CHAPTER 6.26 ■ POSTTRAUMATIC STRESS DISORDER

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Joe is a 15-year-old, multiracial transgender male living in a predominantly White conservative suburban community. Throughout his childhood, he was exposed to significant, repeated interpersonal violence between his mother and her boyfriend, who was a father figure to him. Joe's mother's boyfriend was recently incarcerated after a near lethal bout of domestic violence in which Joe was also injured while trying to protect his mother. Joe exhibits aggressive and destructive behaviors across contexts, which have resulted in frequent school suspensions and crisis calls. He is chronically irritable, has trouble concentrating, difficulty sleeping, and is often bothered by intrusive flashbacks of the night his mother nearly got killed. Joe also struggles with peer relationships and feels like he doesn't fit in at school or in his community.

Joe is displaying a constellation of symptoms characteristic of posttraumatic stress disorder (PTSD). His irritability, explosiveness, sleep difficulties, concentration problems, and intrusive thoughts about the past trauma are common core features of PTSD. His problems with peers and lack of connection to the community, while common symptoms among youth with PTSD, were likely exacerbated by his sexual and racial minority status.[1,2] 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.

PTSD AND OTHER STRESSOR-RELATED DISORDERS

The DSM-5 placed trauma- and stressor-related disorders in their own category[3]; previously PTSD and other stressor-related disorders were included with the anxiety disorders. The diagnoses contained in the trauma- and stressor-related disorders section of the DSM-5 included PTSD, acute stress disorder, reactive attachment disorder, disinhibited attachment disorder, the adjustment disorders, and other specified trauma- and stressor-related disorders. Prolonged grief disorder was added in the DSM-5 TR.[4] These diagnoses are distinct from other disorders in the DSM in that they require exposure to traumatic or stressful events to attain the diagnoses, and the etiology of the diagnoses are specifically linked to these adverse life experiences. The most closely related of the trauma diagnoses are PTSD and Acute Stress Disorder, with many common symptoms among the two disorders. Acute Stress Disorder is diagnosed when the symptoms begin immediately after the trauma, and the diagnosis of PTSD is given if the symptoms persist beyond 1 month. The diagnostic criteria for PTSD are delineated in Table 6.26.1.

Exposure to Traumatic Events

In the DSM-5 traumatic events are defined as "actual or threatened death, serious injury, or sexual violence." This may be through direct experience; 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 to traumatic events does not qualify for the diagnosis of PTSD. Psychiatric disorders which emerge after a significant stressor that does not meet the threshold for a PTSD criterion should be diagnosed either as Other Specified Trauma or Stressor Related Disorder or an Adjustment Disorder.

PTSD Diagnosis—Symptom Clusters

In addition to exposure to a traumatic event, the diagnosis of PTSD requires the presence of symptoms from four categories: re-experiencing, avoidance, negative alteration of cognitions and moods, and hyperarousal symptoms. The DSM-5 included changes to the PTSD diagnostic criteria with the development of the negative alteration of cognitions and mood symptoms cluster and the addition of the symptom of reckless and the self-destructive behavior in the hyperarousal symptom cluster. The diagnosis in children over 6 and adults requires at least one re-experiencing, one avoidance, two negative alterations of cognition and/or mood, and two hyperarousal symptoms. The diagnosis of PTSD also has two subtype specifiers, one based on the presence of predominant dissociative features and the other based on the timing of PTSD onset (eg, acute vs delayed onset).

Diagnostic Criteria for PTSD for Children Ages 6 and Younger

Specific modifications are delineated for diagnosing children six and younger with PTSD (see Table 6.26.1). The exposure and re-experiencing 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 latter symptom cluster of the adult and older child criteria are omitted from the young child criteria (eg, 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 was behaviorally anchored (eg, 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 six 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

TABLE 6.26.1

DSM-5 CRITERIA

Posttraumatic Stress Disorder

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.
  4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (eg, first responders collecting human remains; police officers repeatedly exposed to details of child abuse)
  Note: Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

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, 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.
  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 psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
  5. Marked physiological 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). This item is not included in the criteria for children six and below.
  2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (eg, "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.
  3. 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.
  4. Persistent inability to experience positive emotions (eg, inability to experience happiness, satisfaction, or loving feelings).
  5. Persistent negative emotional state (eg, 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.

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. 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 (eg, difficulty falling or staying asleep or restless sleep).

