



# CH 4

## Children's Psychological Responses to Disasters

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On successful completion of this chapter you should be able to:

- 1) Distinguish the spectrum of psychological responses to trauma
- 2) Describe the developmentally-related psychological responses to disaster for pre-school and school-age children and for adolescent youth
- 3) Differentiate acute and chronic stress responses for children exposed to disaster
- 4) Delineate the defining characteristics of acute stress disorder (ASD) and posttraumatic stress disorder (PTSD)
- 5) Enumerate factors that enhance resilience in children and adolescents

### Key Concepts

- Depending upon the nature of the trauma, children may experience **posttraumatic stress symptoms**, **grief and/or depression**, **anxiety symptoms** or **behavioral responses**.
- **Acute stress reactions** are experienced by the majority of children exposed to disaster during impact and early post-impact phases while persistent, **chronic stress reactions** may be experienced by children who are subjected to an unceasing cascade of post-disaster adversities.
- For some children, psychological responses to disaster are sufficiently severe and distressing to meet criteria for a trauma-specific disorder such as **acute stress disorder (ASD)** or **posttraumatic stress disorder (PTSD)**.
- **Resilience** is “mastery against adversity” and most children exhibit this capacity to overcome the challenges posed by disaster, restore equilibrium and even emerge stronger or transformed by the experience.

## Introduction

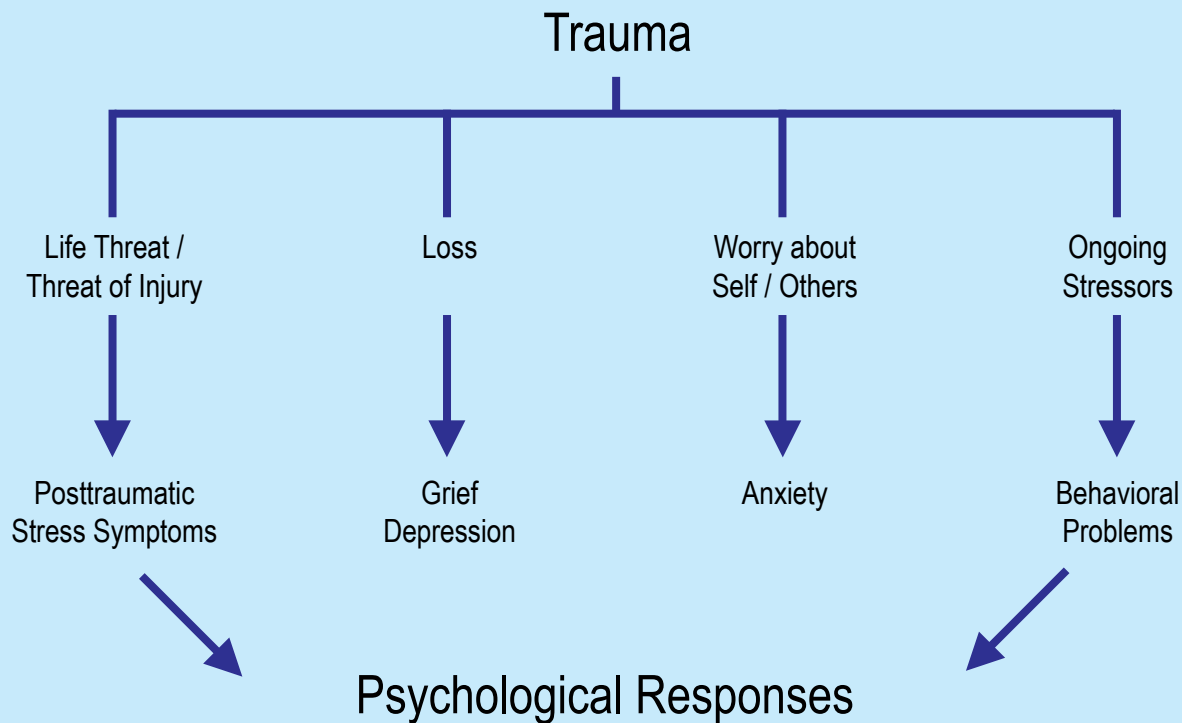
One out of every four children experiences a significant traumatic event before reaching adulthood (Costello et al., 2002). The child's psychological response to trauma is fundamentally affected by the level of cognitive and emotional development. The child typically lives within a family system that is integrated into a community within a cultural and ethnic context. The child's responses to trauma are impacted by the psychological responses of parents, family members and citizens of the disaster-affected community.

Independent of the specific type of trauma, psychological responses tend to follow several common pathways (Table 4.1). Life threat and threat of physical harm may manifest as posttraumatic stress symptoms; loss may produce

reactions of grief and depression; persistent worries may cascade into anxiety; and ongoing life stressors may surface as behavioral problems (Pynoos & Nader, 1988).

