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CHAPTER 5.15.2 ■ POSTTRAUMATIC STRESS DISORDER

DANIEL HOOVER AND JOAN KAUFMAN

Deshawn is a 9-year-old African-American boy who resides in his maternal great-grandmother's care along with his younger brother, James, in an urban neighborhood. The brothers were placed with relatives 8 months ago, after witnessing an altercation between their mother and her boyfriend, which ended in their mother's death. The boys' father has been incarcerated for several years and they have had no contact with him since his arrest. While James is making a relatively positive adjustment following his mother's death, Deshawn initially refused to talk about it, then showed increasing irritability, withdrawal, and angry blow-ups at home and school. He has been getting into fights with other children, has trouble concentrating on schoolwork, and has difficulty going to sleep at night. During a diagnostic interview, Deshawn reported having frequent nightmares since his mother's death, some specific to traumatic memories, and some nonspecific. Deshawn has also had illusory experiences of "hearing noises" in the house and worries that someone is trying to break in. He thinks that his misbehavior was the cause of the fight that led to his mother's death.

Deshawn is displaying a constellation of symptoms characteristic of posttraumatic stress disorder (PTSD). His irritability, explosiveness, and nightmares are common features of PTSD.

His self-blame, concentration difficulties, and concerns related to safety are symptoms that are also frequently observed in children with PTSD. The difference between his and his brother's adaptation following his mother's traumatic death is also not atypical. As will be discussed later in this chapter, there are many factors that make some children more prone than others to develop PTSD following traumatic events.

This chapter reviews the diagnosis, assessment, and treatment of PTSD in children and adolescents. Data on the genetics, epigenetics, and neurobiology of PTSD and other stress-related disorders are reviewed in the Child Abuse chapter of this text.

ACUTE STRESS DISORDER AND POSTTRAUMATIC STRESS DISORDER DIAGNOSTIC CRITERIA

[AQ1]

The DSM-5 places trauma- and stressor-related disorders in their own category (1); previously acute stress disorder (ASD) and PTSD were included with the anxiety disorders.

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[AQ2] The diagnoses contained in the trauma- and stressor-related disorders section of the DSM include: PTSD, ASD, reactive attachment disorder, disinhibited attachment disorder, the adjustment disorders and other unspecified trauma-related disorders. These diagnoses are distinct from other disorders the DSM in that they require exposure to overt stressors or potentially traumatic events (PTEs) to attain the diagnoses, and the etiology of the diagnoses is specifically linked to the adverse life experiences. The diagnostic criteria for ASD and PTSD are delineated in Table 5.15.2.1.

Exposure to Traumatic Events

As noted above, the diagnoses of ASD and PTSD require exposure to a PTE. In the DSM-5 this is defined as “actual or threatened death, serious injury, or sexual violence.” This may be through direct experiencing; witnessing the event(s) in person; learning that the traumatic event(s) happened to a close friend or family member; or “repeated or extreme exposure” to aversive details of the traumatic event(s), like that experienced by first responders. Television or other electronic media exposure

TABLE 5.15.2.1

[AQ5] DSM-5 CRITERIA

Acute Stress Disorder	Posttraumatic Stress Disorder
<p>A. Exposure to actual or threatened death, serious injury, or sexual violence in one or more of the following ways:</p> <ol style="list-style-type: none"> 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. 4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse). <p><i>Note:</i> Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.</p> <p>B. Presence of nine (or more) of the following symptoms:</p> <p>Intrusion Symptoms:</p> <ol style="list-style-type: none"> 1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s). <p><i>Note:</i> In children, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed. Also, in children less than six, spontaneous and intrusive memories may not appear distressing.</p> <ol style="list-style-type: none"> 2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s). <p><i>Note:</i> In children, there may be frightening dreams without recognizable content.</p> <ol style="list-style-type: none"> 3. Dissociative reactions (e.g., 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.) <p><i>Note:</i> In children, trauma-specific reenactment may occur in play.</p> <ol style="list-style-type: none"> 4. Intense or prolonged psychological distress or marked physiologic reactions at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s). <p>Avoidance Symptoms:</p> <ol style="list-style-type: none"> 5. Efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s). 6. 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). 	<p>A. Exposure to actual or threatened death, serious injury, or sexual violence in one or more of the following ways:</p> <ol style="list-style-type: none"> 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. 4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse). 5. <i>Note:</i> Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related. <p>B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:</p> <ol style="list-style-type: none"> 1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s). <p><i>Note:</i> In children, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed. Also, in children less than six, spontaneous and intrusive memories may not appear distressing.</p> <ol style="list-style-type: none"> 2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s). <p><i>Note:</i> In children, there may be frightening dreams without recognizable content.</p> <ol style="list-style-type: none"> 3. Dissociative reactions (e.g., 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.) <p><i>Note:</i> In children, trauma-specific reenactment may occur in play.</p> <ol style="list-style-type: none"> 4. Intense or prolonged psychological 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). <p>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:</p> <ol style="list-style-type: none"> 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).

