

Psychological Injury Evaluations

Introduction

An emotionally traumatic event is one in which the individual is overwhelmed by the situation and feels he or she cannot cope. It leaves the person feeling that the world is a dangerous place and that they lack the skills to deal with it. Whether a particular event is traumatic for an individual is to a significant extent dependent on the meaning the person gives to the event and their own behavior during the event. Some people going through disasters come out feeling that the world is a dangerous place and they are weak. Others feel that they have now proven they can survive anything and that some spirit is looking out for them since they survived. Temperament, psychological makeup, and the support the individual has from others during and after the event play a huge role in whether the individual is traumatized or simply stressed.

Severe stress and traumatic events can have profound destructive affects on the ability of an individual to function well at work, have successful relationships, and to enjoy life. Emotional injury and problems (PTSD, depression and various anxiety disorders) can result from assaults, medical procedures, accidents or disasters. Not only the direct victim, but onlookers and those who are close to the victim who hear of the event can be deeply affected. Emotional problems can also arise as a result of pain and disability following an injury, or as the result of work stress or harassment which does not fulfill the criteria of PTSD.

The task for a forensic psychiatrist or psychologist is far more extensive than for a clinician dealing with a traumatized or stressed patient. In addition to establishing what symptoms the individual is suffering from, a forensic evaluator must establish whether a particular traumatic event was the proximate cause of the problem. Assessing this requires elaboration of their pre-injury functioning and other stresses/problems they have faced. All of this must be done with a client who may be lying about their symptoms and their history in order to obtain compensation. The forensic psychiatrist must also evaluate the prognosis and, as all clinicians do, comment on the best treatment options. The forensic expert may also want to

be able to describe the neurophysiological changes that can occur in PTSD, since juries are more likely to compensate a physical disorder than simply a mental one.

As with all forensic work, the particular diagnosis is less important than a thorough description of the symptoms, and discussion of how they impair the individual's activities and quality of life. Once again as with all forensic work, although it is important to assess what predisposing factors the individual had prior to developing symptoms, the issue for court is what was the final or proximate causative factor. It usually makes no difference whether the person was strong or fragile (an eggshell) prior to the injury and whether the injury would have hurt almost anyone or only a small percentage of people.

Psychological Impact of Emotional Trauma

With the exceptions of certain severe traumatic experiences such as rape, childhood abuse, or being in a war zone, most people spontaneously recover from traumatic events over a period of months. Those who are not sufficiently resilient may develop PTSD, depression, an anxiety disorder, or subsyndromal PTSD (which can cause as much impairment as PTSD).

Emotionally traumatic events impact victims in several ways. They drain the victim's emotional reserves robbing them of the energy and patience needed to deal with life's other stresses. It leads to intrusive recollections of the event, a heightened (and exhausting) state of hyper-reactivity, and emotional numbing and withdrawal from the world. Traumatic events can also foster a conditioned fear response to trauma related stimuli. Initially frightened of things which remind them of the event, over time more and more things may remind them and lead to marked anxiety and restrict their lives.

Emotional trauma also leads to changes in how the individual sees the world, and whether certain situations (and even the world as a whole) are seen as dangerous or safe. It also affects our self-image including whether we see ourselves as effective actors in the world or as weak and vulnerable, whether we see ourselves as brave and strong or as weak and vulnerable. It fosters an external locus of control rather than an internal locus of control. As a result, traumatic events can have a profound effect on our ability to deal with the world.

Traumatic events can also send people into a downward spiral in which a decline in functioning combined with irritability can damage work and social relationships, and the increased stress and loss of support from these areas of their lives leads to a general decline

in functioning with high levels of anxiety and depression. The divorce rate for people who have been through traumatic events is markedly elevated.

