Posttraumatic stress disorder in children and adolescents: Epidemiology, clinical features, assessment, and diagnosis

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INTRODUCTION

Posttraumatic stress disorder (PTSD) is a debilitating and often chronic mental disorder that develops in some children and adolescents following exposure to a traumatic event. Traumatic events are experiences that involve serious harm or threat of harm to oneself or others, such as exposure to interpersonal violence, accidents, natural disasters, and injuries.

A majority of children and adolescents will experience a traumatic event by the time they reach adulthood, both in the United States and internationally. Although trauma exposure is common, only a minority of children who experience a traumatic event develop PTSD. PTSD is defined by four symptom clusters: intrusion, avoidance, negative alterations in cognition and mood, and hyperarousal [1]. The consequences of PTSD include elevated risk for other mental disorders and suicide, substantial impairment in role functioning, reduced social and economic opportunity, and earlier onset of chronic diseases, particularly cardiovascular disease.

The epidemiology, pathogenesis, clinical manifestations, course, assessment, and diagnosis of PTSD in children are discussed here. Pharmacotherapy and psychosocial interventions for PTSD in children are discussed separately and on two algorithms (algorithm 1 and algorithm 2). Discussion of PTSD in adults is also found elsewhere:

- (See "Posttraumatic stress disorder in children and adolescents: Treatment overview".)
- (See "Posttraumatic stress disorder in children and adolescents: Trauma-focused psychotherapy".)
- (See "Posttraumatic stress disorder in adults: Epidemiology, pathophysiology, clinical features, assessment, and diagnosis".)
- (See "Dissociative aspects of posttraumatic stress disorder: Epidemiology, clinical manifestations, assessment, and diagnosis".)
- (See "Posttraumatic stress disorder in adults: Psychotherapy and psychosocial interventions".)
- (See "Posttraumatic stress disorder in adults: Treatment overview".)

EPIDEMIOLOGY

Trauma exposure — Studies have found high but varying rates internationally in the proportion of children and adolescents experiencing a traumatic event before the age of 18 [2,3]. As examples:

- A United States nationwide study of over 6000 adolescents reported that 62 percent of youths experienced at least one traumatic event in their lifetime, including interpersonal violence, serious accidents or injuries, natural disaster, and death of a loved one; 19 percent have experienced three or more such events.
- A national survey of trauma exposure among children in Mexico reports a prevalence rate of 68.9 percent [4].
- A 2019 survey of a nationally representative birth cohort of 2232 children in the United Kingdom reported a lower lifetime prevalence of trauma exposure of 31.1 percent [5].
- A lower prevalence of child trauma exposure has also been found in other high-income countries, such as Germany [6].

Risk for trauma exposure varies according to characteristics of children, their families, and their social environment. Although overall rates of trauma exposure are similar in boys and girls, boys are more likely to experience physical violence, whereas girls are more likely to be victims of sexual violence [3,7]. Some types of trauma occur more frequently to younger children, including physical abuse by a caregiver, witnessing domestic violence, and kidnapping [3]. Approximately half of all children who experience these types of trauma in their lifetime have been exposed before the age of eight years. Adolescents are more likely to experience other types of trauma, including automobile accidents, rape and sexual assault, physical assault by

non-family members, hospitalization for a serious injury or a relative's hospitalization [8], and unexpected death of a loved one [3].

Certain forms of psychopathology place children at greater risk for experiencing traumatic events. In particular, youths with a history of disruptive behavior disorders (eg, attention-deficit/hyperactivity disorder, oppositional defiant disorder, conduct disorder) are more likely to experience interpersonal violence, as well as accidents and injuries, compared with children without these conditions [3,9,10]. Alcohol and drug use are associated with increased risk for experiencing interpersonal violence [11,12]. Children with PTSD are vulnerable to revictimization; this association is partly mediated by problematic alcohol use [12].

Among influential family characteristics, children who do not live with both biological parents are at heightened risk for experiencing virtually all forms of trauma, most notably interpersonal violence [3,10,13]. This pattern may reflect lower parental supervision of children in families that do not have two parents in the home, or greater risk of maltreatment because of the presence of step-parents or other nonrelated adults in the home [14].