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

NOTE: For a diagnosis of PTSD in children six and below, Criterion A, B, and E are unchanged from the adult and older children's criteria, however, only one of six symptoms is required from the combined set of the two avoidance items included in Criterion C and four bolded items (4–7) included in Criterion D. The first three items in Criterion D of the adult and older child criteria are omitted from the young child criteria (eg, inability to remember events, exaggerated negative beliefs, distorted cognitions), given limitations in young children's ability to describe internal thoughts.

stability of diagnosis and a higher, but likely more accurate, prevalence rate of PTSD in young children.[5]

Exposure to Childhood Trauma and Rates of PTSD in Children, Adolescents, and Adults

According to a recent CDC report of American adults surveyed between 2011 and 2020, 69.3% of adults reported an adverse childhood experience that could result in PTSD occurring before age 18.[6] This rate of trauma exposure is similar to that found in prior samples.[7,8] Prevalence rates of PTSD in youth vary significantly across studies. 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%).[9] The most common traumatic events for children and adolescents are the unexpected death of a loved one (28.2%) and man-made or natural disasters (14.8%), with these events 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 traumatic events, 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

There is a growing body of research demonstrating the negative effect of experiences of racial discrimination and gender nonconformity on the development of PTSD.[1,2,10] These factors are associated with increased risk for exposure to traumatic events, and greater likelihood of developing PTSD secondarily, as depicted by the case described at the onset of this chapter.

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.[11] In addition, the greater the severity of the sexual[12] and physical assault,[13] the greater the likelihood of PTSD developing. The most pronounced posttraumatic stress symptoms in children and adolescents are associated with sexual trauma and domestic violence.[14] Increased risk for PTSD is also associated with traumatic events that are unexpected[15] and chronic,[16,17] and when the victim is in close emotional and physical proximity to the event.[18] Polyvictimization is another factor that adds to the severity and complexity of trauma symptoms.[19]

Posttrauma Factors

Factors in the posttrauma environment contribute most to 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.[18,20,21] Low parental support and a hostile and coercive parenting style, as perceived by children, is also a potent predictor of PTSD severity and chronicity.[22] Enhancing the caregiver response and capacity to support the child posttrauma, is therefore an important component of prevention and treatment interventions following traumatic experiences.

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.[23] In addition, it is worth highlighting that three of the six published PTSD genome wide association studies (GWAS) identified unique markers in intergenic non–protein coding regions of the DNA that predicted risk for PTSD in individuals with a history of abuse or other lifetime traumatic experiences.[23] Many intergenic regions are enriched for factor-binding sites and are involved in the three-dimensional organization of the genome and gene regulation.[24] Transcription factor–binding sites and chromatin insulators within intergenic regions are believed to mediate intra- and interchromosomal interactions, affecting gene expression at both proximal and distal locations.[24] As less than 2% of the over three billion DNA base pairs in the human genome code for proteins, it is not surprising that a role in gene regulation and disease risk is emerging for intergenic regions of DNA.

ASSESSMENT OF TRAUMA EXPERIENCES

It is best to assess children's trauma experiences utilizing information from multiple informants (eg, parent, children, child protective service workers).[25–27] As reviewed elsewhere,[28] several rating scales have been developed to assess abuse, neglect, and other traumatic experiences in children and adolescents. The Childhood Trauma Questionnaire[29] provides an excellent self-report assessment of a range of maltreatment experiences and can be utilized with children 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,[30] and the Structured Trauma-Related Experiences and Symptoms Screener (STRESS) is a relatively new computer-administered measure with excellent psychometric properties.[31] Meta-analyses have shown that prospective and retrospective measures of childhood maltreatment identify largely different groups of individuals, and associations with psychopathology are more strongly associated with retrospective self-report measures of child maltreatment.[32]

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 the children about various trauma experiences. If children deny a trauma that we know they have experienced via other sources, we consider that evidence of "avoidance." We then let them know what we learned about the specific experience of trauma 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 thing 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,

irritability), progress to ask about the negative cognition and mood and avoidance symptoms and then query about the more stressful re-experiencing items.

If children are living in foster care or with other caregivers who do not know them well, obtaining adjunctive information from birth parents and/or schoolteachers 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 informants of nightmares and sleeping difficulties.[33] 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 caregivers have no idea they are not sleeping through the night.

