

## **Section I - Stress Reactions of Survivors**

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### **OVERVIEW**

Stress reactions can result from a variety of shocking events. Before, during, or in the aftermath of a disaster, survivors may have experienced additional traumas such as life-threatening accidents, sexual or physical abuse or assault, living or serving in the military in a war zone, kidnapping or torture, or the witnessing of terrible things happening to other people. It is important to avoid assuming that a disaster involves the same type and intensity of experience for all survivors, and that all survivors bring a similar personal history of trauma into the disaster.

### **Each Survivor's Disaster is Unique**

In addition to involving terrifying close encounters with death and severe physical harm, disaster often causes significant losses that may vary greatly from survivor to survivor (e.g., loss of loved ones, friends, and/or property). Persons who were physically in the same place throughout much of a disaster may have been exposed to different specific traumatic events during and after the disaster. The "same" disaster may involve multiple elements ranging from accidental trauma (e.g., car, train, boat, or plane accidents, fires, explosions), to natural environmental cataclysm (e.g., floods, tornadoes, hurricanes, earthquakes), to deliberately caused devastation (e.g., lootings, riots, bombings, shootings, torture, rape, assault, and battery). Survivors may experience significant stress reactions, and among survivors, the type and intensity of these reactions vary greatly within the same disaster.

In the wake of disaster, survivors may experience financial difficulties related to vocational problems, unemployment, and/or problems associated with relocation, rebuilding, or repairing a home. Other long-term stressors may include resulting marital and family discord, medical illness, or chronic health problems. Seeking and receiving help for these various issues can, in and of themselves, result in additional stress for survivors.

### **Each Survivor is Unique**

Each survivor's personal history and unique psychological and relational strengths and deficits influence his or her response to disaster. Individual, family, and community beliefs, values, and resources also shape the meaning of the experience and have a role in the process of recovery.

### **Implications for Understanding and Assessing Survivors' Reactions**

Personal and cultural differences and pre-, intra-, and post-disaster experience are vital to understanding why survivors may show different patterns of stress reactions to what seems to be the “same” disaster. Even in the briefest and most informal contact with disaster survivors, it is important to make a rapid, sensitive, and nonintrusive assessment of the possible mediating factors that may be shaping each survivor’s specific stress reaction.

Specifically, before judging or classifying a particular pattern of stress response, consider what is observable, what is disclosed, and what remains to be known about each survivor’s unique background or experience in the following areas:

- Ethnocultural traditions, beliefs, and values
- Community practices, norms, and resources
- Family heritage and dynamics
- Individual sociovocational resources and limitations
- Individual biopsychosocial resources and vulnerabilities
- Prior exposure to traumatic experiences
- Specific stressful or potentially traumatic experiences during/since disaster

### **Factors Associated with Disaster Stress**

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**People directly exposed to danger and life threat are at risk for the greatest impact.** The literature examining the role of traumatic exposure is definitive. Regardless of the traumatic stressor, be it combat, physical abuse, sexual assault, or natural disaster, dose-response is a strong predictor of who will likely be most affected. The greater the perceived life threat, and the greater the sensory exposure, that is, the more one sees distressing sights, smells distressing odors, hears distressing sounds, or is physically injured, the more likely post-traumatic stress will manifest. Victims are not the only ones at risk. Helpers, including medical, morgue, and security personnel, rescue, fire and safety workers, may also experience either direct or indirect traumatization. Family members of victims, too, are at risk for what has been referred to as vicarious traumatization – relationships with traumatized individuals can create much distress for others.

Listed below are factors associated with disaster stress to take into consideration when having to make informal rapid assessments of survivors.

- Personal injury
- Injury or fatality of loved ones, friends, associates
- Property loss/relocation
- Pre-existing stress

- Level of personal and professional preparedness
- Stress reactions of significant others
- Previous traumatization
- Self-expectations
- Prior disaster experience
- Perception/interpretation of causal factors
- Level of social support

When considering the allocation and distribution of mental health resources, the role delineation model (Taylor and Frazier, 1989) may be useful to conceptualize different types of victims.