The diagnosis of PTSD involves a constellation of symptoms including reexperiencing of the event (flashbacks, nightmares, marked distress when reminded of the traumatic event), emotional numbing and withdrawal from people and activities that used to be of interest, and increased physiological arousal (sleep problems, irritability, increased startle, hypervigilance.) Researchers debate the exact mechanisms that lead to the constellation of symptoms. One formulation is that traumatic memories are encoded in the brain differently than normal memories. As a result, rather than thinking about what happened the individual re-experiences it. The normal reaction people have to bad experiences is to remember them, and to develop wariness for similar situations. In emotional trauma this protective mechanism overloads. It is as if the person's mind is saying that the event is so dangerous that the person must continually pay attention to the threat and look for it throughout the environment. The memory of the event dominates consciousness interfering with paying attention to the rest of life and prior experience. Flooded with painful feelings the person withdraws and becomes numb to his historic interests, at the same time that the heightened state of physiological arousal and fear leads to irritability, increased startle and sleep problems.

Research has shown that a neurophysiologic cascade can arise from emotional trauma. This will be discussed later.

There are other pernicious impacts of emotional trauma. Experiencing a traumatic event generally leaves the individual more vulnerable to developing symptoms if the person experiences another traumatic event in the future. Moreover, emotional trauma can lead to a degree of learned helplessness interfering with the individual's ability to protect themselves or to act quickly when faced with danger in the future.

Various factors play a role in whether an individual recovers from a traumatic event in the days and weeks after it occurred or goes on to develop PTSD, depression or an anxiety disorder. The greater the magnitude of the stressor, and the greater one's exposure to it, the more likely that PTSD will develop. The more protracted a trauma, the more likely that PTSD and other emotional problems will develop. Trauma is more likely to produce PTSD if it is the result of intentional human actions, rather than a chance act of nature or bad luck. Other risk factors for the development of PTSD following a given trauma include lack of social supports, cognitive and intellectual limitations, a prior history of trauma, preexisting mental disorders, a

history of depression in first degree relatives, and for a child whether the parents are calm or distraught.

Pathophysiology

Historically, courts have been more willing to award damages when physical injuries are involved than when a purely psychological injury is alleged. Therefore, it can be helpful to speak about the neurophysiological changes which occur in PTSD. A number of important findings concerning changes in brain function have been identified in individuals with PTSD. Several researchers have found that hippocampal volume is smaller in individuals with PTSD, although it is not yet clear, however, whether this is a risk factor or consequence of trauma. Areas of the brain involved in threat perception, such as the amygdala, have altered metabolism in adult trauma survivors with PTSD. Studies of adrenocortical function both in adolescents and adults with PTSD following trauma, and in adults and adolescents with chronic PTSD, show low basal cortisol levels, increased cortisol response to dexamethasone, increased concentration of glucocorticoid receptors and possibly increased glucocorticoid receptor activity in the hippocampus. But, some studies have shown abused children to have elevated cortisol levels compared with controls and that adults with PTSD who had been abused as children had higher cortisol levels than those who were abused and did not develop PTSD. There is also research evidence of higher catecholamine activity in sexually abused girls. Stress affects gene expression in the traumatized individual, and may affect future generations. Studies have tended to show that changes in physiological measures, such as heart rate and skin conductance, appear to be the same in individuals with current or prior PTSD, indicating that the changes could represent either a predisposition or a permanent change resulting from PTSD, e.g., trait rather than state.

Research indicates that trauma and violence affect neurodevelopment. In general, trauma activates the individual's stress-response system and this affects neurogenesis, migration, synaptogenesis and neurochemical differentiation. Moreover, neural systems which are repeatedly activated (as occurs in trauma and PTSD) undergo permanent changes in synaptic architecture and neurotransmitter receptors. Repeated stress affects hippocampal development and may be related to the problems in learning and memory seen in stress related syndromes. None of these biological markers have achieved scientific acceptance for

sensitivity and specificity to PTSD, and therefore should not be relied upon as dispositive evidence.