Children with no previous psychiatric diagnosis may display anxiety and depressive symptoms, behavior problems and somatic symptoms in the aftermath of disaster. Children with pre-existing emotional and behavioral problems may experience exacerbation of symptoms following disaster, particularly when critical medications are in short supply, barriers to health care access arise, social support diminishes, and routines are disrupted. Children with physical illness may find that the post-disaster demands overwhelm their coping capacities. Some children experience traumatic bereavement following the disaster-related death of a parent or family member.

**Table 4.1 Spectrum of Psychological Responses to Trauma**



*Source: Modified from Pynoos & Nader, 1988*

## Developmental Effects

The child's psychological response is determined and shaped by the nature of the stressors, the level of cognitive development, individual characteristics, childhood understanding of disaster causation, reactions of family members, and the effectiveness of the child's adaptive and coping mechanisms for regulating mood and controlling impulse.

### Preschool Children

Preschool children are less likely to experience posttraumatic symptoms than older children (Bloch et al., 1956; Green et al., 1991). Younger children rely on parental and family figures to determine their perceived degree of risk or safety. Children resonate with parents' emotional states, attitudes and behaviors. As long as parents respond with some sense of equanimity, children feel protected and secure. Younger children have less specific cognitive awareness regarding the nature and meaning of the traumatic experience. Reactions of preschool children tend to be disorganized and agitated, manifested by generalized fears, separation anxiety, aggressive and disruptive behaviors, physical complaints, or loss of previously-mastered bowel and bladder control.

Level of cognitive development has a profound effect on the child's interpretation of, and psychological response to, the traumatic situation. Piaget (1967) observed that the child does not recognize the existence of chance happenings and believes that everything that happens is related to something they did or did not do. The trauma may be interpreted as a punishment for a self-perceived transgression. One child who was evacuated to a shelter because of extensive flooding in his home town believed the floods were a direct consequence of his repeatedly flushing the toilet at home, a behavior for which he had been reprimanded. A young girl believed that the Chowchilla bus kidnapping had occurred because she had called her mother "the meanest mother in the world" as she left for school that morning (Terr, 1981). A child in Miami thought that Hurricane Andrew had occurred because he hit his brother.

Younger children often have a skewed sense of time and have difficulty placing events in chronological order. Children may be prone to illusory experiences and cognitive distortions as they recount their traumatic situation. They may embellish or fabricate missing explanatory pieces from their own fears and wishes.

Terr (1988) noted that preschool children under three years of age have little capacity to verbally recall their traumatic experiences, although girls are generally more successful than boys. Younger children are more likely to reenact the trauma experience in their play activities and insert aspects of the disaster event into drawings or storytelling (Terr, 1981, 1991).

**Table 4.2**  
**Psychological Responses in**  
**Preschool Children**

- Sleep and appetite disturbances
- Fear of the dark
- Separation anxiety
- Nightmares
- Regressive behaviors
- Hypervigilance
- Behavioral reenactments
- Clinging/dependent behavior

### School-age Children

The school-age child has a more mature cognitive understanding of the nature of the disaster event or traumatic situation, including potential threats of bodily injury and death. Symptoms following disaster exposure may include disturbance of regular sleep patterns, appetite change, behavior problems in school, decline in academic performance, disruptive behaviors, depression, anxiety disorders, somatic concerns, and PTSD symptoms. School-age children may experience secondary psychological symptoms as a consequence of their hyperarousal, agitation, anxiety or somatic symptoms.

**Table 4.3**  
**Psychological Responses in**  
**School-age Children**

- Re-experiencing symptoms
- Disorganized or confused behaviors
- Somatic complaints
- Arousal symptoms
- Disruptive behaviors
- Anxiety symptoms
- Decreased academic performance

### Adolescents

Post-traumatic stress symptoms become more like the adult pattern as children mature. The adolescent responds essentially as an adult with a similar range of symptoms and clinical presentations. However, the psychological response is often colored by the adolescent's awareness of a life unlived. Exposure to a perceived threat to life and safety may precipitate fear of a foreshortened future, accentuating the sense of biological fragility and increasing awareness of life's transience (Shaw, 2000). Adolescents exposed to disaster may fearfully avoid usually-enjoyed activities or alternatively, take flight into pleasure-seeking pursuits based on the sudden realization of life's potential brevity. This may lead to risk-taking or sensation-seeking behaviors and potential abuse of alcohol or other substances.