- **Primary victims:** people directly exposed to the elements of the disaster
- **Secondary victims:** people with close family and personal ties to primary victims
- **Tertiary victims:** people whose occupations require them to respond to the disaster
- **Quarternary victims:** concerned and caring members of communities beyond the impact area

**Post-traumatic Stress Reactions:  
A Common Response to  
Disaster**

Although individual reactions vary, clinical researchers have identified a common pattern of behavioral, biological, psychological, and social responses among individuals exposed directly or vicariously to life-threatening events. This response pattern is known as post-traumatic stress syndrome.

It is important to help survivors recognize the normalcy of most stress reactions to disaster. Mild to moderate stress reactions in the emergency and early post-impact phases of disaster are highly prevalent because survivors (and their families, community members, and rescue workers) accurately recognize the grave danger involved in disaster. Although stress reactions may seem “extreme,” and cause distress, they generally do not become chronic problems. Most people recover fully from moderate stress reactions within 6 to 16 months (Baum & Fleming 1993; Bravo et al. 1990; Dohrenwend et al. 1981; Green et al. 1994; La Greca et al. 1996; Steinglass & Gerrity 1990; and Vernberg et al. 1996).

## COMMON STRESS REACTIONS TO DISASTER

### **Emotional Effects**

Shock  
Anger  
Despair  
Emotional numbing  
Terror  
Guilt  
Grief or sadness  
Irritability  
Helplessness  
Loss of derived pleasure from regular activities  
Dissociation (e.g., perceptual experience seems “dreamlike,” “tunnel vision,” “spacey,” or on “automatic pilot”)

### **Physical Effects**

Fatigue  
Insomnia  
Sleep disturbance  
Hyperarousal  
Somatic complaints  
Impaired immune response  
Headaches  
Gastrointestinal problems  
Decreased appetite  
Decreased libido  
Startle response

### **Cognitive Effects**

Impaired concentration  
Impaired decision-making ability  
Memory impairment  
Disbelief  
Confusion  
Distortion  
Decreased self-esteem  
Decreased self-efficacy  
Self-blame  
Intrusive thoughts and memories  
Worry

### **Interpersonal Effects**

Alienation  
Social withdrawal  
Increased conflict within relationships  
Vocational impairment  
School impairment

Another perspective on stress reactions comes from anecdotal evidence gathered by experienced disaster mental health clinicians who have been involved in many disaster operations. It has been repeatedly observed that the normative post-disaster biopsychosocial reaction occurring in individuals and communities forms a relatively predictable pattern from the onset of the disaster through the following 18-36 months. This pattern is delineated by four relatively distinct phases. However these phases are variable with regard to their duration, and within each phase, there is significant individual variation in the reaction of survivors. Hence, this “aerial” view is presented as a heuristic so that clinicians who work for “only” a short period of time following a disaster can place their experience into a larger context. The phases have been referred to as the **heroic**, **honeymoon**, **disillusionment**, and **restabilization** phases.

**Heroic** This phase is characterized by individuals and the community directing inordinate levels of energy into the activities of rescuing, helping, sheltering, emergency repair, and cleaning up. This increased physiological arousal and behavioral activity lasts from a few hours to a few days.

**Honeymoon** Despite the recent losses incurred during the disaster, this phase is characterized generally by community and survivor optimism. Survivors witness the influx of resources, national or worldwide media attention, and visiting VIPs who reassure them their community will be restored, justice will be upheld, investigations will be conducted, etc. Survivors begin to believe that their home, community, and life as they knew it will be restored quickly and without complications. Less experienced disaster mental health clinicians working only within this phase are prone to leave with the same impression and fail to prepare survivors and/or administrators for what to expect in the following weeks and months. Generally, by the third week, resources begin to diminish, the media coverage lessens, VIPs are no longer visiting, and the complexity of rebuilding and restoration becomes increasingly apparent. At this same time, the increased energy that survivors and the community initially experienced begins to diminish and fatigue sets in, setting the stage for the next phase.