Other aspects of the social environment also influence risk for trauma exposure in children. Over 80 percent of children living in urban areas in the United States have experienced a traumatic event and more than half have experienced interpersonal violence [7]; these rates are higher than in children living in nonurban areas.

Children living in regions experiencing humanitarian emergencies, such as war and armed conflict, are at particularly elevated risk for exposure to traumatic events. Over 15 million children were exposed to armed conflict in 2014 in the Central African Republic, South Sudan, Iraq, Palestine, Syria, and Ukraine. An estimated 230 million children live in countries or regions impacted by violence and armed conflict [15].

Children living in areas experiencing armed conflict are at risk of internal displacement, becoming a refugee, witnessing brutal violence and death, and being orphaned, kidnapped, tortured, raped, or recruited as child soldiers [16]. Natural disasters have increased dramatically in both prevalence and associated damage over the past several decades and represent an additional source of pervasive trauma exposure worldwide [17]. The consequences of such disasters are magnified in the absence of resources needed to mobilize a coordinated public health response.

Subsequent PTSD — A substantial minority of children and adolescents exposed to trauma develops PTSD. A meta-analysis of 43 studies of child PTSD conducted cross-nationally indicates that 15.9 percent of children who have experienced a traumatic event will develop PTSD [18]. Epidemiologic studies in high-income countries indicate that approximately 8 to 10 percent of

youths exposed to a traumatic event develop PTSD [3,7], and an even higher proportion develop PTSD symptoms [19]. A 2019 longitudinal study in the United Kingdom found that 25 percent of children exposed to trauma developed PTSD by the age of 18 [5]. In low- and middle-income countries, the prevalence of PTSD among children varies widely across studies.

Risk factors — Risk factors for PTSD in children can be grouped into several clusters: characteristics of the trauma, the child, and family, as well as responses to the traumatic event.

Trauma characteristics — The risk of PTSD varies substantially across different types of traumatic events:

- Events that involve a high degree of life threat are most likely to trigger PTSD in children [20-23]. This pattern has been observed in relation to natural disasters, car accidents, terrorist attacks, and school shootings and has been confirmed in meta-analysis [24].

- Children who experience events involving interpersonal violence, including rape, sexual assault, and physical abuse by caregivers or romantic partners, have the highest risk of PTSD onset [3,5,7,19]. In epidemiologic studies, between 30 to 70 percent of children who experience physical or sexual abuse will develop PTSD [3,5].

- Exposure to war and armed conflict are associated with a high conditional risk of PTSD in children. A meta-analysis of children affected by war reported a pooled PTSD prevalence rate of 47 percent [25].

- High rates of PTSD have been reported in children who are displaced and living as refugees [26,27]. PTSD is particularly common among child soldiers, who are forced to commit violence; PTSD rates have been estimated at 35 to 97 percent among child soldiers [28,29].

Children who experience a higher number of traumatic events are more vulnerable to developing PTSD than those who experience a single trauma [3,20,23,30]. This might suggest that earlier trauma sensitizes children and adolescents to the effects of subsequent traumatic events.

Child characteristics — Girls are two to three times as likely to develop PTSD as compared with boys [3,7,31]. Although females are more likely to experience certain types of traumatic events that strongly predict the onset of PTSD, such as rape and sexual assault, females remain more likely than males to develop PTSD, even after accounting for these types of differences in traumatic event exposure [3]. The factors that explain this greater risk for PTSD among females are not well understood.

Children with a history of having other mental disorders are more likely to develop PTSD following trauma exposure than children who have never had a mental disorder. In a longitudinal birth cohort study of over 1000 individuals, 93.5 percent of individuals who met criteria for PTSD by early adulthood had met criteria for another mental disorder as a child or adolescent [32]. In particular, children and adolescents with a history of anxiety and mood disorders are more likely to develop PTSD following a traumatic event than youths without a prior mental disorder [3,9,19].