**Table 4.4**  
**Psychological Responses in Adolescents**

- Anxiety
- Depression
- Guilt, anger, fear, disillusionment
- Fears of a foreshortened future
- Flight into pleasurable pursuits
- Substance abuse



## Psychological Reactions to Disasters

### 1. Acute Stress Responses

The majority of persons exposed to a life-threatening experience will manifest acute stress symptoms. (Figure 4.1). During the disaster impact phase, children are at risk for physical harm from disaster hazards, and psychological distress from experiencing the terror of the event and witnessing harm to others. The majority of children and families experience a normal psychological

response characterized by acute distress symptoms such as anxiety, fear and feelings of helplessness; grief and mourning in response to losses; mood symptoms associated with separation from friends and loved ones; behavior problems; and somatic illness. In most instances the stress symptoms dissipate as the child restores normal functioning, but some children may progress to a diagnosis of a psychiatric disorder.

Children and adolescents exposed to disasters exhibit acute stress responses in several domains of human functioning including changes in physiology, mood, thinking, behavior, and interpersonal relationships (Table 4.5).

**Figure 4.1 Psychosocial Impact of Disasters**



*Source: Institute of Medicine, 2003*



**Table 4.5 Common Acute Stress Reactions in Children and Adolescents**

Dimension	Common Acute Stress Reactions
Changes in bodily function	<ul style="list-style-type: none"> <li>• Somatic complaints including headaches, stomach aches, rapid heartbeat, tightness in the chest</li> <li>• Sleep and appetite disturbances</li> </ul>
Changes in behavior	<ul style="list-style-type: none"> <li>• Disruptive behaviors, temper tantrums, agitation, hyperactivity</li> <li>• Clinging-dependent behaviors</li> <li>• Regressive behaviors: loss of toilet training, diminished language skills</li> <li>• Feelings of a foreshortened future, eagerness to live life to the fullest, flight into pleasure-seeking activities, substance abuse, conflicts with authorities</li> <li>• Avoidant and phobic symptoms</li> </ul>
Changes in mood	<ul style="list-style-type: none"> <li>• Specific fears that the disaster will recur</li> <li>• Feelings of insecurity, anxiety, fear, anger, sadness, depression and worries about the future</li> <li>• Anger</li> <li>• Irritability</li> <li>• Feelings of unfairness</li> <li>• Increased concerns regarding the safety of family members, friends and loved ones</li> </ul>
Changes in thinking	<ul style="list-style-type: none"> <li>• Child's distorted belief that he/she has caused the disaster</li> <li>• Loss of trust in the safety and security of the world</li> <li>• Loss of trust in adults' ability to protect children</li> </ul>
Changes in interpersonal and social relationships	<ul style="list-style-type: none"> <li>• Social withdrawal</li> <li>• Decreased motivation</li> <li>• Poor school performance</li> </ul>

Following the destructive impact of a tornado striking Vicksburg, Mississippi, one-third of the children exhibited psychological reactions including anxiety, clinging-dependent behaviors, sleep disturbances, night terrors and regressive behaviors (Bloch et al., 1956). Shaw et al. (1995) found that 87 percent of school-age children in the direct path of Hurricane Andrew had moderate to severe posttraumatic stress symptoms (PTSS), and 57 percent had severe to very severe PTSS. The most common stress symptoms were sleep disturbances, nightmares, fears of recurrence, anxiety, and fears when thinking about the hurricane. Following the Buffalo Creek Disaster, most of the disaster-exposed children experienced emotional problems (Green et al., 1991). Preschool children evidenced trauma-specific fears and regressive behaviors but were generally less affected than older children and adolescents. Following the Indian Ocean tsunami, 14-

38 percent of children, ages 8-14 years, experienced PTSS (Neuner et al., 2006). Prevalence and severity of symptoms were directly related to the intensity of traumatic exposure.

Terr (1981) described the psychological effects of human-generated violence on children. During the Chowchilla bus kidnapping, 23 children, ages 5-14 years, were held captive on a school bus for 27 hours. Following the episode, many of these children experienced traumatic nightmares (50 percent); fears of recurrence (85 percent); posttraumatic play involving themes of kidnapping (55 percent); and cognitive disturbances.

Following the Attack on America, September 11, 2001, a national survey found that 35 percent of children had one or more symptoms of stress and 47 percent were

concerned about their own safety (Schuster et al., 2001). Twenty-two percent of children in Manhattan were referred for counseling following the September 11 attack (Stuber et al., 2002).

## 2. Chronic Stress Responses

In the aftermath of disaster, a cascade of hardships and adversities (“secondary stressors”) continues to impact the child and family. Post-disaster, exposure to chronic stressors may progressively erode the child’s resiliency and increase the risk for psychological disorders and medical illnesses. Cumulative stress increases the risk for depression, suicidal thoughts, substance abuse, decreased social function, and aggressive and delinquent behaviors. Two years after the Buffalo Creek Disaster, one-third of children continued to meet diagnostic criteria for PTSD (Green et al., 1994). Remarkably, 17 years after the event, 7 percent still met diagnostic criteria for PTSD. In a study of child survivors of Hurricane Andrew, 70 percent of children still manifested moderate to severe PTSS during a follow-up assessment conducted 21 months after the storm (Shaw, 1996). McFarlane (1987) found that 26 months after exposure to a bushfire in Australia, one-third of the children were still preoccupied with the disaster and continued to exhibit significant emotional and behavioral problems.