TABLE 5.15.2.1

(CONTINUED)

Acute Stress Disorder	Posttraumatic Stress Disorder
<p>Negative Mood and Dissociative Symptoms:</p> <ol style="list-style-type: none"> 7. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings). 8. 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). 9. An altered sense of the reality of one's surroundings or oneself (e.g., seeing oneself from another's perspective, being in a daze, time slowing). <p>Arousal Symptoms:</p> <ol style="list-style-type: none"> 10. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects. 11. Hypervigilance. 12. Exaggerated startle response. 13. Problems with concentration. 14. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep). <p>C. The duration of the disturbance (symptoms in criterion B) is 3 days to 1 mo after trauma exposure.</p>	<p>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:</p> <ol style="list-style-type: none"> 1. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings). 2. 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). This item is not included in the criteria for children six and below. 3. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., "I am bad," "No one can be trusted," "The world is completely dangerous," "My whole nervous system is permanently ruined"). This item is not included in the criteria for children six and below. 4. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others. This item is not included in the criteria for children six and below. 5. Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame). 6. Markedly diminished interest or participation in significant activities. 7. Feelings of detachment or estrangement from others. This item is behaviorally anchored as "socially withdrawn" for children six and below. <p><i>Note:</i> For children six and below, only one symptom is required from the combined set of items included in criterion C and criterion D.</p> <p>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:</p> <ol style="list-style-type: none"> 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. This item is not included in the criteria for children six and below. 3. Hypervigilance. 4. Exaggerated startle response. 5. Problems with concentration. 6. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep). <p>F. Duration of the disturbance (criteria B, C, D, and E) is more than 1 mo.</p>

to traumatic events does not qualify for the diagnoses of ASD or PTSD.

Symptom Clusters

In addition to exposure to a traumatic event, the diagnosis of PTSD requires the presence of symptoms from four categories: reexperiencing, avoidance, negative alteration of cognition and mood, and hyperarousal symptoms. The negative alteration of cognition and mood symptom cluster is new with the DSM-5, as is the reckless and the self-destructive behavior item in the hyperarousal symptom cluster. The diagnosis in children over age 6 and adults requires at least one reexperiencing, one avoidance, two negative alteration of cognition

and mood, and two hyperarousal symptoms. The diagnosis of PTSD also has two subtype specifiers, one based on the presence of predominant dissociative symptoms and the other based on the timing of PTSD onset (e.g., acute vs. delayed onset).

Acute Stress Disorder

The diagnosis of ASD utilizes many of the same symptoms required for the diagnosis of PTSD. Nine symptoms are required for the diagnosis of ASD, however, they can be derived from any of the symptom clusters. ASD symptoms typically begin immediately after the trauma, but persistence for at least 3 days and up to a month is needed to meet ASD

criteria. If the symptoms persist beyond 1 month, a diagnosis of PTSD is indicated.