There are several well-validated trauma symptom rating scales,[28] including: the UCLA PTSD-RI[30] discussed previously, Trauma Symptom Checklist for Young Children,[34] Trauma Symptom Checklist for Children,[35] Child Dissociative Checklist,[30] Adolescent Dissociative Experiences Scale,[36] and Child Sexual Behavior Inventory.[37] 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.[38,39] Trauma-related symptomatology is also well assessed using semi-structured diagnostic interviews for young[40] and school-aged children.[41,42] Finalizing PTSD diagnoses using data from multiple informants is key as caregivers are more likely to endorse problems with concentration and irritability than youth, and as noted above, youth are more likely to endorse nightmares and sleep difficulties.[33]

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.[43-45] In one-half to three-quarters of all cases, the onset of PTSD is primary. The risk for major depressive disorder (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 preexisting anxiety disorder. PTSD is also highly comorbid with alcohol and substance abuse disorders in adolescents and adults,[46-48] 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),[49] and extreme irritability reported in PTSD is sometimes misattributed to disruptive mood dysregulation disorder 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 re-experiencing 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, suicidality). For concentration problems to be attributed to ADHD, they should ideally have been evident before the trauma, be relatively

chronic, and generally worse in a school setting. If the concentration problems 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 frequent illusory experiences related to safety. They are also often nocturnal,[50] and frequently resolve with psychotherapeutic intervention, cessation of the trauma, and safety reassurances.[51] 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.[52] 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.[53]

COURSE AND TRAJECTORY

Bonanno and colleagues[16] 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.[54,55] 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 event. Despite the limited data base supporting its use, psychological debriefing was frequently implemented with

first responders and medical providers during the COVID-19 pandemic.[56,57] While methodologic limitations restrict the conclusions that can be drawn from the available empirical evidence, most studies show no clear benefit with debriefing interventions, and some studies in adults reported worse outcomes among individuals participating in the debriefing intervention.[54,55]

The National Child Traumatic Stress Network (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). PFA 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. Two recent systematic reviews indicate that PFA interventions are associated with improvements in adaptive functioning and reductions in symptoms of anxiety, depression, posttraumatic stress, and distress.[58,59] However, as both reviews detected bias risk and noted significant variation in the implementation of the PFA intervention across studies, there is a need for additional research before widespread implementation of the model.[58,59]

The Child and Family Traumatic Stress Intervention (CFTSI) is a brief (five- to eight-session), evidence-based mental health treatment developed to reduce trauma symptoms after a recent traumatic event for children ages 7 and above.[58,59] The central goals are to increase parent–child communication about feelings, symptoms, and behaviors related to the trauma, provide coping skills to the child and caregiver, reduce traumatic stress symptoms and assess the need for longer-term treatment.[58,59] The child and caregiver are separately provided psychoeducation about trauma and coping and then brought together to facilitate mutual communication and use of the skills imparted in the intervention. CFTSI is associated with significantly lower rates of PTSD onset and fewer PTSD and other trauma symptoms in the children,[58] as well as improvements in parental posttraumatic stress symptoms.[60]

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,[61] but a meta-analyses of studies conducted in adults suggest propranolol treatment after a traumatic event does not alter the incidence of PTSD.[62] Consistent with the results of the meta-analysis of adult studies, two randomized controlled trials with youth likewise failed to show an advantage of propranolol over placebo in preventing the onset of PTSD posttrauma exposure.[63,64] For child burn victims, there is some suggestion that enhanced pain management with morphine treatment is associated with lower rates of PTSD,[65] and one small open treatment trial of three physically abused preschool-age children diagnosed with Acute Stress Disorder secondary to serious burns that reported significant improvement in symptoms with risperidone treatment.[66]

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 are 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.[67-70] TF-CBT is a 12- to 16-session intervention that was designed for children ages 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 (eg, 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 (eg, feeling identification; self-regulation skills); "C" for cognitive coping and processing (eg, 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.

TF-CBT training can be obtained via attending workshops conducted by certified trainers, reviewing published treatment manuals,[68,70] and completing a web-based training available at https://tfcbt2.musc.edu. Extant data suggests the model is implemented with the strongest fidelity when the web-based training and a 2-day in-person workshop is completed and augmented with follow-up consultation.[71]

As reviewed elsewhere,[69,72] 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 (eg, sexual abuse, commercial sexual exploitation, domestic violence, disaster, war, traumatic grief, multiple, and complex trauma), in different settings (eg, clinics, foster care, community domestic violence center, refugee nongovernmental organization, juvenile detention centers, human immunodeficiency virus treatment centers), in group- and individually administered formats, in multiple countries and cultures (eg, United States, Native American, Africa, Europe, Australia), and with both mental health and nonmental health providers.[59] In some investigations TF-CBT has been shown to be less accessible and effective for Black or African American youth, therefore, a racial socialization model was developed to be integrated into TF-CBT to address the impact of racial trauma and improve clinical outcomes.[73] Across the literature 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.[69,72] Moreover, the therapeutic effects of TF-CBT have been shown to be maintained over 6, 12, and 24 months following treatment.[74,75]