The Project Liberty Counseling Service Utilization Study (Covell et al., 2006) indicated that in the 27 months following the September 11 attack, 9 percent of children received individual counseling. The most common emotional reactions were sadness, tearfulness, anger and irritability, sleep disturbances, and intrusive thoughts and images. Younger children were more likely to experience anxiety, problems in concentration, social isolation and withdrawal while older children (12-17 years) were more likely to exhibit numbing and avoidance reactions and to abuse substances.

Children who have been exposed to ongoing and repeated stressors such as child maltreatment and war-related trauma may evidence enduring psychological consequences (Table 4.6) Studies of children exposed to child maltreatment such as exposure to neglect, and

emotional, physical or sexual abuse, have been found to have long-term changes in brain structure including decreased brain volume (De Bellis et al., 1999a,b; Cooper et al., 2007; Stover et al., 2007).

Depressive and grief symptoms frequently flow from the experiences of loss and change in disaster’s aftermath. These symptoms may appear as changes in mood and manifest as feelings of sadness, tearfulness, irritability and hopelessness; loss of pleasure and interest in previously enjoyed activities; changes in behavior such as decreased school performance; changes in interpersonal and social relationships appearing as social avoidance, social withdrawal, isolation and interpersonal conflicts; changes in thinking such as decreased concentration, low self-esteem, diminished hope or preoccupation with suicide and death; negative expectations about the future; and changes in appetite and sleep patterns.

Anxiety symptoms are present to varying degrees in virtually all persons exposed to trauma. These symptoms appear in multiple forms: being afraid that the trauma could happen again; fears of dying or sustaining serious injury; worries about access to basic needs such as food, water, safety and security; fears for loved ones and family members in the absence of real threat; apprehension about the future; and somatic symptoms such as palpitations, difficulty breathing or gastrointestinal upset.

Behavioral symptoms may include hyperactivity, agitation, belligerence, truancy from school, and deterioration in academic performance. Children or adolescents may initiate or increase engagement in unhealthy behaviors such as cigarette smoking, alcohol or drug use, or excessive use of prescription medications.

**Sleeper Effect:** In some instances there may be a delayed psychological response to an acute trauma. This may occur when the maturing child acquires greater understanding of the consequences and ramifications of the traumatic experience that was not fully grasped at the time of the trauma. For example a young girl who was sexually abused may have initially perceived the assault as an aggressive attack, but later she may fully understand the assault as sexual with all its ramifications.

**Table 4.6**  
**Psychological Responses to**  
**Chronic Trauma**

- Anxiety and mood disorders
- Dissociation
- Disruptive behaviors
- Loss and grief reactions
- Substance abuse
- Personality changes
- Suicidal behaviors
- Psychiatric comorbidity
- Somatic ills
- Central nervous system changes

### 3. Psychopathology

In some cases the psychological responses to disaster are of sufficient magnitude to meet diagnostic criteria for a trauma-specific syndrome such as an acute stress disorder (ASD) or posttraumatic stress disorder (PTSD).

“Dissociation” symptoms are important in the diagnosis of ASD and require brief description prior to presenting the diagnostic criteria for these syndromes:

*“Dissociation” describes the disconnection or lack of connection between things usually associated with each other (ISSTD, 2007). Usually the functions of consciousness, memory, identity and perception are integrated and interconnected but dissociation implies a separation among these functions. For example, with “emotional numbing”, a person may think about an event that was extremely upsetting yet have no feelings about it – thinking and feeling are disconnected. “Depersonalization” is the sense of being detached from and “not in” one’s body, sometimes described as an “out-of-body” experience. “Derealization” is the sense of the world not being real. Some persons have the sensation of “watching” the world as they would watch a movie. “Dissociative amnesia” refers to the inability to recall important personal information that goes well beyond ordinary forgetfulness. Disaster survivors may lack recall of major portions of the*

*traumatic episode despite retaining consciousness during the disaster event.*

**Acute stress disorder (ASD):** ASD is diagnosed when an individual develops anxiety, dissociative and related symptoms within one month after exposure to an extreme traumatic stressor (DSM-IV, 1994).

