

Posttraumatic Stress Disorder in the General Population and in Children

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Posttraumatic stress disorder (PTSD) is a complex psychopathologic condition that represents a significant challenge to the psychiatric profession. This distressing disorder has been found to affect both adults and children, although the pattern of symptoms in children can differ from that commonly seen in adults. This article presents an overview of the prevalence and incidence of PTSD and discusses factors that may be influential in the development of this disorder following exposure to traumatic events. In addition, the clinical presentation of PTSD in children is reviewed and treatment options for affected children are discussed. *(J Clin Psychiatry 2001;62[suppl 17]:23–28)*

DEFINING PTSD

Posttraumatic stress disorder (PTSD) has a complex and diverse symptomatology. The disorder is characterized by overwhelming feelings of reexperiencing the traumatic event, avoidance of stimuli (both trauma associated and otherwise), and symptoms of hyperarousal such as insomnia, anger, hypervigilance, and an exaggerated startle response.

At present, there are 2 systems in use for the diagnosis of PTSD, namely the DSM-IV criteria developed by the American Psychiatric Association¹ and the criteria published by the World Health Organization in their 10th revision of the International Classification of Diseases (ICD-10)² (see the review by Shalev³ elsewhere in this supplement). Although the 2 systems are broadly similar, a number of important differences exist. The most notable difference between the 2 systems is in the emphasis they place on “emotional numbing,” which features prominently in the DSM-IV system but is not regarded as necessary to make the diagnosis using the ICD-10 system, although the ICD-10 does recognize emotional numbing as a frequent accompaniment to PTSD. Another important difference is that while ICD-10 prefers that only one diagnosis be given to a patient, the DSM-IV system encourages multiple diagnoses, which increases the amount of “comorbidity” reported. However, both systems agree that

the persistent, intrusive reexperiencing of the traumatic event is the distinctive hallmark of PTSD that differentiates it from other psychopathologies. In acknowledging the clinical utility of the current DSM-IV and ICD-10 diagnostic criteria, it should be remembered that as our understanding of PTSD continues to grow, these systems will continue to evolve.

The DSM-IV criteria state that symptoms must be present for at least 1 month for a formal diagnosis of PTSD to be made (in contrast, ICD-10 makes no stipulations regarding duration of symptoms). If symptoms are then present for less than 3 months, the disorder is termed “acute,” whereas patients whose symptoms persist beyond 3 months are classified as having “chronic” PTSD. Finally, patients presenting with onset of symptoms 6 months or more after the traumatic event are said to have “delayed-onset” PTSD.

COMORBIDITY

Comorbidity is common in PTSD, with a significant proportion of patients diagnosed as suffering from concurrent depression, anxiety disorders, cognitive impairment, and substance abuse (see the review by Shalev³ elsewhere in this supplement).^{4–9} A follow-up study of the adult survivors of the sinking of the *Herald of Free Enterprise* ferry found that survivors reported large increases in their use of alcohol, cigarettes, sleeping tablets, antidepressants, and tranquilizers some 30 months after the event.¹⁰ Patients with PTSD also commonly show a deterioration in their overall physical health,^{11,12} and there may be an adverse effect on social relationships.⁹ To some extent, the high incidence of comorbidity may be a product of the DSM-IV diagnostic process, which encourages multiple diagnoses and thus may promote reports of comorbidity. There is also a high degree of overlap between the symp-

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toms of PTSD and depression; PTSD shares 10 of the 17 symptoms that constitute the Hamilton Rating Scale for Depression. However, these similarities should not cloud the fact that PTSD, depression, and anxiety all show sufficient important differences to be considered as discrete conditions.

In reviewing the symptomatology of PTSD and its overlap with other psychopathologies, it is worth remembering that the pattern of symptoms differs between individual patients with PTSD and that this difference may at least in part relate to the nature of the traumatic event experienced. While one patient may have experienced a single, discrete event such as a motor vehicle accident, another may have suffered from prolonged exposure to incidents of domestic violence. Similarly, while in some patients the experience may be public, in others, such as children who have suffered sexual abuse, the trauma is often experienced privately, occurs under conditions of threat, and is chronic. It is understandable that these patients may have differences in their overall pattern and severity of symptoms and show differing degrees of impairment even though all qualify for the diagnosis of PTSD.

