

Complex Trauma

Matthew Kliethermes, PhD*, Megan Schacht, PhD,
Kate Drewry, MSW, LCSW

KEYWORDS

- Complex trauma • Children and adolescents • Interpersonal trauma
- Childhood victimization

KEY POINTS

- Complex trauma exposure involves chronic/multiple traumas during developmentally vulnerable time periods.
- Exposure to complex trauma is a common occurrence for children and adolescents.
- Complex trauma exposure disrupts early attachment relationships and brain development.
- Complex trauma outcomes involve significant difficulties with emotional, behavioral, somatic, and cognitive dysregulation.

Acronyms

ADHD	Attention deficit/hyperactivity disorder
BTT	Betrayal trauma theory
DTD	Developmental trauma disorder
HPA	Hypothalamic-pituitary-adrenal
PTSD	Post-traumatic stress disorder

INTRODUCTION

The construct of complex trauma has evolved significantly in the past 25 years. Part of the challenge with the development of this concept is that the term complex trauma has been used to refer to both the traumatic event and the unique sequelae of symptoms associated with this type of trauma. One of the earliest attempts to delineate the concept of complex trauma was attempted by Terr¹ who differentiated type I and type II traumas. According to this model, type I traumas tend to be single events resulting in symptoms more closely aligned with posttraumatic stress disorder (PTSD), whereas

Disclosure: The authors have no industry disclosures to report.

Children's Advocacy Services of Greater St Louis, Department of Psychology, University of Missouri–St Louis, Weinman Building, 1 University Boulevard, St Louis, MO 63121, USA

* Corresponding author.

E-mail address: kliethermesm@umsl.edu

Child Adolesc Psychiatric Clin N Am 23 (2014) 339–361

<http://dx.doi.org/10.1016/j.chc.2013.12.009>

childpsych.theclinics.com

1056-4993/14/\$ – see front matter © 2014 Elsevier Inc. All rights reserved.

type II traumas tend to be repeated, long-standing events that may present with a range of symptoms including denial, dissociation, rage, self-destructive behavior, and unremitting sadness.

The definition of complex traumatic experiences has evolved into one that refers to severe events that tend to be chronic and undermine a child's personality development and fundamental trust in relationships.² Building from this characterization, a complex traumatic event has been further defined as a traumatic event that is repetitive and occurs over an extended period of time, undermines primary caregiving relationships, and occurs at sensitive times with regard to brain development. Complex trauma events vary widely and include physical abuse, sexual abuse, emotional abuse, neglect, witnessing domestic violence, exposure to community violence, and medical trauma. The lack of consensus on a definition of complex trauma has posed challenges for researchers because definitions can have varying emphasis placed on the number of traumatic events, the types of traumatic events, the developmental periods in which they occur, or the resulting symptom profile.³

The term complex trauma is also used to refer to the unique pattern of symptoms associated with this type of experience. Research has struggled to identify the sequelae of complex trauma; however, it has consistently identified that the impact of complex trauma is distinctive compared with more acute traumas.^{2,4-6} Domains of impairment associated with complex trauma exposure may include deficits in relationships and attachment, emotional and behavioral dysregulation, cognitive/attentional deficits, and biological changes that may affect physical health. Further, symptoms such as dissociation, changes to self-perception, and overall shifts in beliefs about the world are frequently seen among youth who have experienced complex trauma.⁷

Delineating the construct of complex trauma both from the perspective of defining the traumatic event as well as its resulting sequelae is important to further research efforts and to avoid unnecessary pathologizing of traumatized children. Even more importantly, fully understanding the impact of complex trauma on children will best facilitate clinicians' ability to enhance protective factors and develop treatment interventions to help children recover.

Complex Trauma Prevalence

Given the dual definitions of complex trauma, the prevalence of complex trauma can be thought of in 2 ways. First, it can refer to the frequency of exposure to complex traumatic experiences. Second, it can refer to the frequency of complex trauma outcomes in response to such exposure.

Prevalence of complex traumatic events

Exposure to repetitive or multiple forms of victimization is common in childhood. Finkelhor and colleagues⁴ found that 22% of a nationally representative sample of 2030 children aged 2 to 17 years had experienced 4 or more different forms of victimization in the past year. Victimization was broadly defined to include exposure to violent and property crime (eg, assault, theft), child welfare violations (eg, child abuse), warfare/civil disturbances, and bullying. The same researchers⁸ conducted a screening of lifetime exposure to victimization in a nationally representative sample of 4053 youth aged 2 to 17 years. Almost 66% of the sample had been exposed to more than 1 form of victimization, 30% had been exposed to 5 or more types of victimization, and 10% had experienced 11 or more.