**Disillusionment** Fatigue, irritating experiences, and the knowledge of all that is required to restore their lives combine to produce disillusionment. Survivors discover that significant financial benefits are in the form of loans, not grants; that home insurance isn't what they understood it to be; that politics, rather than need, shape decisions; that a neighbor with a damaged chimney received greater benefits than a

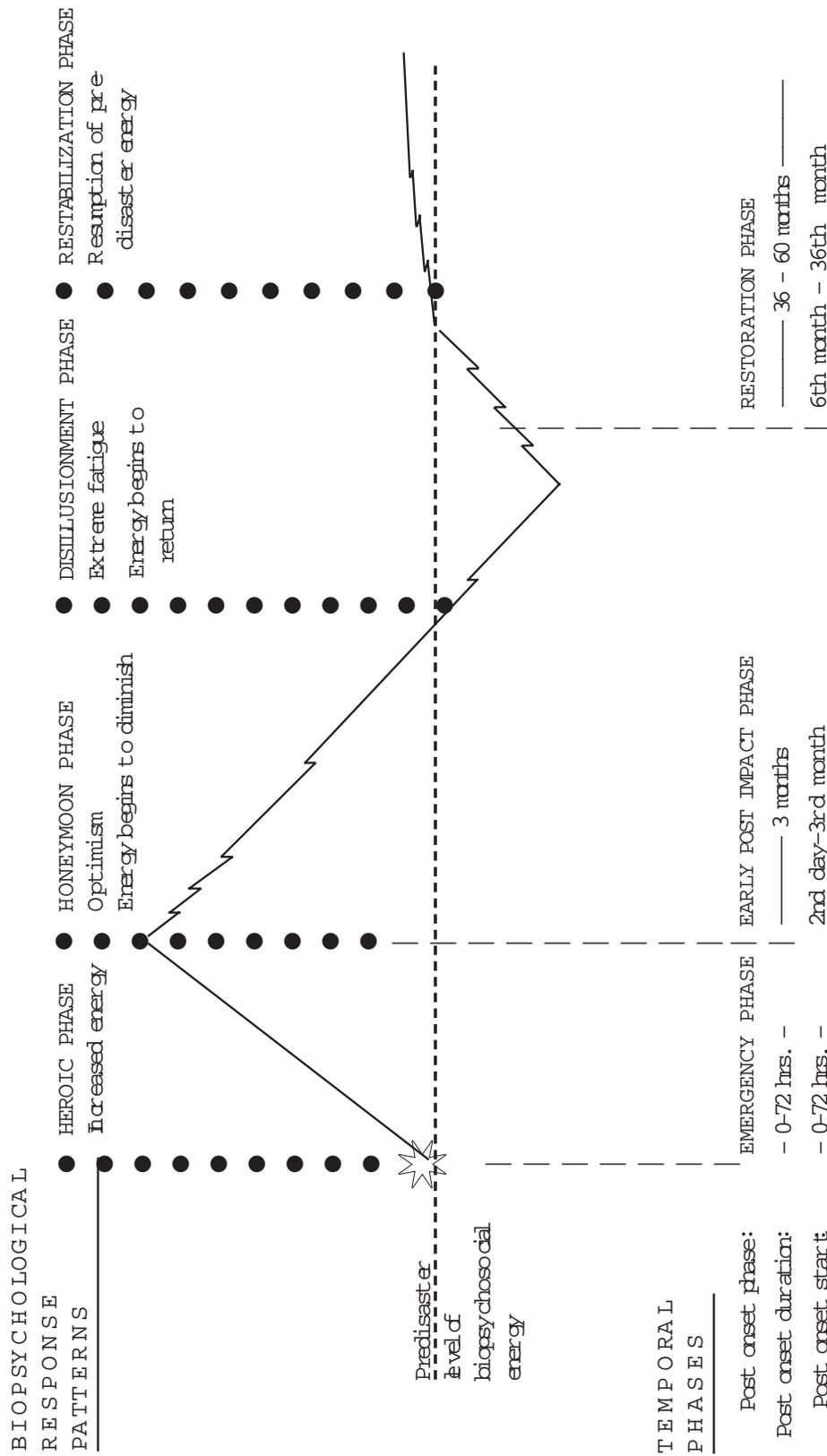
neighbor whose roof collapsed. Complaints about betrayal, abandonment, lack of justice, bureaucratic red tape and incompetence are ubiquitous. Symptoms related to post-traumatic stress intensify and hope diminishes.