This disturbance usually lasts for at least two days and does not persist beyond four weeks. Either while experiencing the traumatic event or after the event, the individual has at least three of the following dissociative symptoms: a subjective sense of numbing, detachment, or absence of emotional responsiveness; a reduction in awareness of his/her surroundings; derealization; depersonalization; or dissociative amnesia. Furthermore, following the trauma, the traumatic event is persistently re-experienced and relived with intrusive images, dreams, thoughts and perceptions. The individual may consciously avoid any reminders that may arouse recollections of the trauma. In order to meet ASD clinical criteria, these symptoms must cause clinically significant distress, interfere with normal functioning, or impair the individual’s ability to pursue necessary tasks. Finally, to qualify as ASD, the individual must experience at least one symptom from each of the three PTSD symptom clusters: 1) “hyperrousal” (difficulty sleeping, irritability, poor concentration, hypervigilance, exaggerated startle response, motor restlessness), 2) re-experiencing, and 3) avoidance.

Meiser-Stredman et al. (2007) studied 367 child survivors of motor vehicle crashes, ages 6-17 years, and found that only 9 percent met diagnostic criteria for ASD. However, twice as many met “subsyndromal criteria” because of the inability to fully document the dissociative symptoms. The authors conclude that the “excessively strict” dissociative criteria for youth makes ASD a rare diagnosis in children, typically reserved for those who been exposed to sudden, unexpected, brutal violence. Therefore, most children who do develop PTSD are not diagnosed with ASD in the month following trauma exposure (Stover et al., 2007).

**Table 4.7**  
**Acute Stress Disorder**

- A** The person has been exposed to a traumatic event in which both of the following were present:
1. The person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury or a threat to the physical integrity of self or others
  2. The person's response involved intense fear, helplessness or horror
- Note:** In children, this may be expressed instead by disorganized or agitated behavior
- B** Either while experiencing or after experiencing the distressing event, the individual has three (or more) of the following dissociative symptoms:
1. a subjective sense of numbing, detachment, or absence of emotional responsiveness
  2. a reduction in awareness of his or her surroundings (e.g., "being in a daze")
  3. derealization
  4. depersonalization
  5. dissociative amnesia (inability to recall an important aspect of the trauma)
- C** The traumatic event is persistently reexperienced in at least one of the following ways:
1. recurrent images thoughts, dreams, illusions, or flashbacks
  2. a sense of reliving the experience
  3. distress on exposure to reminders of the traumatic event
- D** Marked avoidance of stimuli that arouse recollections of the trauma (thoughts, feelings, conversations, activities, places, people)
- E** Marked symptoms of anxiety or increased arousal (difficulty sleeping, irritability, poor concentration, hypervigilance, exaggerated startle response, motor restlessness)
- F** The disturbance causes clinically significant distress or impairment.
- G** The disturbance lasts for a minimum of 2 days and a maximum of 4 weeks and occurs within 4 weeks of the traumatic event.

**Posttraumatic stress disorder (PTSD):** The lifetime prevalence of exposure to a traumatic event in which the individual is confronted with a real or imagined threat of physical injury or death is estimated at 70 percent for men and 50 percent for women (Kessler et al., 1995). Among those exposed to severe trauma, approximately 10 percent will meet threshold clinical criteria for PTSD, with twice as many women as men being so affected. Naturalistic

studies indicate that men recover faster than women. Even five years post-trauma, approximately one-third of adults with PTSD continue to meet diagnostic criteria (Breslau et al., 1998).

The predominant manifestations of PTSD are a compelling need to relive, re-experience and repeat the traumatic experience, paradoxically oscillating with a need to

avoid any thoughts, feelings, perceptions or situations that remind one of the traumatic event (APA, 1994). Individuals are likely to vacillate between denial and a flooding of consciousness with intrusive images, thoughts and perceptions with their associated effects of fear, terror and helplessness. PTSD diagnosis should be considered for individuals whose symptoms persist for longer than one month.

A study of a representative sample of adults in Manhattan, 5-8 weeks after September 11, revealed that 19 percent reported a current history of PTSD, equivalent to twice the rate of PTSD prior to the attacks (Galea et al., 2002). Fifty-eight percent of respondents reported at least one PTSD symptom. A diagnosis of PTSD was predicted by exposure to two or more stressors in the prior twelve months, a panic attack during or shortly after the attack, lack of social support, direct involvement in rescue efforts and loss of personal possessions due to the attacks. The most common PTSD symptoms were intrusive memories (27 percent), insomnia (25 percent) and exaggerated startle reactions (24 percent).

Interviews of 516 men and 493 women in New York City, conducted 3-6 months after September 11, revealed that 56 percent had at least one severe, or two or more mild-to-moderate, posttraumatic stress symptoms, but only 27 percent sought treatment (De Lisi et al., 2003). Among study participants, 29 percent had changed employment, 10 percent had lost a close family member or friend and one-third reported painful memories triggered by traumatic reminders (De Lisi et al., 2003).

