbaum et al., 2000; Schlenger et al., 2002). Lastly, when indirect exposure through the media was combined with any type of direct exposure, levels of PTSS increased (Pfefferbaum et al., 2000).

Due to the inconclusiveness of the research concerning demographic factors of age, gender, and race, the need for further researched was discussed. However, it was ascertained that age does effect the development of PTSS (Norris et al., 2002; Rohen, 2002; Terr et al., 1999). Usually, children that are at a developmental level in which they can understand what has happened, but do not possess all of the cognitive capabilities to handle the subsequent emotions are more at risk (Rohen, 2002). Also, a trend for girls to be susceptible to symptoms of PTSD was demonstrated (Bolton et al., 2000; Jones et al., 2001; Korol et al., 1999; Koplewicz et al., 2002; Norris et al., 2002; Pfefferbaum et al., 1999; Pfefferbaum et al., 2000). Finally, there was much disagreement on the factor of race. The only consistent finding was that white males tend to be less affected (Jones et al., 2001; Norris et al., 2002).

Another factor examined, psychopathology, consisted of any type of psychiatric disorders found in the *DSM-IV*. Specifically, Asarnow et al. (1999) concluded that although, preexisting depression and disruptive behavioral disorders might effect subsequent PTSS, preexisting anxiety disorders were the only group to be significantly associated with the development of PTSS. Conversely, Bolton et al. (2000) reported that those children who had developed PTSD, as the result of a disaster, were more likely to be diagnosed, with subsequent psychopathologies.
Additionally, Bolton and colleagues found that recovery from PTSD was associated with recovery of other psychopathologies.

The last factor examined was family. The trend for parents to underreport posttraumatic stress symptoms in children was discussed (Jones et al., 2002; Koplewicz et al., 2002; Korol et al., 1999; Rohen, 2002). Also, it was found that a mother’s level of distress is predictive of her child’s PTSS (Jones et al., 2002; Koplewicz et al., 2002; Korol et al., 1999; Norris et al., 2002). Furthermore, the fact that parental reports in these studies consisted only of maternal reports was addressed (Jones et al., 2002; Koplewicz et al., 2002; Korol et al., 1999; Norris et al., 2002). I proposed the need for future research in this area, specifically, examining the different types of family structures and their association to PTSS.

After exploring the symptoms and the factors that effect the development of PTSS, suggestions regarding the media were provided. Basically, Zagelbaum et al. (2002) recommend three different levels of exposure for children according to age. Children under that age of six should not be exposed to disaster related media coverage, children ages six to eleven can have limited exposure with adult supervision, and children eleven years and older will have fewer limits on their media exposure. However, adults must provide opportunities for these older children to discuss the coverage with others.

Finally, suggestions concerning how to talk to and interact with children following disasters were offered. Briefly, these suggestions are:

- Be open when talking to children about the disaster and modify adult language (Hambien, 2002).
• Help children separate fact from fiction (U.S. Department of Education, 2002).
• Create a safe environment (Hambien, 2002; U.S. Department of Education, 2002).
• Maintain already established routines (Zagelbaum et al., 2002).
• Be aware of the various PTSD symptoms (Hambien, 2002).
• Be aware that children's distress is impacted by adults' distress (Hambien, 2002; U.S. Department of Education, 2002).
• Allow children opportunities to help victims (U.S. Department of Education, 2002; Zagelbaum et al, 2002).

While the purpose of this paper was to explore disaster events, their impact, and the factors that relate to an outcome of PTSS, it was also written with the intent to be beneficial to readers. Namely, any adult who is in a supervisory role over children would benefit from being knowledgeable about the topics discussed in this paper. By explaining some of the more common symptoms found in children adults will find it easier to identify children who are suffering from greater distress. Also, by knowing the types of factors associated with the development of PTSS, adults can identify children who are more at risk. Furthermore, the suggestions provided are useful to adults who wish to minimize children's anxiety and other possible psychological effects. Overall, it is imperative that adults who interact with children regularly know the impact that disasters can have, and work together to provide an environment that promotes effective coping for children.
References


Jones, R. T., Ribbe, D. P., Cunningham, P. B., Weddle, J. D., and


Pfefferbaum, B., Seale, T. W., McDonald, N. B., Brandt, E. N., Rainwater,


tragedy: Some school-based initiatives. Poster session presented at the American Psychological Association Annual Convention, Chicago, IL.