Family characteristics — Family characteristics influence risk for PTSD:

- Meta-analysis indicates that poor family functioning is a risk factor for PTSD in children exposed to trauma [24].
- Parent reactions to trauma are associated with PTSD in their children. In some cases, parents develop PTSD symptoms, depression, anxiety, or other mental disorders following a child's exposure to a traumatic event. Parents often experience traumatic events along with their child, such as in war-related trauma, car accidents, and disasters, which can contribute to the onset of PTSD or other parent mental disorders.
- A significant association of between parent PTSD symptoms and the presence of PTSD symptoms reported by their child was found in a meta-analysis of 32 studies, with a moderate effect size [33]. This association was similar across trauma types but was larger for the link between maternal-child PTSD symptoms than for father-child symptoms.
- Children who have greater social support are less likely to develop PTSD than those without such support [24]. This finding has been observed for parental support, but also extends beyond the family to encompass support from teachers and peers [20,23,34].

Responses to the traumatic event — Cognitive and emotional responses to a traumatic event have been associated with risk for PTSD in children [24,35-38]:

- Higher levels of anger about the traumatic event [35].
- Higher levels of rumination (ie, passive and repetitive thinking about the causes and consequences of one's distress) and catastrophizing (ie, over-estimating the negative consequences of an event) [35,37].
- More negative appraisals about the traumatic event [36].
- Elevated levels of avoidance and suppression of trauma-related thoughts [24,35,38].

- Dissociation during and after the traumatic event. Greater dissociation is associated with higher risk for PTSD among children who experienced car accidents, burns, and sexual abuse [35,38,39].

- Higher heart rate during presentation in the emergency room for injury requiring hospitalization [40,41].

Coping strategies following exposure to trauma are also linked with risk for PTSD in children. In a longitudinal study of children who experienced sexual abuse, greater engagement in avoidant coping was associated with the later onset of PTSD [38]. Avoidant coping was also associated with greater PTSD in children exposed to Hurricane Katrina and the terrorist attacks on 9/11 [34,36]. Greater engagement in distraction and blaming others predict elevated risk for PTSD [24,37,42].

Comorbidity — Child PTSD frequently presents with psychiatric comorbidity, including [3,5,19]:

- Anxiety disorders
- Depression
- Externalizing behavior problems
- Substance use disorders among adolescents
- Self-harm and suicidal behaviors

In an epidemiologic study of a representative United States population sample of 1420 children, 35 percent of children with PTSD also met criteria for another lifetime psychiatric disorder [19]. An increased likelihood of comorbidity was associated with an increased number of lifetime traumatic events [19].

PATHOGENESIS

The precise pathophysiology of posttraumatic stress disorder (PTSD) is unknown. A predominant learning model of PTSD argues that the disorder reflects a failure to inhibit fear [43-45]. Traumatic events can result in fear conditioning, such that sights, sounds, smells, people, and other stimuli present during the experience become associated with the intense fear and arousal experienced during the event. For most individuals, fear responses to trauma-related stimuli diminish over time as a result of extinction learning, whereby repeated exposure to these trauma reminders in the absence of threat generates a novel association that competes with the original fear memory [46,47]. For individuals with PTSD, however, the original fear memory continues to overwhelm extinction learning [48,49]. Failure to maintain

extinction learning following trauma might be the result of a relatively weak extinction memory that fails to inhibit the original fear memory [44,50], even in the presence of safety cues [43,51].

Evidence for this model of PTSD has been observed in behavior and neuroimaging of adults, which reveal disruptions in the structure and function of brain regions involved in fear learning and salience processing including the amygdala, hippocampus, anterior cingulate cortex (ACC), and ventromedial prefrontal cortex (vmPFC).

PTSD is specifically associated with heightened amygdala activation, reduced activity in the vmPFC and rostral ACC in response to emotional or threatening cues, and elevated activity in the dorsal ACC during fear conditioning, extinction learning recall, and response selection [49,52-56]. Reduced hippocampal volume has been consistently observed among individuals with PTSD [57]. The extent to which these disruptions in neural function represent vulnerability markers for the disorder or consequences of trauma exposure or PTSD onset, however, is unknown.

Atypical medial prefrontal cortex function has been identified as a potential familial risk factor for PTSD [58,59], and reduced hippocampal volume has been observed among veterans with PTSD and their monozygotic twins discordant for trauma exposure [60], indicating that some of these neural differences might increase vulnerability to PTSD.