Diagnostic Criteria for PTSD for Children Ages 6 and Younger

Specific modifications are delineated for diagnosing children of age 6 and younger with PTSD. The exposure and reexperiencing criteria are essentially unchanged from the adult and older child criteria. The diagnosis of PTSD in young children, however only requires one symptom from a combined set of items including the two avoidance symptoms included in the adult and older child criteria, and four of the seven symptoms included in the adult and older child negative alteration of cognition and mood symptom items. The first three items in this section of the adult and older child criteria are omitted from the young child criteria (e.g., inability to remember events, exaggerated negative beliefs, distorted cognitions), given limitations in young children's ability to describe internal thoughts, and the feelings of detachment item were behaviorally anchored (e.g., socially withdrawn) to enhance the appropriateness of this symptom with young children. Like with adults and older children, two hyperarousal symptoms are required for the diagnosis of PTSD in children of age 6 and younger, although the reckless and self-destructive behavior item is omitted from the hyperarousal set of criteria developed for young child. Adopting these changes in diagnostic criteria for young children results in greater temporal stability of diagnosis (2) and a higher, but likely more accurate, prevalence rate of PTSD in young children (3,4).

PREVALENCE

Exposure to PTEs and Rates of PTSD Among Adolescents

A recent national survey of US adolescents (5,6) estimates that 61.8% of youth in the United States are exposed to at least one PTE by age 17. This rate of trauma exposure is similar to that found in other previous samples (7). Lifetime prevalence of PTSD among adolescents is considerably lower than rates of trauma exposure and estimated at 4.7%, with significantly higher rates of PTSD observed among females (7.3%) than males (2.2%) (8). The most common PTEs for children and adolescents are the unexpected death of a loved one (28.2%) and man-made or natural disasters (14.8%), with these PTEs associated with the lowest rates of subsequent PTSD. Only 10.3% of youth exposed to the unexpected death of a loved one, and 6.5% of youth exposed to man-made or natural disasters go on to develop PTSD. It is the least common PTEs, kidnapping (0.6%), physical abuse by a caregiver (2.0%), physical assault by a romantic partner (1.3%), sexual abuse (3.8%), and rape (2.5%) that are associated with the highest rates of PTSD (range: 25.2% to 39.3%).

RISK FACTORS FOR THE DEVELOPMENT OF PTSD

Genetic Factors

As reviewed in the child abuse chapter in this text, genetic factors, in part, explain why some traumatized children go on to develop PTSD, and others do not. The genetic risk factors associated with PTSD, however, are not unique to PTSD. Nearly all

genetic markers that have been reported to increase risk for PTSD following experiences of child abuse or other traumatic events have been associated with risk for a range of different psychiatric problems, as well as risk for the development of substance use disorders (9).

Trauma Characteristics

Trauma factors are among the best replicated predictors of PTSD onset, severity, and persistence. As noted above, type of trauma predicts risk for PTSD, with risk for PTSD greatest after experiences of kidnapping, physical abuse by a caregiver, physical assault by a romantic partner, sexual abuse, and rape (8). In addition, the greater the severity of the sexual (10) and physical assaults (11), the greater the likelihood of PTSD developing. Increased risk for PTSD is also associated with traumatic events that are unexpected (12) and chronic (13,14), and when the victim is in close emotional and physical proximity to the event (15). Polyvictimization is another factor that adds to the severity and complexity of trauma symptoms (16).

Posttrauma Factors

Factors in the posttrauma environment contribute most in determining the likelihood of PTSD becoming chronic. The absence of social supports and exposure to ongoing psychosocial adversity are the most potent predictors of PTSD chronicity (15,17,18). Low parental support and a hostile and coercive parenting style, as perceived by children, are also potent predictors of PTSD severity (19). Enhancing the caregiver response and capacity to support the child posttrauma, is therefore an important component of prevention and treatment interventions following traumatic experiences.

ASSESSMENT OF TRAUMA EXPERIENCES

It is best to assess children's trauma experiences utilizing information from multiple informants (e.g., parent, children, child protective service workers) (20–22). As reviewed elsewhere (23), several rating scales have been developed to assess abuse, neglect, and other traumatic experiences in children and adolescents. The Childhood Trauma Questionnaire (24) provides an excellent self-report assessment of a range of maltreatment experiences and can be utilized with children of age 12 and above. The UCLA Posttraumatic Stress Disorder Reaction Index (UCLA-PTSD-RI) is one of the most widely used trauma symptom assessment scales and includes a survey of maltreatment- and nonmaltreatment-related traumatic events (25). The PTSD-RI can be downloaded at no cost with administration and scoring instructions from the National Child Traumatic Stress Network (NCTSN) website (http://www.nctsn.org/nctsn_assets/pdfs/mediasite/ptsd-training.pdf). The Structured Trauma-Related Experiences and Symptoms Screener (STRESS) is a relatively new computer-administered measure with excellent psychometric properties (26).