It has been estimated that 25-45 percent of children will be exposed to a traumatic event and among those exposed, 5-45 percent will develop PTSD (Stover et al., 2007). Only a few community-based studies of PTSD in the child and adolescent population have been published. Baseline rates of PTSD are approximately 3-6 percent in school-age children and 0.1 percent in preschool children (Reinherz et al., 1993; Scheeringa et al., 2003). A national survey of adolescents, ages 12-17 years, found that 4 percent of boys and 6 percent of girls met diagnostic criteria for PTSD (Kilpatrick et al., 2003). Copeland et al. (2007) found that two-thirds of children in the Great Smoky Mountain Study reported at least one traumatic event before the age of

16 years and 14 percent had experienced one or more posttraumatic stress symptoms.

Researchers recommend that the criteria for PTSD in the preschool age child be modified to be more sensitive to regressive behaviors or child-specific biological measures that differ from those of adults, such as heart rate, frequency of smiling and vocalizations (Stoddard et al., 2006).



Guinea: Kouankan refugee camp  
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Table 4.8 Posttraumatic Stress Disorder

Criteria for diagnosis of PTSD	Manifest as:
<p><b>A</b> Exposure to a traumatic event</p>	<ul style="list-style-type: none"> <li>• The individual experiences, witnesses or is confronted with an event or events that involve actual or threatened death, serious injury or a threat to the physical integrity of self or others</li> <li>• The response is associated with intense fear, helplessness and horror</li> <li>• <b>Children:</b> Disorganized/agitated behavior</li> </ul>
<p><b>B</b> Re-experiencing of the traumatic event. The traumatic event can be a dominating psychological experience that retains its power to evoke panic, terror, dread, grief, or despair. Trauma-related stimuli that trigger recollections of the original event may have the power to evoke mental images, emotional responses, and psychological reactions associated with the trauma. For diagnosis, at least 2 re-experiencing symptoms must be present.</p>	<ul style="list-style-type: none"> <li>• Recurrent images, thoughts, perceptions</li> <li>• Recurrent distressing dreams</li> <li>• Daytime fantasies</li> <li>• Flashbacks</li> <li>• Psychological distress when exposed to traumatic reminders</li> <li>• Reliving of the traumatic experience. Acting or feeling as if the events were recurring</li> <li>• <b>Children:</b> <ul style="list-style-type: none"> <li>- May have dreams without recognizable content</li> <li>- Reenactment of the trauma can be observed in repetitive play, drawings, or verbalizations</li> <li>- Behavioral reenactments of the trauma such as a boy with an axe who says he is a hurricane</li> <li>- Symbolic representation of the trauma that compulsively repeats some aspect of the trauma (e.g. creating a play village destroyed by a hurricane)</li> <li>- Play does not usually relieve anxiety</li> <li>- Frightening dreams without recognizable content</li> </ul> </li> </ul>
<p><b>C</b> Avoidance of reactions elicited by stimuli associated to the traumatic event. These symptoms reflect behavioral, cognitive, or emotional strategies that individuals use in an attempt to reduce the likelihood they will expose themselves to trauma-related stimuli. These strategies are used in an attempt to minimize the intensity of their psychological response if they are exposed to such stimuli. For diagnosis, at least 3 avoidance symptoms must be present.</p>	<ul style="list-style-type: none"> <li>• Avoid thoughts, feelings, conversation</li> <li>• Avoid activities, places or people that arouse memories of the traumatic event</li> <li>• Inability to recall aspects of trauma</li> <li>• Decreased interest in significant activities</li> <li>• Feelings of detachment/estrangement from others</li> <li>• Decreased range of affect</li> <li>• Sense of foreshortened future</li> <li>• <b>Children:</b> <ul style="list-style-type: none"> <li>- Avoid internal or external cues that serve as traumatic reminders</li> <li>- Avoid play or school activities, electronic media representations (TV, video games, music, etc.) that remind one of the traumatic experience</li> </ul> </li> </ul>
<p><b>D</b> Increased arousal. For diagnosis, at least 2 arousal symptoms must be present.</p>	<ul style="list-style-type: none"> <li>• Insomnia</li> <li>• Irritability</li> <li>• Difficulty concentrating</li> <li>• Hyper-vigilance</li> <li>• Exaggerated startle response</li> </ul>
<p><b>E</b> Duration of symptoms at least more than one month</p>	<ul style="list-style-type: none"> <li>• Acute: symptoms less than 3 months</li> <li>• Chronic: more than 3 months</li> <li>• Delayed onset: symptoms start at least 6 months after event</li> </ul>
<p><b>F</b> Significant social, occupational, or other distress as a result of these symptoms.</p>	<ul style="list-style-type: none"> <li>• Problems at work</li> <li>• Difficulty adhering to rules and daily activities</li> </ul>