Polyvictimization can also start at a young age. For example, in the Turner and colleagues⁸ study, 40% of polyvictims were younger than 13 years of age. A study of

213 children aged 2 to 4 years found that 64.3% had a history of trauma exposure, and that 34.7% of those exposed to trauma had experienced 2 or more traumas.⁹ A portion of this sample included children referred to sites providing mental health or developmental delay services, whereas the remainder were nonreferred children recruited from the same communities. As discussed later, prevalence of complex trauma exposure is even higher among at-risk populations such as youth in foster care¹⁰ and those who are justice involved.¹¹

Prevalence of complex trauma outcomes

Given the ongoing debate regarding the validity of complex trauma as a separate diagnostic entity in adults¹² and children¹³ it is challenging to specify the prevalence of complex trauma outcomes. However, research does support a dose-response relationship with exposure to more trauma types resulting in increased symptom breadth and complexity for children^{14–16} and adults.^{14,17,18}

Furthermore, evidence is beginning to emerge regarding the prevalence of developmental trauma disorder (DTD),⁶ a proposed syndrome designed to describe outcomes associated with complex trauma exposure. Stolbach and colleagues¹⁹ found that, among youth who met criteria for complex trauma exposure, 31% met the proposed criteria for DTD. This finding suggests that a sizable percentage of youth presenting for trauma-focused services are showing clinically significant complex trauma outcomes. Further, a study of 330 former Ugandan child soldiers with severe histories of chronic trauma exposure found that slightly more than 78% met the proposed criteria for DTD.²⁰ Overall, these findings suggest that outcomes conceptualized as complex trauma are common following exposure to chronic, interpersonal trauma.

Causes of Complex Trauma Exposure

The causes of complex trauma can also be considered in the context of exposure and outcomes. With regard to exposure, multiple individual and environmental characteristics have been identified as precipitants for repeated victimization. For example, Finkelhor and colleagues²¹ identified 4 primary precipitants for polyvictimization: (1) living in a dangerous community; (2) living in a dangerous family environment; (3) living in a nondangerous but chaotic family environment; and (4) having emotional problems that result in increased risky behavior, interpersonal antagonism, and risk of victimization. Further, being a polyvictim seems to be a risk factor for future polyvictimization.²²

Causes of Complex Trauma Outcomes

Complex trauma outcomes (discussed later) could be conceptualized as a developmental disorder triggered by exposure to complex trauma. It is theorized that complex trauma outcomes are influenced by the developmental period during which trauma exposure occurs, but that they also disrupt subsequent development.⁷ Therefore, complex trauma outcomes consist of common traumatic stress reactions (eg, PTSD, depression, insecure attachment, dissociation) and developmental disruptions caused by contextual factors related to complex trauma exposure (eg, impaired caregiving, multiple placements) and traumatic stress reactions (eg, chronic hyperarousal disrupting development of emotion regulation). Further, impairment seems to be more chronic and severe when trauma exposure has an earlier onset,^{23,24} increased duration,^{23,25} consists of multiple types of trauma,²⁶ and is interpersonal in nature,²⁷ which are all part of the definition of complex trauma exposure. So, how does complex

trauma exposure result in these outcomes? Possible causal factors include disrupted brain development and disorganized attachment.

Complex trauma and disrupted brain development

First, considerable research indicates that trauma exposure can result in structural and functional changes in brain development.²⁸ The areas of the brain most affected by trauma exposure are the structures that make up the stress response system. For example, neurobiological findings following trauma exposure include neuroendocrine dysregulation; reduction in hippocampal, amygdala, and prefrontal cortex volume; and decrease in corpus callosum size.^{29,30} These structural changes are thought to be the causal underpinnings of common posttraumatic symptoms such as hyperarousal, reexperiencing, emotional and behavioral dysregulation, dissociation, numbing, attention difficulties, and executive function deficits.^{31,32}

These changes have been conceptualized as an alternate developmental pathway designed to be an adaptation to a high-stress environment.³¹ Biologic systems shift from a focus on learning to a focus on survival.³³ Brain organization and activation become focused on structures that promote rapid, autonomic responses to avoid harm and regulate arousal (eg, brainstem, midbrain, amygdala) rather than structures involved in complex learning and long-term adaptation (eg, medial and dorsolateral prefrontal cortex). This survival-focused brain can defend against immediate harm, but does so at the expense of systems that prevent exhaustion, injury, and illness and promote self-regulation and learning.³⁴ These alterations in brain structure and function result in a combination of affective, somatic, behavioral, and interpersonal impairments perhaps best conceptualized as a dysregulation syndrome.³⁵ The alterations also likely explain the variety of developmental deficits identified in children exposed to trauma, including speech-language disorders,³⁶ executive functioning deficits,³⁷ working memory,³⁸ and overall cognitive ability.³⁹