TRAUMA SYMPTOM ASSESSMENT

In our clinical and research practice, we aim to have trauma history data from multiple informants prior to assessing psychiatric symptomatology in children. We then query them about various trauma experiences. If children deny a trauma we know they have experienced via other sources, we consider that evidence of "avoidance." We then let them know what we learned about from the other source, let them know that we are

not going to ask them too much about those experiences at the time of the evaluation, and just want to know if they have any problems that many other children experience who have been through the type of things they experienced. We then query them regarding the presence of PTSD symptoms. If children are particularly reticent to talk, we begin by asking the more benign hyperarousal items (sleep difficulties, concentration problems, and irritability), progress to ask about the negative cognition and mood and avoidance symptoms, and then query about the more stressful reexperiencing items.

If children are living in foster care or with other guardians who do not know them well, obtaining adjunctive information from birth parents and/or school teachers can be enormously helpful. In addition, parents and caretakers are notoriously poor at identifying internalizing (depression, anxiety) symptoms. Children are the best informants of these symptoms. Children are also frequently the best to ask about nightmares and sleeping difficulties. As traumatized children frequently have not received comfort when distressed, many do not seek adult reassurance when they wake up from a nightmare. Rather, they stay in their beds alone, terrified. Their guardians have no idea they are not sleeping through the night.

There are several well-validated trauma symptom rating scales (23), including: the UCLA PTSD-RI (27) discussed previously, Trauma Symptom Checklist for Young Children (28), Trauma Symptom Checklist for Children (29), Child Dissociative Checklist (30), Adolescent Dissociative Experiences Scale (31), and Child Sexual Behavior Inventory (32). There are also several story-based/cartoon measures available, including the Darryl (33), Andy/Angie Cartoon Trauma Scales (34), and the Levonn Cartoon-Based Interview for Assessing Children's Distress (35). Trauma-related symptomatology is also well assessed using semistructured diagnostic interviews for young (36) and school-age children (37).

PSYCHIATRIC COMORBIDITY AND DIFFERENTIAL DIAGNOSIS

Approximately three-quarters of individuals with PTSD experience one or more comorbid lifetime diagnoses, and 37% to 48% report a lifetime history of major depression (38–40). In one-half to three-quarters of all cases, the onset of PTSD is primary. The risk for MDD following PTSD is about the same as the risk of MDD following any other anxiety disorder, and 30% to 40% more likely in individuals with a history of a pre-existing anxiety disorder. PTSD is also highly comorbid with alcohol and substance abuse disorders in adolescents and adults (41–43), highlighting the importance of routine screening for substance use disorders in youth with significant trauma histories.

The diagnosis of PTSD has numerous symptoms in common with multiple other childhood psychiatric diagnoses. In the DSM-5, PTSD and MDD have five symptoms in common. Concentration difficulties associated with PTSD are frequently misattributed to attention deficit hyperactivity disorder (ADHD) (44), and extreme irritability reported in PTSD is sometimes misattributed to mania or oppositional defiant disorder (ODD).

Determining the presence of PTSD and potential comorbid diagnoses requires careful assessment of the developmental timing of the onset of symptoms, evaluating the pattern of problem behaviors, the severity of difficulties across different settings, and the association of problem behaviors with trauma triggers. For the diagnosis of PTSD to be given, there must be at least one reexperiencing symptom, a cardinal feature of the disorder. For comorbid MDD to be diagnosed, beyond symptoms that overlap with the diagnosis of PTSD, there should ideally be at least one symptom that is uniquely

associated with MDD (appetite disturbance, low self-esteem, and suicidality). For concentration problems to be attributed to ADHD, they should have been evident before the trauma, be relatively chronic, and generally worse in a school setting. If they emerged after the trauma and are worse in the home setting or when the child is exposed to trauma triggers, they are likely not related to ADHD. Irritability is a totally nonspecific symptom associated with many of the major childhood psychiatric diagnoses. Most symptoms of ODD involve some expression of irritability, but for a comorbid ODD diagnosis to be given there should be evidence of marked and persistent defiance, disrespect, or vindictiveness. In PTSD, irritability is frequently worse when the child is exposed to trauma triggers and less evident in nonemotionally charged environments. Sleep disturbance is another symptom shared by several child diagnoses. While both PTSD and mania are associated with sleep disturbances, decreased need for sleep is the cardinal feature of mania, and nightmares and insomnia—wanting to sleep, but not being able to—are the sine qua non of PTSD.