***Restabilization***

The groundwork laid during the previous months begins to produce observable changes. Applications have been approved, loans worked out, and reconstruction begins to take place. “Long-term” disaster-related programs have been established (e.g., Federal Emergency Management Agency crisis-counseling programs for disaster survivors) and a majority of individuals regain their pre-morbid level of functioning. Again, significant individual variance occurs within this phase. Generally speaking, some individuals are able to regain equilibrium within 6 months. For others it may well take between 18 and 36 months. For some individuals, the first year anniversary of the disaster precipitates or exacerbates post-traumatic stress symptoms. A majority of survivors attribute their increased appreciation of relationships and life and their confidence to manage difficult circumstances to the lessons learned from the disaster.

Figure 1 illustrates the biopsychosocial response pattern and temporal phases of disaster is presented on the following page.

Figure 1. BIOPSYCHOSOCIAL RESPONSE PATTERN AND TEMPORAL PHASES OF DISASTER



## **EXTREME PERITRAUMATIC STRESS REACTIONS**

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Extreme “peritraumatic” stress symptoms (i.e., those symptoms which occur during or immediately after the traumatic disaster experience) include any of the following reactions **if** they are of sufficient intensity to cause significant impairment in reality orientation, communication, relationships, recreation and self-care, or work and education:

- **Dissociation** – depersonalization, derealization, fugue states, amnesia
- **Intrusive re-experiencing** – flashbacks, terrifying memories or nightmares, repetitive automatic re-enactment
- **Avoidance** – agoraphobic-like social withdrawal
- **Hyperarousal** – panic episodes, startle reactions, fighting or temper problems
- **Anxiety** – debilitating worry, nervousness, vulnerability or powerlessness
- **Depression** – anhedonia, worthlessness, loss of interest in most activities, awakening early, persistent fatigue, and lack of motivation
- **Problematic substance use** – abuse or dependency, self-medication
- **Psychotic symptoms** – delusions, hallucinations, bizarre thoughts or images, catatonia

People at highest risk for extreme peritraumatic stress include those who experience:

- **Life-threatening** danger, extreme violence, or sudden death of others
- **Extreme loss** or destruction of their homes, normal lives, and community
- **Intense emotional demands** from distraught survivors (e.g., rescue workers, counselors, caregivers)
- **Prior psychiatric or marital/family problems**
- **Prior significant loss** (e.g., death of a loved one in the past year)

Cardena & Spiegel (1993).  
Joseph et al. (1994).  
Koopman et al. (1994, 1995).  
La Greca et al. (1996).  
Lonigan et al. (1994).  
Schwarz & Kowalski (1991).  
Shalev et al. (1993).

People who experience extreme **peritraumatic stress reactions** are at greatest risk for delayed or chronic post-traumatic psychosocial impairments, for example, PTSD and other anxiety disorders, major depression, substance abuse (Cardena & Spiegel, 1993; Joseph et al. 1993; Koopman et al., 1994, 1995; La Greca et al., 1996; Lonigan et al., 1994; Marmar et al., 1996; Schwarz & Kowalski, 1991; Shalev et al., 1996).

Studies noting peritraumatic stress reactions following disaster:

**Children:** Green et al. (1994); Hardin et al. (1994); La Greca et al. (1996); Lonigan et al. (1994).; Pynoos et al. (1993); Rubonis & Bickman (1991); Vernberg et al. (1996).

**Adults:** Baum & Fleming (1993); Dohrenwend et al. (1981); Goenjian et al. (1994); Green et al (1990b); Hanson et al. (1995); Palinkas et al. (1992); Rubonis & Bickman (1991); Solomon et al. (1987); Turner et al. (1995); Webster et al. (1995).

**Older adults:** Goenjian et al. (1994).

## **ACUTE STRESS DISORDER**

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A minority of disaster survivors experience sufficiently persistent and debilitating stress and dissociative symptoms to warrant a diagnosis of acute stress disorder (Koopman, Classen, Cardena & Spiegel, 1995; Johnson et al., 1997).