Eye Movement Desensitization and Reprocessing (EMDR) treatment[76] is intended to reduce the vividness and emotion of a memory through the use of eye movements and other forms of rhythmic left-right (bilateral) stimulation (eg, tones or taps) while clients briefly focus on the trauma memory. EMDR has been adapted for use with children and adolescents,[77] and while there has been growing empirical support for its effectiveness with youth over the past 10 years,[72,78-80] available research suggests that TF-CBT is marginally more effective than EMDR in treating PTSD symptoms in youth.[80,81]

Child-Parent Psychotherapy (CPP) is an intervention developed to strengthen the relationship between a young child and their primary caregiver for children from birth to five who have experienced or witnessed a traumatic event and are exhibiting attachment, behavioral, or emotional difficulties.[82] CPP treatment has been associated with significant and sustained improvements in posttraumatic stress symptoms and mental and relational health measures in mother–child dyads.[83-85]

Cognitive Processing Therapy and Prolonged Exposure, two additional evidence-based treatments for adults with PTSD, have also been adapted for youth with positive outcomes preliminarily demonstrated,[72,81] and there are also promising preliminary finding integrating virtual reality interventions with TF-CBT to enhance treatment outcomes.[86,87] For an updated list of empirically supported treatments and promising practices the interested reader is referred to the NCTSN website (http://www.nctsnet.org/resources/audiences/parents-caregivers/treatments-that-work).

Given the well-established relationship between trauma exposure and marginalization status,[88] and increased understanding of the impact of generational trauma,[89] over the past two decades there have been over a dozen meta-analyses examining the effectiveness of culturally adapted psychotherapeutic interventions for a wide variety of psychiatric disorders.[90] Positive findings have been reported for individual, group, and family culturally adapted treatments,[91] with culturally adapted interventions associated with better outcomes when compared to the same intervention without the adaptations ($g = 0.52$, medium effect size). In a large meta-analysis with nearly 14,000 participants, culturally adapted interventions had a 4.68 times greater likelihood of producing remission from psychopathology than the nonadapted version of the intervention.[90] Research on trauma-specific culturally adapted treatments show promising results, however, the database is limited and more research is needed on the efficacy of culturally adapted PTSD interventions for youth.[92] Beyond cultural adaptations to evidence-based interventions, there is a growing emphasis in the field toward culturally humble care which emphasizes the importance of cultural context and identity and is characterized by principles of mutual learning and critical self-reflection, recognition of power imbalances, and the existence of implicit biases to better serve individuals from minoritized communities.[93] A culturally humble approach would be essential in treating the youth described at the opening of this chapter, given his minoritized identities (ie, multiracial, transgender male) and his social context (ie, biracial youth living in predominantly White conservative suburban community).

PSYCHOPHARMACOLOGY

Trauma-focused psychotherapies are considered the first line of treatment for PTSD in children and adolescents,[67] 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 (SSRIs) in adults,[94] support for SSRIs in children and adolescents with PTSD is lacking.[67] There have been two randomized controlled studies that examined the use of the SSRI sertraline to treat childhood PTSD, and both reported no advantage for the SSRI medication over placebo.[95,96]

Overall, there is a paucity of data to guide the pharmacologic treatment of youth with PTSD. In a small-scale open treatment trial of adolescents with conduct disorder and comorbid PTSD at a detention center,[97] quetiapine was associated with significant improvements in PTSD, depression, anger, and dissociative symptoms. In a B-A-B off-on-off design, propranolol was also shown to reduce re-experiencing and hyperarousal symptoms in a study with 11 youth,[98] 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.[99]

The majority of pharmacologic treatment studies for pediatric PTSD have examined the effectiveness of alpha-2 (clonidine, guanfacine) and alpha-1 (prazosin) agonists. In a recent review of ten studies examining the effectiveness of alpha-2 agonists (clonidine, guanfacine) in the treatment of PTSD in youth, consisting of three open-label trials, seven case reports, and no randomized controlled trials,[100] benefits were reported. In a recent retrospective chart review ($N = 59$) comparing the efficacy of alpha-2 (clonidine, guanfacine) and alpha-1 (prazosin) agonists, both agents were reported to be highly effective in treating trauma-related nightmares with a reduction in nightmare incidence reported to be greater than 85% for the youth in both groups.[101] A systematic review of nine published articles, predominantly case studies, on the use of prazosin for the treatment of nightmares in children and adolescents with PTSD, also reported positive benefits of prazosin on nightmare frequency in youth.[102] A recent large scale ($N = 304$) study of veterans randomized to prazosin and placebo; however, found no benefit of prazosin on nightmares or any of the other outcome measures examined,[103] resulting in prazosin no longer being considered a first-line pharmacologic intervention for trauma-related nightmares by both the American Academy of Sleep Medicine (AASM) and the Veterans Health Administration/Department.[104] Pediatric prolonged-release melatonin (PedPRM) is another promising agent for targeting PTSD-related sleep disturbances which is available in the European Union (EU) and not yet approved for use in the United States. PedPRM has been found to effectively treat sleep problems in youth with autism,[105] and an EU study examining the effectiveness of PedPRM in children and adolescents with PTSD is currently underway.[106]