When psychotic-like symptoms are present, differentiating between PTSD, mood disorders with psychotic features, or a primary psychotic disorder has extremely important treatment implications. A number of distinctive features of psychotic-like symptoms in traumatized children facilitate this differential diagnosis. For example, hallucinations in maltreated children are frequently trauma related, such as hearing the perpetrator's voice, or as depicted in the case example at the beginning of this chapter, are frequently illusory experiences related to safety. They are also often nocturnal (30), and frequently resolve with psychotherapeutic intervention, cessation of the trauma, and safety reassurances (45). In addition, the presence of hallucinations in traumatized children is not typically associated with other psychotic symptoms that would suggest schizophrenia or another primary psychotic diagnosis. They are less likely to be associated with negative symptoms (withdrawn behavior, blunted affect) or abnormal early development as would be typical in childhood-onset schizophrenia (46). Hallucinations in traumatized children tend to be associated with impulsive, aggressive, and self-injurious behavior, nightmares, and trance-like states, and less likely to be associated with evidence of formal thought disorder (47).

COURSE AND TRAJECTORY

Bonanno et al. (13) describe four typical trajectories that have been found in a variety of studies among individuals with different types of traumatic experiences: resilient, delayed, recovered, and chronic. The majority of individuals who experience trauma, from 35% to 65% of those exposed, tend to be in the resilient category, showing healthy functioning even shortly after the traumatic event that is maintained over time. The delayed course, comprising approximately 0% to 15% of cases, appears to show subclinical adjustment problems that increase in severity over time. Those who can be termed recovered, making up roughly 15% to 25% of cases, show significant symptoms early on, which resolve to a large degree over time and with treatment. Those in the chronic distress category, estimated at 5% to 30% of exposed individuals, show serious symptoms and functional limitations that are resistant to treatment.

PREVENTION

There is no clear evidence supporting the use of psychological debriefing approaches posttrauma (48,49). Traditionally conceived, psychological debriefing is delivered in the early aftermath of an event in a single group session in which survivors share their experiences and reactions and reconstruct the

[AQ3]



primary. The risk for MDD following PTSD is about the same as the risk of MDD following any other anxiety disorder, and 30% to 40% more likely in individuals with a history of a pre-existing anxiety disorder. PTSD is also highly comorbid with alcohol and substance abuse disorders in adolescents and adults (41–43), highlighting the importance of routine screening for substance use disorders in youth with significant trauma histories.

event. Methodologic limitations restrict the conclusions that can be drawn from the available empirical evidence, but most studies show no clear benefit with debriefing interventions, and some studies in adults reported worse outcomes among individuals participating in the debriefing intervention.

The NCTSN developed a trauma-informed modular approach to psychological first aid (PFA) for use by mental health responders in diverse settings under diverse conditions which is available on the NCTSN website (<http://www.nctsn.org/content/psychological-first-aid>). The PFA intervention involves providing for the basic safety and comfort of survivors, connecting survivors with social supports and practical assistance, psychoeducation about typical trauma responses, tips for helping children cope, and teaching basic relaxation techniques. The PFA intervention, however, has yet to undergo rigorous evaluation (49,50).

The Child and Family Traumatic Stress Intervention (CFTSI) is a four-session prevention protocol developed for children within 30 days of a PTE (51). The central goals are to increase parent-child communication about feelings, symptoms, and behaviors related to the PTE, and to provide behavioral coping skills to the child and caregiver. The child and caregiver are separately provided psychoeducation about trauma and coping and then brought together in the final session to facilitate mutual communication and use of the skills imparted in the intervention. In an initial randomized controlled trial comparing the effectiveness of this preventive intervention to four nondirective support sessions, 3 months posttreatment CFTSI was associated with significantly lower rates of PTSD diagnoses and fewer PTSD and other trauma symptoms in the children (51).