It remains difficult to distinguish how the brain changes related to complex trauma differ from those seen in research specific to PTSD. For example, changes in brain function and structure have been detected less than a month after trauma exposure,^{40,41} suggesting that extended activation of the human stress response may not be a causal necessity. In contrast, research has suggested that earlier onset and longer duration of trauma exposure are associated with more significant structural changes in the brain.^{23,25} It also seems possible that the structural changes are more closely related to the presence and severity of PTSD rather than characteristics of trauma exposure.^{30,42} However, this relationship is also unclear because other researchers have shown changes in the brain structure of trauma-exposed individuals regardless of diagnostic status.^{30,43} In addition, there seems to be some validity to the idea that trauma exposure affects brain development differentially depending on what region of the brain is developing most actively when the trauma occurs. Andersen and colleagues⁴⁴ showed that adult hippocampal volume was most related to sexual abuse occurring between 3 and 5 years of age and between 11 and 13 years of age, corpus callosum area was most related to sexual abuse between ages 9 and 10 years, and frontal cortex volume was most related to sexual abuse during ages 14 to 16 years. Based on these findings, it seems reasonable to suspect that the changes in brain structure seen after trauma exposure occur on a continuum influenced by a variety of factors (eg, genetic predisposition; onset, severity, and duration of trauma exposure; severity and duration of traumatic stress reactions; disrupted attachment; and developmental status), many of which are defining aspects of complex trauma. However, further research is needed to clarify the relationship between complex trauma and changes in brain function and structure.

Complex trauma and disrupted attachment

A second critical causal factor related to complex trauma outcomes is caregiver-child attachment. By definition, complex trauma is thought to occur in caregiving or relational contexts,² and attachment has been implicated in the expression of complex trauma outcomes. The first year of life largely revolves around development of a secure attachment relationship between infant and caregiver allowing for emotional communication and coregulation.⁴⁵ Schore⁴⁶ states that secure attachment promotes brain development, development of social bonds, and development of brain structures critical for the regulation of stress (ie, hypothalamic-pituitary-adrenal axis). This contention seems to be supported because researchers have shown increased cortisol reactivity in insecurely attached children^{47,48} and differences in gray matter volume in the right temporal pole and left lateral orbitofrontal cortex in adults who showed attachment-related anxiety.⁴⁹

Disorganized attachment is associated with a variety of negative outcomes including externalizing disorders, aggression, and oppositional defiant disorder.⁵⁰ It is thought that youth with a disorganized attachment style lack an organized strategy for coping with stress and instead show behavioral disorganization or disorientation when confronted by stress.⁵¹ Further, disorganized youth are typically unable to use the attachment relationship to modulate distress. This inability seems to continue throughout childhood because these youth are more likely to have social skill deficits, including inconsistent or overly rigid interpersonal behavior.⁵²

In the context of complex trauma the attachment relationship is commonly disrupted and disorganized. The caregiver overstimulates the child through traumatic behavior and/or understimulates the child through neglect. Further, the caregiver does not repair this misattunement, fails to protect the child from stressors, and fails to help the child regulate arousal.⁴⁶ Brain structures associated with self-regulation subsequently remain underdeveloped resulting in a chronic state of dysregulation characterized by both hyperarousal and hypoarousal.⁵³ This combination of attachment disruption and maltreatment is thought to lead to more chronic and severe symptoms, beyond the effects of maltreatment alone.^{54–56} In this context, complex trauma outcome causes could be construed as the interaction between traumatic stress responses and disorganized attachment. Pearlman and Courtois⁵⁷ note that research from trauma/dissociation and attachment/development supports the idea that most chronically abused individuals show an insecure disorganized and dissociative attachment style. Thus the distress and dysregulation associated with trauma exposure occurs in the context of inability to regulate oneself through attachment. Further, given that trauma exposure likely occurred in the context of an attachment relationship, interpersonal interactions may further trigger trauma-related distress. This distress could contribute to the chronic dysregulation associated with complex trauma. Some research supports this possibility because unresolved attachment in adults has been associated with several symptoms reminiscent of complex trauma, including dissociation, inconsistent sense of self, and relationship problems.⁵⁸

PHENOMENOLOGY

Numerous studies have attempted to describe the sequelae of complex trauma and, although there is some convergence among this literature, there is not yet a clear symptom profile.^{7,13,14,59} As mentioned previously, youth with multiple traumatic exposures typically fare worse than those with a single traumatic exposure and the highest level of symptom distress is associated with exposure to multiple interpersonal

traumas.⁶⁰ Further, an increase in the number of different types of traumas experienced is associated with an increase in symptom complexity.¹⁴