There are also studies showing that individuals with PTSD have lower IQs than controls but it is not clear whether this is a result of the trauma or a predisposing factor to developing PTSD. (Koenen)

Children are particularly vulnerable to the impact of emotional trauma. According to the cascade model early trauma not only activates the stress response system, but leads to changes in brain development that affect later responses to stress. Stress hormones have a profound impact on the development brain of a child and affect patterns of myelination, neurogenesis, synaptogenesis and neural morphobiology. Enduring neurophysiologic impacts include reduction in the mid portion of the corpus callosum and decreased right/left hemispheric integration, electrical irritability of limbic circuits, decreased functional activity of the cerebellar vermis (and therefore decreased ability to inhibit limbic irritability) and attenuated left hemisphere development. Studies show mixed results of stress on the size of the hippocampus. These changes increase risks for PTSD, depression, dissociation, substance abuse and borderline personality disorder. Animal research has shown that early stress interferes with the development of benzodiazepine and GABA receptors which inhibit the Amygdala. As a result there is greater anxiety. In addition, prolonged stress or maternal inattention interferes with glucocorticoid receptors in the hippocampus that provide negative feedback to Cortisol release, leading to augmented release of stress response hormones in the future. Early stress also results in decreased levels of oxytocin mRNA in the hypothalamus. Oxytocin is a critical factor in affiliative love, maintenance of monogamous relationships and normal non sexual interactions. (Carter 1998, Liu 1997, Uvnas-Moberg K 1998)

One of the most destructive aspects of trauma is making the individual more likely to be traumatized again. Traumatic experiences change our perception of the risk and dangers of the world. Some people face high levels of anxiety and become inhibited in a wide variety of situations. Others, in order to deal with the anxiety, use denial. In order to avoid facing the high levels of anxiety many face after a trauma they deny risks involved in many situations. It is less painful in the short run than experiencing the anxiety, and permits them to engage in important developmental experiences. It also places them in harms way. This is another reason some traumatized individuals become risk prone.

In addition, a type of kindling occurs in which an individual is more likely to have a severe reaction to a traumatic experience the second time they are exposed to one. (Post 1997)

Diagnostic Criteria for PTSD

Following the trauma, usually within the first three months, but in some cases not until years later, the adult victim develops a syndrome of persistent re-experiencing of the event (criterion B), numbing of responsiveness and avoidance of stimuli associated with the trauma (criterion C), and increased arousal (criterion D).

Criterion B, re-experiencing of the trauma, requires that the victim have one or more of the following symptoms: recurrent and intrusive distressing memories of the event, acting or feeling as if the trauma were recurring including reenactment of the trauma, intense distress and physiological reactivity at exposure to cues that symbolize or resemble an aspect of the trauma, and recurrent distressing dreams of the trauma. For children, reexperiencing of the event is likely to take the form of post traumatic play or nightmares. Post traumatic play involves joyless, repetitive play with traumatic themes. Children may also reenact what occurred, or draw pictures related to the event. Post-traumatic dreams in children are generally vaguely formed dreams that the child may not be able to describe.

Criterion C, requires there to be 3 persistent symptoms of numbing of general responsiveness, or avoidance of stimuli associated with the event that arise after the trauma. These may include efforts to avoid thoughts, feelings or conversations associated with the trauma; efforts to avoid reminders of the trauma; amnesia for an important aspect of the trauma; diminished interest or participation in normal activities; feeling detached or estranged from others; restricted range of affect; and a sense of a foreshortened future including the feeling that one may never reach adulthood. As a result of a foreshortened sense of the future, traumatized children may suddenly leave school and get married. For children, loss of interest may be expressed by the loss of recently acquired developmental skills such as speaking or toilet training. Children may also become passive and withdraw. Although to fulfill the DSM-IV-TR diagnosis one needs three Criterion C symptoms, some authors argue that elementary school age and younger children with PTSD may not demonstrate avoidance or numbing. Others have noted that children may have long periods of reexperiencing alternating with long periods of avoidance and numbing, rather than both occurring at the same time, as is required by the DSM-IV-TR diagnostic criterion.

Criterion D, requires there to be 2 persistent symptoms of increased arousal which develop after the event. Characteristic symptoms include sleep difficulties, irritability or angry outbursts, difficulty concentrating, hypervigilance, and exaggerated startle response. Some argue that if criterion C symptoms of numbing are sufficiently effective, criterion D symptoms may not be apparent.