Scant neuroimaging research has been conducted in children with PTSD. However, existing studies reveal structural and functional abnormalities that are consistent with evidence from adult samples. Children with PTSD have reduced volume of vmPFC and hippocampus, elevated response in dorsal ACC to threatening cues, and reduced functional connectivity between amygdala and medial prefrontal cortex [61,62]. A 2014 longitudinal study found that children with greater amygdala activation to negative emotional stimuli developed greater PTSD symptoms following exposure to a terrorist attack [63], replicating prior findings among adult combat veterans [64,65]. This suggests that amygdala hypersensitivity to threat might be a risk factor for the development of PTSD in children.

CLINICAL FEATURES

Intrusion symptoms reflect persistent and uncontrollable thoughts, dreams, and emotional reactions about a traumatic event. These symptoms are the hallmark of posttraumatic stress disorder (PTSD) and distinguish it from other anxiety and mood disorders. Intrusive and distressing thoughts about the traumatic event are common in children with PTSD. These

thoughts and memories are experienced as involuntary and uncontrollable, ie, they occur when the child does not want to think about the traumatic event.

Intrusive thoughts are frequently triggered by trauma cues: sights, sounds, smells, people, and places that remind the child of the traumatic event. In young children, intrusive thoughts can be reflected in repetitive play in which details of the traumatic event are acted out or trauma themes (eg, someone being hurt) are expressed.

Upsetting dreams and nightmares are common in children with PTSD. Although PTSD-related nightmares in adults frequently involve content that is related to the traumatic event (eg, reliving or replaying some aspect of the event), in children, nightmares often involve upsetting or frightening content that is not directly related to the traumatic event. Chronic nightmares can contribute to sleep difficulties in children with PTSD as a result of fearful awakening during or after the dream.

Additional intrusion symptoms include severe distress and physiologic reactivity in response to cues associated with the traumatic event. Trauma reminders can be both internal (eg, thoughts and memories, physical sensations that are similar to those experienced during the traumatic event) and external (eg, people, places, and sensory experiences associated with the traumatic event).

Avoidance symptoms often develop in response to distressing and uncontrollable re-experiencing symptoms. When a child experiences significant distress after being exposed to trauma-related cues, they often begin to avoid situations that remind them of the traumatic event. Avoidance of trauma reminders can manifest in two ways:

- Avoidance of thoughts, feelings, and memories of the traumatic event (ie, internal reminders).
- Avoidance of people, places, and activities associated with the traumatic event (ie, external reminders). In young children, avoidance can manifest as restricted play or reduced exploration of their environment.

Changes in thoughts and emotions frequently occur in children with PTSD. A persistent change in emotional state is particularly common and can involve increases in negative emotions like fear, anger, guilt, and shame, as well as reductions in positive emotions like happiness, interest, and love. Along with reduced positive emotions, children with PTSD may exhibit diminished interest or motivation to engage in activities that they enjoyed before the traumatic event occurred. It may also be more difficult for children to feel attached and connected to significant others, resulting in feelings of detachment or estrangement.

Children may develop negative beliefs or attitudes about themselves, others, and the world. Common examples are beliefs that they are bad or have been damaged by the trauma, that other people cannot be trusted, and that the world is an unsafe place. A distorted sense of blame is also common in children with PTSD. Many children blame themselves or people close to them for the traumatic event.

A final set of core PTSD symptoms involves elevated arousal and emotional reactivity. Children may exhibit irritability, have anger outbursts, or become physically aggressive towards others more frequently than was typical for them before the traumatic event. In young children, extreme temper tantrums may become more common. These changes can interfere with peer relationships. Exaggerated emotional and physiologic reactions to unexpected or surprising stimuli, including heightened startle response, can occur among children with PTSD. Increases in risk taking are common in children with PTSD, especially in adolescents [66].

Children with PTSD often exhibit concentration problems, which can interfere with their performance at school. Hypervigilance to potential threats is common, and children may become more fearful of strangers. Young children may develop separation anxiety. Finally, as noted above, sleep problems are common in children with PTSD. These can include problems falling asleep, staying asleep, or difficulty falling back to sleep after scary dreams. Young children may be afraid to sleep by themselves, even if they did not exhibit this behavior before the traumatic event.