The defining feature of Acute Stress Disorder is the development of anxiety, dissociation, and other symptoms that occur within one month of exposure to a traumatic stressor. Acute Stress Disorder is characterized by five major response patterns: dissociation or a subjective sense of emotional numbing, a re-experiencing of the event, behavioral avoidance, increased physiologic arousal and social-occupational impairment. To meet the DSM-IV diagnostic criteria, a person must exhibit three or more of the dissociative symptoms, and at least one form of re-experiencing, behavioral avoidance, physiologic arousal, and significant social and or occupational impairment. The disturbance must last for a minimum of two days and a maximum of four weeks and occurs within four weeks of the traumatic event.

**DSM-IV Diagnostic criteria  
for 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 fears, helplessness, or horror.
- 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/her surrounding (e.g., "being in a daze")
  - (3) derealization
  - (4) depersonalization
  - (5) dissociative amnesia (i.e., inability to recall an important aspect of the trauma)
- C. The traumatic event is persistently re-experienced in at least one of the following ways: recurrent images, thoughts, dreams, illusions, flashback episodes, or a sense of reliving the experience, or distress on exposure to reminders of the traumatic event.
- D. Marked avoidance of stimuli that arouse recollections of the trauma (e.g., thoughts, feelings, conversations, activities, places, people).
- E. Marked symptoms of anxiety or increased arousal (e.g., difficulty sleeping, irritability, poor concentration, hypervigilance, exaggerated startle response, motor restlessness).
- F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning, or impairs the individual's ability to pursue some necessary task, such as obtaining necessary assistance or mobilizing personal resources by telling family members about the traumatic experience.

- 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.
- H. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition, is not better accounted for by Brief Psychotic Disorder, and is not merely an exacerbation of preexisting Axis I or Axis II disorder.

## **POST-TRAUMATIC STRESS DISORDER**

Post-traumatic stress disorder (PTSD) is a prolonged post-traumatic stress response. In addition, there may be much greater personality and social impairment than evidenced in the common stress reactions survivor's experience following a disaster. The DSM-IV criteria for PTSD require a minimum set of symptoms: one symptomatic form of re-experiencing the traumatic event, a minimum of three symptoms of persistent avoidance of stimuli associated with the trauma, and a minimum of two persistent symptoms of increased arousal. The duration of the disturbance (symptoms in B, C, and D criteria) must be at least one month (Criterion E). In addition, clinically significant distress or impairment in social, occupational, or other important areas of functioning are included (Criterion F). The diagnostic criteria for PTSD is listed below.

### **DSM-IV Diagnostic criteria for PTSD**

- 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 fears, helplessness, or horror.
- B. The traumatic event is persistently re-experienced in one (or more) of the following ways:
  - (1) recurrent and intrusive distressing recollections of the event, 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) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that

occur on awakening or when intoxicated). Note: In young children, trauma-specific reenactment may occur.

(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 of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:

(1) efforts to avoid thoughts, feelings, or conversations associated with the trauma

(2) efforts to avoid activities, places, or people that arouse recollections of the trauma

(3) inability to recall an important aspect of the trauma

(4) markedly diminished interest or participation in significant activities

(5) feeling of detachment or estrangement from others

(6) restricted range of affect (e.g., unable to have loving feelings)

(7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, or children, or a normal life span)

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by at least two (or more) of the following:

(1) difficulty falling or staying asleep

(2) irritability or outbursts of anger

(3) difficulty concentrating

(4) hypervigilance

(5) exaggerated startle response

E. Duration of the disturbance (symptoms in Criteria B, C and D, is more than 1 month).

F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

**DISASTER EXPERIENCES  
ASSOCIATED WITH  
CHRONIC PTSD**

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An important component of disaster mental health response during the early post-impact phase is identification of individuals at risk for long-term problems. Identifying and providing specialized preventive mental health services to high-risk survivors may improve prognosis and conserve scarce healthcare resources needed by the community in the months and years after disaster.