Source: APA, 1994; MSF, 2005

**Table 4.9**  
**Alternative PTSD Criteria for Preschool Children**

- A** The person has been exposed to a traumatic event:
1. The person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury or a threat to the physical integrity of self or others
  2. Is not required because preverbal children cannot report on their reaction at the time of the event and an adult may not have been present to witness the child's reaction.
- B** The traumatic event is persistently re-experienced in one (or more) of the following ways:
1. Recurrent and intrusive recollection of the event (but not necessarily distressing), including images, thoughts, or perceptions. *Note: In young children, repetitive play may occur in which themes or aspects of the trauma are expressed.*
  2. Recurrent distressing dreams of the event. *Note: In children, there may be frightening dreams without recognizable content.*
  3. Objective, behavioral manifestations of a flashback are observed but the individual may not be able to verbalize the content of the experience.
  4. Intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.
- C** Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by one (or more) of the following:
1. Efforts to avoid activities, places, or people that arouse recollections of the trauma
  2. Markedly diminished interest or participation in significant activities. *Note: In young children, this is mainly observed as constriction of play.*
  3. Feeling of detachment or estrangement from others. *Note: In young children, this is mainly observed as social withdrawal.*
  4. Restricted range of emotions (for example, unable to have loving feelings)
- D** Persistent symptoms of increased arousal (not present before the trauma), as indicated by one (or more) of the following:
1. Difficulty falling or staying asleep
  2. Irritability or outbursts of anger or extreme temper tantrums and fussiness
  3. Difficulty concentrating
  4. Hypervigilance
  5. Exaggerated startle response

Usually a child or adolescent who meets diagnostic criteria for a posttraumatic stress disorder will manifest other psychological and psychiatric problems. The most common co-existing psychiatric disorders are mood disorders such as major depression, and dysthymia (chronically depressed mood lasting longer than one year); anxiety disorders such as separation anxiety disorder, generalized anxiety disorder and/or specific phobias; behavior problems

such as attention deficit hyperactivity disorder (ADHD), oppositional defiant disorder (ODD) or conduct disorder (CD), substance abuse and various physical complaints.

Two years after the Buffalo Creek disaster, 30 percent of children less than 8 years of age and 39 percent of children older than 8 years met criteria for PTSD (Green et al., 1991). According to a survey of 8,266 New York

City children in grades 4-12, the rate of PTSD increased from 2 to 10 percent following September 11, and the rate of separation anxiety disorder doubled (Fremont, 2004). Children who developed PTSD and other less severe psychological responses continued to manifest ongoing psychological difficulties long after the terrorist event. Research suggests that 30 to 50 percent of the children exposed to a terrorist act experience one or more of the following: PTSD, anxiety disorders, somatic ills, mood disorders and disturbances in development and behavior.

**Mood Disorders:** Depressive symptoms occur in 10-40 percent of those exposed to trauma. Approximately seventy-five percent of adults with PTSD have co-existing psychiatric diagnoses, with 35-45 percent having a lifetime history of depression (Breslau et al., 1998). A recent study noted that 18 percent of adolescents manifested a major

mood disorder following exposure to a cyclone (Kar & Bastia, 2006).

Mood symptoms in children are comparable to those experienced by adults, with some exceptions. For example, younger children frequently display regressive clinging-dependent behaviors and somatic symptoms, while adolescents are more likely to engage in suicidal thoughts or actions and to increase substance abuse behaviors. The most common symptoms in children and adolescents are changes in mood such as feelings of sadness, tearfulness, depression and irritability; behavior changes such as poor school performance and loss of interest in previously enjoyed activities; disturbance in relationships such as social avoidance, interpersonal and family conflicts; somatic ills; and disturbances in thinking such as low self-esteem, self-deprecation, feelings of hopelessness, inability to concentrate and suicidal ideation.

**Table 4.10 Symptoms of Depression**

<b>Changes in Mood</b>	<ul style="list-style-type: none"> <li>• Feelings of sadness and depression</li> <li>• Irritability</li> <li>• Loss of interest in pleasurable activities</li> </ul>
<b>Changes in Behavior</b>	<ul style="list-style-type: none"> <li>• Changes in personality</li> <li>• Changes in school performance</li> <li>• Loss of interest in previously enjoyed activities</li> <li>• Tearfulness</li> <li>• Impaired functioning</li> </ul>
<b>Changes in Relationship</b>	<ul style="list-style-type: none"> <li>• Social avoidance</li> <li>• Social withdrawal/ isolation</li> <li>• Interpersonal conflicts</li> <li>• Family conflicts</li> </ul>
<b>Changes in Thinking</b>	<ul style="list-style-type: none"> <li>• Low self-esteem</li> <li>• Self-deprecation</li> <li>• Self-absorbed</li> <li>• Feelings of hopelessness and helplessness</li> <li>• Demoralization</li> <li>• Inability to think or concentrate</li> <li>• Preoccupation with death/suicide</li> <li>• Negative expectations about the future</li> </ul>
<b>Changes in Bodily Functioning</b>	<ul style="list-style-type: none"> <li>• Change in appetite and body weight</li> <li>• Change in sleep pattern</li> <li>• Change in activity level</li> <li>• Somatic complaints</li> </ul>

**Disruptive Behavior Disorders:** Children (primarily boys) exposed to traumatic events may demonstrate disturbances in behavior such as hyperactivity, belligerence, and conduct disturbances. Adolescents may increase substance use and abuse. Immediately post-impact, there may be a temporary decrease in school-based disruptive behaviors as noted by Shaw et al. (1995) for child survivors of Hurricane Andrew.