COURSE

The course of posttraumatic stress disorder (PTSD) is highly variable. Most adolescents who develop PTSD recover from the disorder, although approximately one-third experience a chronic course of illness that can last many years [3,67,68]. This estimate is consistent across epidemiologic studies and in clinical samples of children with PTSD. As a notable example, a study that followed a sample of children who survived a landslide disaster over many years found that 29 percent still met criteria for PTSD 33 years later [69].

Identifying factors that predict a chronic course is important to allow clinicians to deliver more intensive interventions for children and adolescents with PTSD who are least likely to recover spontaneously. Factors that predict chronic course of PTSD differ from those that predict onset of the disorder.

In a longitudinal study of over 2500 adolescents in Germany, approximately half of those with PTSD recovered three to four years later [67]. Adolescents who had a low likelihood of

recovering from the disorder included those who had:

- Additional traumatic events after developing PTSD
- Greater avoidance symptoms
- Incident anxiety and somatoform disorders after the onset of PTSD

In a large study of United States adolescents with PTSD, characteristics of subjects who were least likely to recover included those [3]:

- Living in poverty
- Having co-occurring bipolar disorder
- Experienced additional traumatic events after the trauma that triggered the onset of PTSD

ASSESSMENT

When assessing a child who may have posttraumatic stress disorder (PTSD), it is critical to determine whether symptoms are the sequelae of a traumatic event as opposed to another mental disorder. Some symptoms are more easily linked to the traumatic event (eg, intrusive thoughts, avoidance of trauma reminders), while others are common features of a wide range of mental health problems (eg, concentration problems, irritability, negative emotional state). To determine whether the presentation is most consistent with PTSD, assessment should focus on intrusion symptoms, including intrusive thoughts, strong reactivity to trauma cues, nightmares, repetitive play; avoidance of trauma reminders; and hypervigilance.

Because avoidance of trauma reminders is a hallmark of the disorder, children may be hesitant to discuss the details of a traumatic event or trauma-related symptoms, particularly with an unfamiliar clinician. Assessing the nature and degree of exposure to trauma as well as trauma-related symptoms is often best accomplished with a parent or caregiver for young children. For older children and adolescents, trauma history and symptoms should be assessed with sensitivity.

A child PTSD assessment should include a careful suicide risk assessment as well as evaluation of anxiety disorders, externalizing behavior problems, and substance use. (See "Suicidal ideation and behavior in children and adolescents: Evaluation and management" and "Anxiety disorders in children and adolescents: Epidemiology, pathogenesis, clinical manifestations, and course" and "Substance use disorder in adolescents: Epidemiology, clinical features, assessment, and diagnosis".)

Assessment tools — The UCLA PTSD Reaction Index for Children and Adolescents (PTSD-RI) is a widely used assessment tool that can be administered to children and adolescents or to parents [70,71]. The PTSD-RI can be completed by self-report or as an interview, and assesses trauma exposure (15 items), DSM-5 PTSD symptoms (31 items), and functional impairment convergent validity [71]. The instrument provides a count of the number of distinct trauma types a child has experienced, a continuous severity score for PTSD symptoms, and a PTSD diagnosis.

The Clinician-Administered PTSD Scale for Children and Adolescents (CAPS-CA5) is a 30-item structured interview that assesses trauma exposure and PTSD symptoms for children over the age of seven years [72]. Each PTSD symptom is assigned a severity score based on the frequency and intensity of symptoms, and the interview can be used to make a diagnosis of PTSD.

DIAGNOSIS

The posttraumatic stress disorder (PTSD) diagnosis includes four core clusters of symptoms:

- Intrusion
- Avoidance
- Negative alterations in cognition and mood
- Hyperarousal

The symptoms must represent a marked difference from the child's behavior prior to the traumatic event and cause significant distress or impairments in role functioning (eg, in social relationships or school performance).

DSM-5-TR diagnostic criteria — DSM-5-TR includes two sets of diagnostic criteria for PTSD: one applicable to children age six years and older (and adults), and the other for children under six years. PTSD symptoms often manifest differently in children as compared with adults, particularly in young children. The criteria for younger children were developed based on evidence that a lower threshold of symptoms is more valid for diagnosing PTSD in this population [1,73,74].