PREVALENCE AND INCIDENCE OF PTSD

The point prevalence of PTSD at any given time can be expected to vary according to how many traumatic events have occurred and how many people were exposed to them. Studies that have looked at life events provide some clues as to the extent to which people are exposed to traumatic events during the course of their lives (see the review by Breslau¹³ elsewhere in this supplement). For example, Kilpatrick et al.¹⁴ in 1992 estimated that 13% of adult women in the United States had been sexually assaulted. Other traumatic events may affect 40% to 70% of the population.^{15,16} These data indicate a very high lifetime rate of exposure to traumatic events that fit the criteria of the DSM-IV system.

Wide variations in the prevalence of PTSD have been reported in the literature (from 1% to 9.2%).^{15,17-19} It is clear, however, that the great majority of subjects exposed to trauma do not develop PTSD. For example, in a study by Breslau et al.¹⁵ in 1007 young adults in Detroit, Mich., the lifetime prevalence of exposure to traumatic events was estimated at 39.1%; however, the estimated lifetime prevalence of PTSD was much lower at 9.2% (23.6% of those exposed to trauma). A comprehensive review of the literature by Green²⁰ in 1994 found that approximately 25% of subjects exposed to traumatic events develop PTSD.

Notably, the incidence of PTSD has been shown to vary widely in relation to the nature and severity of the traumatic event. An analysis by March,²¹ which reviewed 19 studies that quantified stressors suffered during combat, disaster, illness, injury, and crime, found that in 16 of 19 studies there was a "dose-response" relationship between

stressor intensity and likelihood of developing PTSD. Thus, people who are exposed to more severe, intense trauma are more likely to develop PTSD. In the case of the sinking of the cruise ship *Jupiter*, more than half of the survivors went on to develop PTSD, and many others developed other psychopathologies.^{22,23} A study of 158 survivors of road traffic accidents found that 39% were diagnosed as having PTSD 1 to 4 months after the event.²⁴

A number of other factors besides stressor intensity influence the likelihood of a given individual's developing PTSD or other psychopathologies after exposure to trauma. In part, differences in susceptibility between individuals are genetically and biologically determined; however, other factors such as previous exposure to stress and mental health may also be important. In a seminal article on "emotional processing," Rachman²⁵ reviewed the factors that may affect recovery following a traumatic event. He argued that when people are exposed to threatening situations, it is normal for them to react with strong emotions, which are largely natural built-in mechanisms and which wane over time. However, subjects who have been exposed to extremely traumatic events may thereafter avoid placing themselves in situations that may be threatening and so are not exposed to the feared stimuli in settings where no further harm occurs, i.e., normal habituation of anxiety does not occur. This, then, interferes with the normal processing of emotional reactions to stressful situations.

Rachman²⁵ argued that the symptoms of what we now call PTSD are the signs that emotional processing is incomplete. Factors that appear to lead to difficulties in emotional processing and factors that appear to help are listed in Table 1. As can be seen from Table 1, difficulties in emotional processing are more likely following exposure to sudden, intense traumatic events.

NATURAL COURSE OF PTSD

At present, few studies have provided long-term follow-up data on PTSD patients. In 1986, around the time that the diagnosis of PTSD was gaining credibility, Raphael²⁶ estimated that 40% of cases persist at 1 year, declining to 20% to 30% by 5 years. Holen²⁷ found that some survivors of an oil rig collapse were still badly affected 8 years after the event. For example, the mean occurrence rate of psychiatric diagnoses during the 8-year observation period was 12.3 for survivors and 1.5 for unexposed controls ($p < .03$). Similarly, Green and colleagues²⁸ reported that 17% of the adult survivors of the Buffalo Creek Dam collapse still met the criteria for a diagnosis of PTSD 14 years later, while Kilpatrick et al.²⁹ found that 17% of women who had been sexually assaulted still had PTSD 17 years later. It is therefore clear that although the majority of people recover from PTSD within a few months, for a significant minority the condition can persist for many years and may affect the rest of their lives.