As noted earlier, severe stress reactions during or immediately following disaster occurrence are key warning signs. The research literature suggests that certain types of trauma exposure or post-disaster experiences also place survivors at high-risk for delayed or chronic trauma-related psychological problems.

- **Survivors/witnesses of mass destruction or death** (e.g., body handling; “ethnic cleansing;” torture) are at high risk for demoralization and post-traumatic psychosocial impairment.  
Goenjian et al. (1994); Ramsay et al. (1994); Ursano et al. (1995).
- **Unresolved bereavement** places survivors at high-risk for chronic post-traumatic psychosocial impairment.  
Livingston et al. (1994); Green et al. (1983); Joseph et al. (1994); Shore et al. (1986).
- **Loss of home or community** and associated emotional support places survivors at high risk for chronic bereavement and post-traumatic psychosocial impairment.  
Bland et al. (1996); Erikson (1976); Freedy et al. (1992); Keane et al. (1994); Lima et al. (1993); Lonigan et al. (1994); Palinkas et al. (1992); Phifer & Norris (1989); Quarantelli et al. (1986); Solomon et al. (1993); Shore et al. (1986); Vernberg et al. (1996).
- **Survivors with histories of prior exposure to trauma** are at high risk for post-traumatic psychosocial impairment.  
Bland et al. (1996); Goenjian et al. (1994); Hodgkinson & Shepherd, (1994).
- **Survivors who experience major life stressors** (e.g., divorce, job loss, financial losses) after experiencing a disaster are at high risk for post-traumatic psychosocial impairment.  
Bland et al. (1996); Garrison et al. (1995); Hardin et al. (1994); Joseph et al. (1994); Koopman et al. (1994); La Greca et al. (1996).
- **Survivors of toxic contamination** disasters are at risk for chronic strain due to a loss of fundamental sense of personal integrity and trust and a concomitant fear of uncontrollable and invisible physical deterioration.  
Baum & Fleming (1993); Dohrenwend et al. (1981); Hodgkinson (1989); Lopez-Ibor (1987).

**OTHER FACTORS ASSOCIATED  
WITH CHRONIC PTSD**

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In addition, the literature suggests that risk for delayed or chronic problems following disaster is associated with survivor social support, coping style, and occupation.

- **Low levels of emotional/social support or high levels of social demand**

[Children] La Greca et al. (1996); Vernberg et al. (1996).  
[Caregivers or Single Parents] Solomon et al. (1987), (1993).

- **Coping via avoidance, self-blame, or rumination**

Hodgkinson & Shepherd (1994); Nolen-Hoeksema & Morrow (1991); La Greca et al. (1996); Norvell et al. (1993); Titchener et al. (1986); Vernberg et al. (1996); Webster et al. (1995).

**However:** maladaptive patterns of coping may be the result rather than cause of post-traumatic stress impairment (Vernberg et al. 1996).

- **Coping via substance abuse**

Joseph et al. (1993).

- **Serving as an emergency worker** (e.g., police, fire, EMT, healthcare professionals).

Bartone et al. (1989); Hodgkinson & Shepherd (1994); Holen (1993); Lundin & Godegard (1993); Marmar et al. (1996); McFarlane (1988a).

In families, there appears to be a reciprocal relationship between the acute stress response of caregiver and child, that each individual's stress response amplifies the other's – placing both child and adult at risk for longer term problems.

- **Children whose parents are persistently psychologically impaired.**

Green et al. (1991); McFarlane et al. (1987).

- **Children whose parents experience significant peritraumatic distress.**

Earls et al. (1988); Handford et al. (1986); McFarlane et al. (1987); Milgram & Milgram (1976) .