Children age six years and older

- A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:
    - 1. Directly experiencing the traumatic event(s).

- 2. Witnessing, in person, the event(s) as it occurred to others.
- 3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.

- B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:
  - 1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).
    - Note: In children older than six years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.
  - 2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).
    - Note: In children, there may be frightening dreams without recognizable content.
  - 3. Dissociative reactions (eg, flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.)
    - Note: In children, trauma-specific reenactment may occur in play.
  - 4. Intense or prolonged psychologic distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
  - 5. Marked physiologic reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
- C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:
  - 1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
  - 2. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
- D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or

more) of the following:

- 1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).
- 2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world, for example:
  - "I am bad"
  - "No one can be trusted"
  - "The world is completely dangerous"
- 3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.
- 4. Persistent negative emotional state (eg, fear, horror, anger, guilt, or shame).
- 5. Markedly diminished interest or participation in significant activities.
- 6. Feelings of detachment or estrangement from others.
- 7. Persistent inability to experience positive emotions (eg, inability to experience happiness, satisfaction, or loving feelings).

- E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
  - 1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.
  - 2. Reckless or self-destructive behavior.
  - 3. Hypervigilance.
  - 4. Exaggerated startle response.
  - 5. Problems with concentration.
  - 6. Sleep disturbance (eg, difficulty falling or staying asleep or restless sleep).
- F. Duration of the disturbance (criteria B, C, D, and E) is more than one month.

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

- H. The disturbance is not attributable to the physiologic effects of a substance (eg, medication, alcohol) or another medical condition.

Children under age six years

- A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:
  - 1. Directly experiencing the traumatic event(s).
  - 2. Witnessing, in person, the event(s) as it occurred to others, especially primary caregivers.
  - 3. Learning that the traumatic event(s) occurred to a parent or caregiving figure.
    - Note: Witnessing does not include events that are witness only in electronic media, television, movies, or pictures.
- B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:
  - 1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).
    - Note: Spontaneous and intrusive memories may not necessarily appear distressing and may be expressed as play reenactment.
  - 2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).
    - Note: It may not be possible to ascertain that the frightening context is related to the traumatic event.
  - 3. Dissociative reactions (eg, flashbacks) in which the child feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.) Such trauma-specific reenactment can occur in play.
  - 4. Intense or prolonged psychologic distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

- 5. Marked physiologic reactions to reminders of the traumatic event(s).

- C. One (or more) of the following symptoms, representing either persistent avoidance of stimuli associated with the traumatic event(s) or negative alterations in cognitions and mood associated with the traumatic event(s), must be present, beginning after the event(s) or worsening after the event(s):
  - Persistent avoidance of stimuli
    - 1. Avoidance of or efforts to avoid activities, places, or physical reminders that arouse recollections of the traumatic event(s).
    - 2. Avoidance of or efforts to avoid people, conversations, or interpersonal situations that arouse recollections of the traumatic event(s).
  - Negative alterations in cognitions
    - 3. Substantially increased frequency of negative emotional states (eg, fear, guilt, sadness, shame, confusion).
    - 4. Markedly diminished interest or participation in significant activities, including constriction of play.
    - 5. Socially withdrawn behavior.
    - 6. Persistent reduction in expression of positive emotions.
- D. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
  - 1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects (including extreme temper tantrums).
  - 2. Hypervigilance.
  - 3. Exaggerated startle response.
  - 4. Problems with concentration.
  - 5. Sleep disturbance (eg, difficulty falling or staying asleep or restless sleep).

- F. Duration of the disturbance is more than one month.
- G. The disturbance causes clinically significant distress or impairment in relationships with parents, siblings, peers, or other caregivers or with school behavior.
- H. The disturbance is not attributable to the physiologic effects of a substance (eg, medication, alcohol) or another medical condition.