Table 1. Difficulties in Emotional Processing^a

State
Causing difficulties: dysphoria, high arousal, illness, fatigue, disturbed dreams, sleeplessness
Avoiding difficulties: relaxation
Personality
Causing difficulties: neuroticism, introversion, inner-orientated
Avoiding difficulties: broad competence, self-efficacy, stability
Stimulus characteristics
Causing difficulties: sudden, uncontrollable, intense, unpredictable, dangerous, irregularity, prepared, large chunks
Avoiding difficulties: signaled, mild, unprepared, safe, controllable, predictable, small chunks, progressive
Associated activity factors
Concurrent stressors (overload)
Intense concentration on separate task
Heat, noise
Need to suppress expression

^aAdapted from Rachman.²⁵

A follow-up study³⁰ of subjects who survived the sinking of the cruise ship *Jupiter* has provided some useful insights into the long-term course of PTSD and other psychopathologies following traumatic events that occur in childhood and adolescence. Seven years after the event, 17.5% of the 217 subjects interviewed and examined still had PTSD, 38% had PTSD symptoms (compared with 9% of matched controls), almost 57% met any DSM-IV diagnostic criteria for conditions other than PTSD (compared with 35% of controls), and a significant percentage had major depressive disorders (34%) and simple phobias (24%) associated with their experiences. In total, 52% of the subjects developed PTSD following the sinking, the majority within a month of the event. Ten subjects had possible delayed-onset PTSD, mostly occurring within 6 months. It is notable that most cases of delayed-onset PTSD that occurred over 6 months after the sinking manifested around the time of the first anniversary of the event. Approximately 5% of subjects had multiple episodes of PTSD in the 7 years following the sinking, illustrating the fluctuating course that this condition can take. An important finding of this study was that the survivors studied often showed marked declines in academic performance in comparison with matched controls. These data illustrate the far-reaching effects that traumatic experiences can have, notwithstanding the more obvious psychopathologies such as PTSD, depression, and so on.

PTSD IN CHILDREN

The recognition that PTSD can and does occur in children is a relatively new observation. As recently as the 1980s, it was widely believed that children have only transient reactions to single traumatic events and soon put the experience behind them.³¹ This misunderstanding largely resulted from a failure of researchers to interview the children about their experiences and subsequent reactions, instead relying upon reports from parents, teachers,

etc. In fact, when asked, children report a wide range of reactions following traumatic events that tend to cluster around signs of reexperiencing the event, attempts to avoid dealing with the ensuing emotions, and a range of signs of increased physiologic arousal. There may also be considerable comorbidity, with depression, anxiety, and pathologic grief reactions.

Repetitive, intrusive thoughts about the event trouble most children following trauma, although vivid, dissociative flashbacks are uncommon. Sleep disturbances, fear of the dark, and nightmares are common, particularly during the first few weeks. The ensuing tiredness may at least in part explain the difficulties in concentration that many children report following trauma, although problems with memory are also observed. Separation difficulties are also common, even among teenagers, and it is not unusual for children not to want to let their parents out of their sight for the first few days following the traumatic event. Heightened alertness to danger is also commonly observed, and having perhaps learned that life is fragile, children may have a loss of confidence in their future or a sense of a foreshortened future. Unsurprisingly, many children develop fears associated with specific aspects of their experience and avoid situations that they associate with the event. Survivor guilt may also be manifest. High rates of depression are reported in adolescent survivors of trauma, and a significant number become very anxious following accidents, although the appearance of panic attacks can sometimes be considerably delayed.

Unfortunately, many children and adolescents who survive traumatic experiences find it difficult to talk about their feelings with their families and peers. Furthermore, they may interpret reticence on the part of peers to ask about the event as a form of rejection. Parents are usually unprepared for the long-term effects of a traumatic experience on their children, and it is important to ensure that they receive information on the possible sequelae following such events.

In children aged 6 years or less, the reaction to trauma is reflected in developmental aspects of their behavior. These children can often provide graphic accounts of their experiences if asked and often allude to the event in repetitive drawings and repetitive play. Antisocial and aggressive behaviors also commonly occur.