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**PREVALENCE OF PTSD FOLLOWING DISASTER**

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| <b>Natural Disasters</b>   |  |                   |
|--|--|-------------------|
| <b><u>Within United States</u></b>   |  |                   |
| <b>Buffalo Creek Disaster</b><br>Green et al., 1992.   | Lifetime PTSD<br>PTSD at 14 yr follow-up<br>PTSD in children | 59%<br>25%<br>37% |
| <b>Mt. St. Helens Volcanic Eruption</b><br>Shore et al., 1989.   | PTSD in exposed sample<br>PTSD among non-exposed             | 3.6%<br>2.6%      |
| <b>Tornado</b><br>Smith et al., 1993 (2%);<br>Steinglass & Gerrity, 1990 (21%).<br>Madakasira & O'Brien, 1987 (59%).               | PTSD<br><br>Post-traumatic Stress Impairment                 | 2-21%<br><br>59%  |
| <b>Tornado and Flood</b><br>Steinglass & Gerrity, 1990.  | PTSD at 4 mos<br>PTSD at 16 mos                              | 15%<br>21%        |
| <b>Blizzard and Flood</b><br>Burke et al., 1986.   | Post-traumatic Stress Impairment<br>in children at 10 mos    | 60%               |
| <b>Flood</b><br>Smith et al., 1993.  | PTSD   | 4%                |
| <b>Hurricane</b><br>LaGreca et al., 1996 (18-54%); Shannon et al., 1994 (5%); Shaw et al., 1995 (39-56%).                          | PTSD in children at 2-12 months                              | 5-56%             |
| <b><u>Outside United States</u></b>  |  |                   |
| <b>Bushfire</b><br>McFarlane, 1987, 1988.  | PTSD<br>PTSD in children                                     | 16%<br>33%        |
| <b>Flood and Mudslides</b><br>Bravo et al., 1990; Canino et al., 1990.   | PTSD in exposed sample<br>PTSD among non-exposed             | 4%<br>0.7%        |
| <b>Volcanic Eruption</b><br>Lima, Pai, Caris, et al., 1981; Lima, Pai, Santacruz, & Lozano, 1991.                                  | Post-traumatic Stress Impairment                             | 32-42%            |
| <b>Earthquake</b><br><br>Conyer et al., 1987 (32%); Goenjian et al., 1994 (10-68%), 1995 (26-95%); McFarlane & Hua, 1993 (46-60%). | Post-traumatic Stress Impairment<br>PTSD in children         | 32-60%<br>26-95%  |
| <b>Cyclone</b><br><br>Parker, 1977 (100%); Patrick & Patrick, 1981 (23%); Fairley, 1984 (8%).                                      | Post-traumatic Stress Impairment<br>PTSD                     | 23-100%<br>8%     |

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### Human-Made Disasters

|   |                                  |         |
|---|----------------------------------|---------|
| <b>Technological Disaster</b>   | PTSD                             | 7-50%   |
| Palinkas et al., 1993 (9%); Realmuto et al., 1991 (13%); Silverman et al., 1985 (50%); Smith et al., 1993 (7%). |                                  |         |
|   | Post-traumatic Stress Impairment | 22-43%  |
| Haavenar et al., 1996 (36%); Weisaeth, 1989a (24%); Baum & Fleming, 1993 (22-43%).                              |                                  |         |
| <b>Major Fire</b>   | Post-traumatic Stress Impairment | 54-66%  |
|   | PTSD in burned survivors         | 100%    |
| Adler, 1943 (54%); Green et al., 1983 (58%); Turner et al., 1993 (66-100%).                                     |                                  |         |
| <b>Transportation Disasters</b>   | PTSD                             | 29-100% |
| Marks et al., 1995 (100); Newman & Foreman, 1987 (50-100); Smith et al., 1993 (29%).                            |                                  |         |
|   | PTSD in children                 | 40-47%  |
| Martini et al., 1990 (40%) Yule, 1992 (47%).  |                                  |         |
| <b>Terrorist Kidnapping and Torture</b>   | PTSD                             | 54%     |
| Weisaeth, 1989b.  |                                  |         |
| <b>Mass Shooting</b>  | PTSD                             | 5%      |
|   | PTSD in children                 | 5-47%   |
| Pynoos et al., 1987; Smith et al., 1993.  |                                  |         |
| <b>Rescue Workers (Industrial Accident)</b>   | Post-traumatic Stress Reactions  | 24%     |
| Weisaeth, 1989c.  |                                  |         |
| <b>Civil and Political Violence</b>   | Post-traumatic Stress Reactions  | 82-92%  |
| Goenjian et al., 1994.  |                                  |         |