In terms of strategies to augment PTSD psychotherapy treatments, D-cycloserine (DCS), a partial N-methyl-D-aspartic acid (NMDA) agonist has been examined since glutamate NMDA receptors have been shown to be involved in fear extinction. Although the findings have been mixed, there are data showing that DCS 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.[107] In the one DCS trial completed with youth with PTSD, 57 children and adolescents were randomized to DCS or placebo plus cognitive and behavioral therapy (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-month after treatment than the CBT plus placebo group.[108]

While trauma-focused psychotherapies are effective in the treatment of 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 novel strategies and pharmacologic agents effective in the treatment of PTSD, and the augmentation of evidence-based psychotherapies. Preliminary data in adults suggests there may be benefit in incorporating fMRI or EEG neurofeedback to augment the treatment of PTSD,[109,110] and preclinical animal and early clinical studies in adults suggest the utility of several potential novel agents, including nabilone, nor-Binaltorphimine, 7,8-dihydroxyflavone and oxytocin (OT) to target cannabinoids, opioids, ketamine, brain-derived neurotrophic factor,

and the OT receptor systems, respectively.[111,112] To date, however, 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 trauma, 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 systemic and other factors that modify outcome, thorough multiinformant assessment, and evidence-based therapy in combination with psychopharmacologic treatment when clinically indicated.

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CHAPTER 6.27 ■ REACTIVE ATTACHMENT DISORDERS

FRED R. VOLKMAR

INTRODUCTION

Reactive Attachment Disorder (RAD)

The relative contributions of biology (nature) versus experience (nurture) have been much debated within the field of child development.[1] Until quite recently in human history methods to provide effective birth control were quite limited and infanticide and child abandonment of unwanted children were common. This problem led to the development of orphanages and other arrangements for the care of unwanted children.[2,3] The development of reliable metrics of intelligence led, in the 1920s, to an awareness of the negative developmental effects of institutional care and the importance of stable parental relationships for children to develop normally.[4] Subsequent work notably by Bowlby and his colleague Mary Ainsworth[5-7] and Rutter[8] noted that, in particular, lack of stable parental relationships had a negative impact on the development of attachment or the ability to form stable relationship with others.

The work of Bowlby and his colleagues documented the development of normative attachment relationships in infants growing up within the context of their families, that is, of the importance of such relationships for many aspects of typical development and long-term development of social relationships. These normative processes of attachment are seen at or shortly after birth for infants in typical families with the infant's strong orientation to people, their ability to engage in reciprocal social interaction, to learn by joint attention, and develop strong affiliative bonds. As a practical matter Bowlby and Ainsworth focused on the period of infant locomotion—a time when attachment to parents is vividly demonstrated in

stranger anxiety—at around 9 months. This process can be interrupted by factors such as institutional rearing (with a lack of stable adult relationships) or repeated changes in parental role figures, for example, multiple foster placements.[8] DSM-III[9] recognized these difficulties in the inclusion of a specific category of disorder—reactive attachment disorder.

Although first officially recognized in the DSM-III,[9] approaches to diagnosis of this condition have evolved over time while maintaining important core features. In the DSM-III-R[10] there was explicit recognition of two subtypes: the "inhibited" and "disinhibited" forms of the disorder and this distinction has been preserved in subsequent definitions. The inhibited type was presumed to be associated with severe neglect or institutional care while the disinhibited type was thought to reflect repeated changes in foster care placements with lack of long-term parental care figures. The DSM-IV[11] strongly emphasized the importance of severe disturbance, in the first years of life, of social relatedness in the context of grossly negligent care. This makes RAD a rather distinctive condition in that it is one of the few conditions (PTSD notably being another) where the etiology is explicitly recognized in the definition and conceptualization of the disorder. By definition, autism, a prototypic disorder or social engagement coming from the child was an exclusionary diagnosis.

The DSM-5[12] further makes the distinction of subtypes more explicit by recognizing the inhibited form of the condition (RAD) and the disinhibited social engagement disorder (DSED) form. These two patterns of development are related to inadequate care and the definition emphasized the role of social and emotional neglect in the development of these disorders. The DSM-5 required a developmental age of at least 9 months (ie, the age at which attachments in typical