In recognition of the different pattern of symptoms and behavior observed following trauma, particularly in very young children, and understanding that the DSM-IV and ICD-10 criteria for diagnosing PTSD in adults may be less appropriate in this group, the term "traumatic stress reactions" is often used. Scheeringa et al.³² have developed an alternative set of criteria for diagnosing PTSD in very young children. According to their system, reexperiencing is seen as being manifested in play, reenactment of the trauma, recurrent recollection of the event, nightmares, flashbacks, or distress at exposure to reminders of the event. Numbing is judged to be present if there is constriction of play activity

or if the child is socially more withdrawn, has a restricted range of affect, or has a loss of a previously acquired developmental skill. The third of the triumvirate of symptoms characterizing PTSD in adults, increased arousal, is noted if the child has night terrors, difficulty in getting to sleep, night waking, decreased concentration, hypervigilance, or exaggerated startle response. A new subset of symptoms, consisting of new fears and aggression, is further said to be present if new aggression, new separation anxiety, fear of toileting alone, fear of the dark, or any other unrelated new fear is recorded. To date, these new criteria have not been tested against the existing DSM-IV or ICD-10 systems.

Case History

This case illustrates how even young children can often have graphic memories of traumatic events that their parents believe they have forgotten. It also provides an example of the way that children who have been exposed to traumatic events often recall the event through paintings or drawings. A 5-year-old boy got a metal hook of the type used to hang up produce in shops lodged down his throat when he was inadvertently bumped by a shopping trolley while playing with it in a supermarket. Fortunately, there was no permanent damage. However, on turning around and seeing him in this condition, his mother fainted and his father was left to extract the hook before the boy was taken to hospital.

From being a normal, happy child, this boy became sad, avoided other children, and became quite destructive. He avoided the supermarket where the accident happened. He became very "clingy" toward his mother. His parents said that it was as if he had blocked the incident out since he never talked about it.

Interviewed on his own, the boy was able to provide a detailed explanation of what happened and how he has subsequently felt. He reported that he wakes in the night having dreamt of monsters. He still thinks of the accident when he does not want to. On being asked to draw the event, he drew a very accurate picture of the unusual shape of hook that got stuck in his throat. His parents were amazed and distressed to find out that he had such a clear memory of the incident. It is very common for young children to tell outsiders about the details of traumatic events while keeping them from their parents for fear of upsetting them.

Prevalence and Incidence of PTSD in Children

To date, there have been no epidemiologic studies of the prevalence of PTSD in children. Prevalence and incidence rates from studies of at-risk children have varied widely (from 0%–100%).^{33–44} This extreme variability is, however, consistent with the findings of studies in at-risk adults. Estimation of the true prevalence of PTSD in children and adolescents is difficult, particularly from data collected prior to use of the current diagnostic criteria. Furthermore,

as can be seen from the available study data, there is considerable variability in prevalence estimates depending on the children's ages, the time elapsed since the traumatic event, assessment methods used, and the version of the DSM diagnostic criteria used. Of interest are the recent findings of a relatively high incidence of PTSD ($\approx 20\%$) in children who experienced road traffic accidents and an incidence rate of 10% to 12% in children who had been admitted to hospital casualty departments in the United Kingdom following common childhood mishaps such as falling off walls and other high places.^{45,46} Although the true prevalence and incidence of PTSD in children are not known, it is clear that, as with adults, this condition represents a considerable health concern in this group.

Assessment of PTSD in Children

In assessing children with suspected PTSD, it is important to conduct thorough interviews with the parents and the child. The interview with the parents should cover the family history, the child's developmental history prior to the traumatic event, and the parents' perceptions of how the child has changed. A detailed description of the event should be obtained from the parents, as far as they are able, and the details should be checked with the child. The child should also be asked for his or her subjective view of how the event affected him or her—what was heard, seen, smelled, etc.—and what his or her thoughts and feelings were at the time and subsequently.

A range of measures for the assessment of posttraumatic stress reactions in children are now available.⁴⁷ One of these measures, the Children's Post-Traumatic Stress Reaction Index,⁴⁸ has been widely used in clinical trials and has been shown to have good internal consistency and to relate well to clinical judgment of PTSD severity. Another scale, which has proven useful in children aged 8 years and over, is the Impact of Event Scale,⁴⁹ although some of the items on the scale have been shown to be misunderstood by children and require replacement. A shortened version has now been developed,⁵⁰ which has shown promise in studies of children in Bosnia and Rwanda. When assessing children who have undergone traumatic experiences, it is also important to obtain estimates of their levels of anxiety and depression. The Revised Children's Manifest Anxiety Scale⁵¹ and the Spence Children's Anxiety Scale⁵² are perhaps the most commonly used measures for anxiety, while the Birmaher Depression Scale⁵³ and the Child Depression Inventory⁵⁴ are used to assess depression. In recognizing the usefulness of the above measures, it is clear that we need to develop additional measures for use in younger children under 8 years of age, as has been tried by Almqvist and Brandell-Forsberg.⁵⁵

Treatment Options

Although there have been a number of single case reports concerning treatment of children with PTSD, as yet

there are no published data from randomized, controlled clinical trials. To date, most approaches to treatment have been cognitive-behavioral in character and have consisted of adaptations of methodologies used in adults.