There are currently no strongly supported pharmacologic approaches to prevent the development of PTSD posttrauma exposure. An early pilot study supported the use of propranolol (52), but a meta-analysis of studies conducted in adults suggest propranolol treatment after a traumatic event does not alter the incidence of PTSD (53). Consistent with the results of the meta-analysis of adult studies, a randomized controlled trial with 29 youth likewise failed to show an advantage of propranolol over placebo in preventing the onset of PTSD posttrauma exposure (54). For child burn victims, there is some suggestion that enhanced pain management with morphine treatment is associated with lower rates of PTSD (55), and one small open treatment trial of three physically abused preschool-age children diagnosed with ASD secondary to serious burns that reported significant improvement in symptoms with risperidone treatment (56).

PSYCHOSOCIAL TREATMENTS

Since its inception in 2000, the NCTSN has had a far-reaching impact on extending understanding and treatment of childhood trauma in the United States. The mission of the NCTSN is to raise the standard of care and increase access to evidence-based trauma-informed interventions. Clinicians, families, and other interested parties can access a wealth of information through the website www.nctsn.org. NCTSN provides education to a wide range of audiences, from children and families to clinicians, educators, first responders, and others. Continuing education about various types of trauma, their effects, special populations, evidence-based treatments, and assessment tools is available both on the website and through webinars and in-person venues.

Trauma-Focused Cognitive Behavior Therapy (TF-CBT) is the psychotherapeutic intervention with the strongest empirical support for PTSD and other trauma-related symptoms in children and adolescents (25,57–59). TF-CBT is a 12-to-16-session intervention that was designed for children aged 3

to 18 years to reduce PTSD symptoms and other behavioral and emotional problems associated with child trauma exposure. The central components of TF-CBT are represented by the PRACTICE acronym. The “P” stands for psychoeducation (e.g., educating children and parents about the prevalence of the type of traumatic event the child experienced and common trauma reactions) and parenting skills training (parent management principles). “R” stands for relaxation skills; “A” for affective modulation skills (e.g., feeling identification; self-regulation skills); “C” for cognitive coping and processing (e.g., recognizing relations among thoughts, feelings, and behaviors); “T” for the trauma narrative (creating a narrative of the child’s traumatic experiences); “I” for in vivo mastery of trauma reminders; “C” for conjoint child-parent sessions (joint sessions in which the child shares the trauma narrative with parents and other family issues are addressed); and “E” for enhancing future safety and development (25).

TF-CBT training can be obtained via attending workshops conducted by certified trainers, reviewing published treatment manuals (58,60,61), and completing a web-based training available at www.musc.edu/tfcbt. Extant data suggest the model is implemented with the strongest fidelity when the web-based training and two-day in-person workshop are completed and augmented with follow-up consultation (62).

As reviewed elsewhere (25,59), the efficacy of TF-CBT has been demonstrated in over a dozen randomized controlled trials and has been deemed “supported and efficacious” based on current standards. Among the currently available evidence-based child trauma treatments, TF-CBT alone has been evaluated across the child and adolescent developmental spectrum (3 to 18 years), for multiple index traumas (e.g., sexual abuse, commercial sexual exploitation, domestic violence, disaster, war, traumatic grief, and multiple and complex trauma), in different settings (e.g., clinics, foster care, community domestic violence center, refugee nongovernmental organization, juvenile detention centers, human immunodeficiency virus treatment centers), in group- and individual-administered formats, in multiple countries and cultures (e.g., United States, Native American, Africa, Europe, Australia), and with both mental health and nonmental health providers (59). In all of these studies, TF-CBT has been found to be superior to the comparison conditions for improving PTSD symptoms and diagnosis, as well as other related outcomes including, depression, internalizing symptoms, externalizing problems, anxiety ratings, sexualized behaviors, relationship difficulties, and adaptive functioning (59). Moreover, the therapeutic effects of TF-CBT have been shown to be maintained over 6, 12, and 24 months following treatment (63,64).