#### 4. Resilience

Resilience is a measure of the individual's capacity to rapidly restore pre-disaster levels of function and psychological equilibrium. Rutter (1985) noted that children with good coping skills, self-mastery, easy temperament, and a history of a good relationship with an adult were more resistant and less vulnerable to psychopathology in later life. Garmezy et al. (1984) and Werner and Smith (1982) stressed the importance of early family relationships, self-efficacy, and an inner conviction that one's life is within one's control as factors contributing to resiliency.

Resilience has been defined as “the capacity to deal with, overcome, be strengthened by, and even transformed by experiences of adversity, including both human-generated and natural disasters” (Henderson, 2001). Factors that enhance child resiliency are effective parenting, positive self-concept, self-regulation, social competence, cognitive flexibility, adaptability to new situations, problem-solving skills, ease with transitions, communication skills, empathy, assertiveness in one's self-interest, humor, religious affiliation, and the ability to elicit caretaking behaviors (Masten, 2007).

Masten (2007) emphasizes that early attachments and healthy caregiver relationships that provide emotional security facilitate prosocial behaviors, tolerance for frustration, effective information processing, self-regulation, stress management, and adaptability. She recognizes the important influences of the school and community in fostering the child's socialization and providing opportunities for mastery and learning. Integral to resiliency are the child's accrued “competencies” including elements of academic, social, interpersonal, and phase-specific mastery (Masten, 2007).

Intrinsic to resiliency is the role of genetics, neurotransmitters, and stress response systems. Some individuals appear to release higher levels of “neuropeptide Y” and allopregnanolone (a product of the adrenal glands) in response to stress; reactions that appear to confer natural resiliency and to diminish anxiety (Hoge et al., 2007). In contrast, children who sustain prolonged exposure to poor parenting and nurturance may experience detrimental neurobiological and neurohormonal changes (such as decreased levels of oxytocin, a neurohormone believed to facilitate emotional bonding to others), thereby compromising social relatedness (Cooper, 2007; Hoge et al., 2007). Conversely, there is evidence that a short form of the serotonin transporter gene may be associated with decreased resiliency and increased risk for depression (Gunnar, 2007).



**Table 4.11**  
**Factors that Enhance Resilience in**  
**Children and Adolescence**

**Individual protective factors**

- The capacity to recognize opportunities in adversity
- Ability to elaborate problem-solving and emotional coping skills
- Good social skills with peers and adults
- Personal awareness of strengths and limitations
- Feelings of empathy for others
- Internal locus of control - a belief that one's efforts can make a difference
- Sense of humor
- Positive self-concept
- Self-reliance
- Cognitive flexibility
- Positive emotions (optimism, sense of humor, interests, joy)
- Ability to interact positively with others
- Active coping
- Physical exercise
- Religion

**Family protective factors**

- Positive family ambience
- Good parent-child relationships
- Parental harmony
- A valued social role in the household, such as helping siblings or doing household chores

**Community protective factors**

- Strong social support networks
- Supportive extended family
- A close relationship with unrelated mentor
- Good peer relationships
- Community influences that offer positive role models
- Positive school experiences
- Valued social role such as a job, volunteering or helping neighbors
- Membership in a religious or faith community
- Extra-curricular activities

*Source: Newman and Blackburn, 2002 ; Cooper et al., 2007*

## Summary

For children, psychological responses to disaster exposure vary based on the nature of the trauma. Disaster-exposed children may display acute and chronic stress reactions, posttraumatic stress symptoms, grief, depression, anxiety symptoms or behavior changes. The child's level of cognitive and emotional development interplays with the type and intensity of exposure to shape the child's psychological responses to disaster. During the impact phase and early aftermath, acute stress reactions are experienced by the majority of children exposed to disaster. For those children who are subjected to an unabated bombardment of post-disaster hardships, chronic stress reactions may be prominent. For some children, psychological responses to disaster are sufficiently severe and distressing to meet criteria for a trauma-specific disorder such as acute stress disorder (ASD) or posttraumatic stress disorder (PTSD). Nevertheless, the most common outcome for both children and adults who survive a disaster is resilience, defined as "mastery against adversity." Children frequently overcome the challenges posed by disaster and emerge stronger and positively transformed by the experience.