For adolescents, the primary symptoms of PTSD are likely to include invasive images (which they may not talk about), restlessness and aggression, difficulty sleeping, and difficulty concentration. Other common symptoms include loss of interest in previously enjoyed activities, withdrawal from family and peers, and changes in significant life attitudes. Adolescents with chronic PTSD arising from repeated or prolonged trauma may suffer primarily from dissociative symptoms, numbing, sadness, restricted affect, detachment, self injury, substance abuse, and aggressive outburst. When interpersonal abuse is the precipitant, there is a risk for the development of dissociative phenomena, somatic complaints, learned helplessness, loss of affect control, hostility, aggression, eating disorders, sexual acting out, personality change, change in belief system, self destructive and impulsive behavior, substance abuse, social withdrawal and impaired relationships.

DSM-IV-TR criterion for PTSD are not optimal for children, as they were designed for adults. Not only do children often lack the expressive skills needed to fulfill many of the criterion, particularly numbing and avoidance, but they sometimes respond to stress with different symptoms than adults do.

Course of PTSD

While most people who are destined to have PTSD have symptoms immediately after the event, some people have a delayed onset. The most common reason for this is that the individual has physical injuries that he or she expected would heal. When the injuries do not heal, the meaning of the event changes for the person. What had been seen as a highly stressful event the person expected to recover from is now an event that caused permanent, or at least protracted, disability. As the meaning of the event changes to a more malignant one, the person develops increased psychological issues.

The symptoms of PTSD may fluctuate over time. Half of victims recover within 3 months, but many remain ill for a year or more. Ten percent do not recover. Symptoms may reemerge following a subsequent trauma, life stresses, or reminders of the original trauma.

Substantial numbers of individuals suffer for years after a traumatic event. The impact of exposure to disasters and violence is profound and long-lasting. In a group of severely maltreated children, 40% met criterion for PTSD after removal from their homes, and 33% still met criteria 2 years later. (Famularo 1996). Two years after the Buffalo Creek Dam collapse 37% of children evaluated met "probable" DSM-III-R PTSD criteria, and 17 years after the flood 7% still met criteria. (Green 1994). Following Hurricane Andrew, 86% of children met PTSD criteria at 3 months, 76% met criteria at 7 months, and 69% met criteria at 10 months. (LaGreca 1996)

All of the children in the Chowchilla bus hijacking had post traumatic symptoms four years later. Twenty seven percent of severely burned children met PTSD criteria years after the injury when they were readmitted for reconstructive surgery. Seventeen years after a 16 hour kidnapping, in which 22 children were killed and many wounded, half of the survivors studied had five to eight of the 17 symptoms of PTSD. Seven years after a bus and train accident, those having high levels of exposure had high levels of somatization, depression, phobic anxiety, psychoticism, and PTSD symptoms. (Tyano 1996)

Long Term Effects of Emotional Trauma on Children

In addition to the classic PTSD symptoms of reexperiencing the trauma, numbing/avoidance and hyperarousal, young children often have problems with aggression. (Pelcovitz 1994, Steiner 1997, March 1993). The intense negative emotions generated by the traumatic experience interfere with the development of emotional regulation. Shame, self-blame and seeing oneself as ineffective can interfere with adaptive functioning. (Lewis 1991). These problems can, in turn, interfere with the development of empathy and prosocial behavior. Stress from the trauma can interfere with the parents' ability to take care of the child, and with the child's ability to form an attachment to the parents.

Perhaps the two most destructive aspects of PTSD are the damage to the child's ability to engage in normal developmental experiences, and the markedly increased vulnerability to trauma in the future. The child's anxiety around people, withdrawal, regression and difficulty

concentrating interfere with participation in normal developmental activities such as socializing with other children and succeeding in school. (Pynoos 1995) The impact of this can be greater than the direct impact of the symptoms of PTSD. The child is also much more likely to suffer trauma in the future than is a non traumatized child.