Child-Parent Psychotherapy (65) and the Attachment Biobehavioral Catch-up intervention (66,67) represent two trauma-focused treatment models that have been developed for working with infants, toddlers, and preschoolers. For an updated list of empirically supported treatments and promising practices the interested reader is referred to the NCTSN website (<http://www.nctsn.org/resources/audiences/parents-caregivers/treatments-that-work>) and a recent review by Barth et al. (68).

PSYCHOPHARMACOLOGY

Trauma-focused psychotherapies are considered the first line of treatment for PTSD in children and adolescents (25), and as of the writing of this book, there were no Federal Drug Administration (FDA) approved pharmacologic treatments for youth with PTSD. While studies of pharmacologic treatment of PTSD have demonstrated the efficacy of selective serotonin reuptake inhibitors (SSRI’s) in adults (69), support for SSRIs in children and adolescents with PTSD is lacking (70). Two randomized

controlled studies examined the use of sertraline to treat childhood PTSD and both reported no advantage for SSRI medications over placebo (71,72).

Overall there is a paucity of data to guide the pharmacologic treatment of youth with PTSD. In small-scale open treatment trials with samples ranging in size from 3 to 19 youth, benefits in treating PTSD have been suggested with quetiapine (73), clonidine (74), and guanfacine (75). In a B-A-B off-on-off design, propranolol was also shown to reduce reexperiencing and hyperarousal symptoms in a study with 11 youth (76), and in secondary analyses of data from 12 youth with comorbid PTSD who were part of a double-blind, randomized controlled trial of two doses of divalproex sodium treatment in boys with conduct disorder, those assigned to the high-dose condition of divalproex sodium had a greater reduction in PTSD symptoms than youth assigned the lower dose (77).

Glutamate N-methyl-d-aspartic acid (NMDA) receptors have been shown to be involved in fear extinction, and although the findings have been mixed, there are data showing that D-cycloserine (DCS), a partial NMDA agonist, can enhance fear extinction and the efficacy of cognitive behavioral and exposure-based therapies for PTSD in adults and a range of anxiety disorders in children, adolescents, and adults (78). In the one DCS trial completed with youth with PTSD, 57 children and adolescents were randomized to DCS or placebo plus CBT exposure-based treatment. The authors reported a trend toward DCS speeding PTSD symptom recovery during the exposure-based sessions, and evidence that the CBT and DCS group better maintained clinical gains 3 months after treatment than the CBT plus placebo group (79).

While trauma-focused psychotherapies are considered the first line of treatment for PTSD in children and adolescents (25), it is estimated that approximately 20% of youth who complete a course of TF-CBT will still meet diagnostic criteria for PTSD posttreatment (80). Further research is needed to identify pharmacologic agents effective in the treatment of PTSD, and the augmentation of evidence-based psychotherapies. Preclinical and early clinical studies in adults suggest the utility of several potential novel agents, including nabilone, norbinaltorphimine, 7,8-dihydroxyflavone, and oxytocin (OT) to target cannabinoids, opioids, brain-derived neurotrophic factor, and the OT receptor systems, respectively (81). To date, pharmacologic treatment choice for children with PTSD is best guided by the comorbid diagnostic profile of the child, and ideally used to augment evidence-based psychotherapy approaches.

CONCLUSIONS

The child trauma field has made considerable advances in recent years, promoted in large part by the efforts of the NCTSN. Trauma exposure among children and adolescents is a common phenomenon that leads to PTSD and other mental health symptoms in a significant proportion of cases. While most children show a degree of resilience in response to traumatic events, those exposed to interpersonal violence and polytraumatization are at greatest risk for ongoing distress and compromised functioning. Good trauma-informed care requires an understanding of the factors that modify outcome, thorough multi-informant assessment, and evidence-based therapy in combination with psychopharmacologic treatment when clinically indicated.

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[AQ4]

Chapter 5.15.2

AQ1: Please check and confirm whether all the head levels are aligned correctly.

AQ2: The sentence “The diagnoses contained in the trauma- and stressor-related disorders...” has been amended. Please check and confirm whether this is correct or not.

AQ3: Please provide the expansion of “MDD” if apt necessary.

AQ4: In Ref. 60, please provide location and publisher details.

AQ5: Please check and confirm whether the “Table 5.15.2.1” is numbered correctly.