Subtypes — Specify whether presentation of the disorder is:

- **With dissociative symptoms** — The individual's symptoms meet the criteria for PTSD, and in addition, in response to the stressor, the individual experiences persistent or recurrent symptoms of either of the following:
  - Depersonalization – Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (eg, feeling as though one were in a dream, feeling a sense of unreality of self or body or of time moving slowly).
  - Derealization – Persistent or recurrent experiences of unreality of surroundings (eg, the world around the individual is experienced as unreal, dreamlike, distant, or distorted).
    - Note: To use this subtype, the dissociative symptoms must not be attributable to the physiologic effects of a substance (eg, blackouts, behavior during alcohol intoxication) or another medical condition (eg, complex partial seizures).
- **With delayed expression** — If the full diagnostic criteria are not met until at least six months after the event (although the onset and expression of some symptoms may be immediate).

SOCIETY GUIDELINE LINKS

Links to society and government-sponsored guidelines from selected countries and regions around the world are provided separately. (See "Society guideline links: Anxiety and trauma-related disorders in children".)

SUMMARY AND RECOMMENDATIONS

- **Posttraumatic stress disorder (PTSD)** – PTSD is a debilitating and often chronic mental disorder that develops in some children and adolescents following exposure to a traumatic

event. Traumatic events are experiences that involve serious harm or threat of harm to oneself or others, such as exposure to interpersonal violence, accidents, natural disasters, and injuries. (See 'Introduction' above.)

- **Trauma exposure** – Epidemiologic studies have found high but varying rates internationally in the proportion of children and adolescents experiencing a traumatic event before the age of 18, including 62 percent in the United States, 68.9 percent in Mexico, 31.1 percent in the United Kingdom, and 18 to 26 percent in Germany, with lower rates in some high-income countries. (See 'Trauma exposure' above.)

  Approximately 16 percent of children exposed to a traumatic event will develop PTSD. Studies have found lower rates in some high-income countries (approximately 8 to 10 percent), and higher/more variable rates in low- and middle-income countries. (See 'Subsequent PTSD' above.)

- **Risk factors** – Risk factors for the development of PTSD among children exposed to trauma include a high degree of life threat, interpersonal violence or sexual abuse, and exposure to war and/or displacement. Child characteristics associated with PTSD development include female and co-occurring mental disorders; family characteristics include poor family functioning, parental PTSD, and lesser social support. (See 'Risk factors' above.)

- **Clinical features** – Symptoms of PTSD have been categorized into four clusters: intrusion, avoidance, negative alterations in cognition and mood, and hyperarousal. Intrusion symptoms, which reflect persistent and uncontrollable thoughts, dreams, and emotional reactions about the traumatic event, distinguish PTSD from other anxiety and mood disorders. They are frequently triggered by trauma cues: sights, sounds, smells, people, and places that remind the child of the event. In young children, intrusive thoughts can be reflected in repetitive play. (See 'Clinical features' above.)

- **Course** – The course of PTSD is highly variable; approximately two-thirds of patients recover, and one-third experience a chronic course of illness. A more chronic course is associated with poverty, co-occurring bipolar disorder, additional traumatic events after the event leading to PTSD, greater avoidance symptoms, and incident anxiety/somatoform symptoms after PTSD onset. (See 'Course' above.)

- **Assessment** – Critical to a diagnostic assessment of PTSD is to determine whether the child's symptoms are the sequelae of a traumatic event. Assessment should focus on intrusion symptoms, including intrusive thoughts, strong reactivity to trauma cues, nightmares, repetitive play; avoidance of trauma reminders; and hypervigilance.

Assessment should also include a careful suicide risk assessment as well as evaluation of anxiety disorders, externalizing behavior problems, and substance use. (See 'Assessment' above and "Suicidal ideation and behavior in children and adolescents: Evaluation and management" and "Anxiety disorders in children and adolescents: Epidemiology, pathogenesis, clinical manifestations, and course" and "Substance use disorder in adolescents: Epidemiology, clinical features, assessment, and diagnosis".)

- **Diagnosis** – DSM-5-TR includes two sets of diagnostic criteria for PTSD: one applicable to children age six years and older (and adults), and the other for children under six years. The criteria for younger children have a lower threshold for the diagnosis consistent with the disorder. The criteria are organized by four core clusters of intrusion, avoidance, negative cognition/mood, and hyperarousal. (See 'Diagnosis' above.)

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