Critical-incident stress debriefing. There is currently much debate regarding the use and value of crisis intervention with adults, with some evidence indicating that early intervention may actually promote the development of PTSD rather than reduce its incidence. Inappropriate exposure sessions that are too short may leave children in an aroused state and may sensitize them rather than help them habituate. Furthermore, evidence from adult studies has shown that even such a simple intervention as distributing advice leaflets to trauma survivors can prove distressing to a significant minority.⁵⁶ The onus is therefore on therapists to monitor which children are helped and which are not by any given crisis intervention technique. Critical-incident stress debriefing techniques have been used in groups of children exposed to a variety of traumatic events⁵⁷ and were found to be effective in lowering levels of intrusion and fears in children following the sinking of the *Jupiter*.⁵⁸

Group treatments. Group treatments are to be preferred as first-line intervention if large numbers of patients are involved. There is a broad consensus that group treatment approaches will be effective for some, but not all, children. However, although group interventions appear promising, at present no controlled studies prove their efficacy. The aims of group therapy are to share experiences and feelings, to boost the children's sense of mastery and control, and to share ways of solving common problems. However, it is not sufficient or desirable for group sessions merely to provide a forum for the expression of feelings, since this may only serve to renew patients' feelings of anxiety if a constructive therapeutic approach to dealing with issues raised is not in place. Group treatments are useful for screening for high-risk children who may need individual therapy. Children whose symptoms persist should also be treated individually.

Individual treatment. Cognitive-behavioral therapies, which aim to help patients make sense of their experiences and to master their feelings of anxiety and helplessness, currently form the mainstay of individual treatment for children with PTSD. As in other treatments of psychopathology in children, pharmacotherapy is rarely used. Asking children to draw their experiences can be useful in helping them to recall the event and their emotions associated with it; however, drawing is not an adequate therapy by itself, as was demonstrated in the study by Bunjevaca and Kuterovac.⁵⁹ When using systematic desensitization approaches, care must be taken to ensure that the length of the exposure sessions is sufficient to allow adequate habituation of anxiety. It should also be remembered that when children are frightened by the vividness of their memories, relaxation may only serve to intensify the vividness.

Dealing with feelings of bereavement represents another important aspect of rehabilitation in child trauma

victims who have lost friends or relatives. Pynoos and Nader⁶⁰ emphasize the need to help children distinguish between their trauma-related responses and those related to grief. They also suggest that in cases in which several children are bereaved, small group sessions can be beneficial in the early stages. A wide variety of techniques, including the use of drawings and play, have been used by Black⁶¹ in her work with children who have been bereaved as a consequence of one parent killing another.

There is currently much interest in the technique of rapid eye movement desensitization and reprocessing (EMDR) therapy.⁶² In this technique, patients are asked to recall the traumatic event in images while systematically moving their eyes rapidly. It is not clear if the eye movement is necessary or whether it serves merely as a helpful distraction for patients while they expose themselves to the trauma memories and thereby habituate to them. To date, there are no published data from controlled trials of EMDR in children or adolescents; however, my own experiences of the use of this technique in children traumatized by road traffic accidents have provided encouraging results.^{46,63}

CONCLUSION

Our understanding of PTSD has increased steadily in recent years with regard to its clinical course, its strong association with depression and other comorbid psychopathologies, and the identification of factors that may lead to difficulties in emotional processing and hence, perhaps, increase a subject's risk of developing the disorder. Important progress has also been made during the past 15 years in our understanding of posttraumatic stress reactions in children, the important differences in symptomatology that distinguish these reactions from PTSD in adults, and in our recognition of the profound adverse effects that they can have on children's lives and future development. However, it is also clear that there remains much to learn about PTSD, most notably with regard to its true prevalence in the population, our understanding of risk factors for developing the condition, and its treatment.

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