Differential Diagnosis

PTSD symptoms overlap with those of other disorders, such that the underlying PTSD syndrome may be missed. The differential diagnosis between PTSD and borderline personality disorder can be difficult to make. (Herman 1989, Van Der Kolk 1994). Substance abuse is a common comorbidity that may represent a failed effort to relieve distress through self-medication. (Deykin 1997, Meissler 1996). Postconcussive syndrome (headaches, anxiety, emotional lability, concentration impairment, memory problems) and head injuries without loss of consciousness can be confused with PTSD. (Lishman 1978, Cohen 1998).

The aggression, difficulty concentrating, sleep problems, labile mood and risk taking of PTSD can lead a clinician to diagnose bipolar disorder. The loss of interest in previously enjoyed activities, withdrawal from family and peers, and sleep problems can lead to a diagnosis of depression. Somatization can be a prominent symptom and can lead to a focus on finding a medical problem. (Schwarz 1994) It is very important when seeing the new onset of one of these symptom complexes to evaluate for the presence of PTSD. Flashbacks can lead clinicians to suspect psychosis. The hyperactivity, distractibility, impulsivity and interpersonal problems that often come with ADHD in children can lead to a diagnosis of ADHD. (Weinstein et al 2000). Loss of impulse control and aggression can lead to diagnoses of Oppositional Defiant Disorder or Conduct Disorder.

Landmark Cases

1968 Margery M. Dillon v. David Luther Legg

David Legg drove his car and killed the 2 year old daughter of Margery Dillon. Dillon saw the accident sued for wrongful death, and also for pain & suffering for herself. The California Supreme Court ruled in Dillon's favor saying that someone who was emotionally injured by seeing the injury of a close relative was entitled to compensation.

1989 Maria Thing v. James La Chusa

Ms. Thing's son was injured by a car driven by La Chusa. She did not see or hear, but came up shortly afterwards, saw her son, and thought he was dead. She sued for Negligent Infliction of Emotional Distress (NIED). The court ruled that a plaintiff needed to observe an injury of a closely related individual, know the injury is occurring and as a result suffers serious emotional distress.

Appendix

DSM IV-TR criterion

DIAGNOSTIC CRITERION

- The individual experienced intense fear, helplessness or horror in response to exposure to a serious traumatic event that caused or threatened serious harm of injury or violation of bodily integrity. Children may experience disorganized or agitated behavior.
- The traumatic event is reexperienced in one or more of the following ways
- Distressing recurrent and intrusive recollections of the event. In young children there may be repetitive play of themes or aspects of the traumatic event.
- Recurrent distressing dreams. In children the dreams will be frightening but may not have recognizable content.
- Acting or feeling as if the traumatic event was recurring.
- Intense psychological distress at exposure to cues that symbolize or resemble an aspect of the traumatic event.

- Physiological reactivity on exposure to cues that symbolize or resemble an aspect of the traumatic event.
- Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by 3 (or more) of the following
- Efforts to avoid thoughts, feelings, or conversations associated with the trauma
- Efforts to avoid activities, places, or people that arouse recollections of the trauma
- Inability to recall an important aspect of the trauma
- Markedly diminished interest or participation in significant activities
- Feeling of detachment or estrangement from others
- Restricted range of affect (e.g. unable to have loving feelings)
- Sense of a foreshortened future (e.g. does not expect to have a career, marriage, children, or a normal life span)
- Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following

Difficulty falling or staying asleep

Irritability or outbursts of anger

Difficulty concentrating

Hypervigilance

Exaggerated startle response

Symptoms of reexperiencing the trauma, avoidance, and persistent arousal last more than 1 month

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

(DSM IV-TR pp467-468)

Recommended Readings

- Post-Traumatic Stress Disorder: Basic Science and Clinical Practice edited by Priyattam J. Shiromani, Terence M. Keane and Joseph E. LeDoux; Humana Press 2009

- Handbook of PTSD: Science and Practice eds. Matthew J. Friedman, Terence M. Keane, Patricia A. Resick PhD; Guilford Press 2007
- Neuropsychology of PTSD: Biological, Cognitive, and Clinical Perspectives eds. Jennifer J. Vasterling PhD and Chris R. Brewin PhD; Guilford Press 2005
- Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society eds Bessel A. van der Kolk, Alexander C. McFarlane and Lars Weisaeth; Guilford 2006