Several attempts have been made to identify symptom clusters that can accurately capture the sequelae of complex trauma exposure. What these attempts have identified is that the Diagnostic and Statistical Manual of Mental Disorders (DSM), Fourth Edition, Text Revision (DSM-IV-TR) criteria for PTSD do not seem to accurately and comprehensively capture the sequelae of complex trauma.^{14,22} Additional symptom clusters associated with complex trauma exposure include affect regulation, consciousness, self-perception, perception of the perpetrator, relations with others, systems of meaning, alterations in attention and consciousness, somatization, and disturbances in self-regulatory capacities.^{12,14,61} Given the recent evolution of the PTSD diagnosis with the DSM-5 it will be interesting to see how research evolves in this area. It seems that the DSM-5 PTSD criteria may be able to more comprehensively include youth with complex trauma within the diagnosis. Nonetheless, given that extensive literature has shown that the experience of complex trauma results in a significantly different symptom profile than acute trauma, it will continue to be important to understand the sequelae of complex trauma in order to develop useful case conceptualizations.

Dysregulation of Affect and Behavior

Perhaps the most readily apparent symptom clusters of complex trauma are those associated with affective and behavioral dysregulation. In general, anxiety, depression, and anger/aggression are frequently comorbid with posttraumatic stress and the experience of complex trauma.⁶² Severe, ongoing trauma has the potential to affect children by overloading their ability to cope with emotions, altering their ability to access and identify emotions, impairing their ability to tolerate emotional expression; and impairing their ability to regulate their impulses.^{7,13,63} These youth subsequently tend to present with rapidly vacillating moods with extreme responses seemingly triggered by minor stressors or by nothing.

Dysregulation of behavior may present as either undercontrolled or overcontrolled behavioral patterns. The function of overcontrolled behavior is to manage overwhelming affect and feelings of helplessness by attempting to rigidly regulate what behavior patterns and routines children may have under their control. In contrast, undercontrolled behavior is often a reflection of deficits in impulse control, planning, and executive functioning.⁷ These adaptations to the overwhelming stress of complex trauma are children's best attempts to cope with their experiences, but ultimately tend to put them more at risk for further traumatization. Their deficits in both emotional and behavioral regulation leave them without the skills necessary to navigate social situations and also result in behavioral reactions that may put them at further risk (eg, aggression, self-injurious behaviors).⁶⁴

Disturbances of Attention/Consciousness, Cognition, and Information Processing

Disturbances of attention and consciousness may present in a variety of ways: dissociation, inattention, a lack of sustained curiosity, difficulty planning and anticipating, and so forth.^{7,13} One way to conceptualize these reactions is as overdevelopment of avoidance responses.⁶⁵ Avoidance is a common trauma response and often generalized beyond the initial trauma stimulus (eg, anxiety related to bathrooms or nighttime). However, with complex trauma the avoidance becomes even more extreme and generalizes to symptoms such as dissociation, memory loss, and impaired executive functioning.

Difficulties with attention and arousal have created much debate over the comorbidity of attention deficit/hyperactivity disorder (ADHD) in children who have experienced complex trauma. Although ADHD and complex trauma seem to be distinct syndromes, their overlapping symptoms make them difficult to differentiate in children exposed to complex trauma. Although complex trauma has not been found to be a risk factor for ADHD,⁶⁶ additional research is needed to determine how to distinguish between ADHD and cognitive regulatory deficits related to complex trauma/dissociation.

In addition to inattention, dissociative symptoms may present as memory loss, depersonalization, derealization, disengagement, and numbing. It is unclear to what extent dissociation helps differentiate complex trauma symptoms, but research suggests that dissociation plays a unique role in overall sequelae of complex trauma.⁶⁷ For example, one study identified that dissociation uniquely contributes to relationship difficulties, likely because of the impaired interpersonal skills that evolve when dissociative symptoms become more prevalent.⁶⁸

Interpersonal Difficulties

Complex trauma has the potential to cause a variety of interpersonal difficulties, in large part through its influence on a child's attachment and internal representation of themselves in relation to others.⁵⁵ This condition may manifest as difficulties with trust, low interpersonal effectiveness, revictimization, victimizing others, and poor boundaries.^{69,70} Because most complex trauma experiences threaten the primary attachment relationship (eg, domestic violence, sexual abuse, neglect), it is logical that a resulting symptom cluster would be disruptions to a child's ability to develop high-quality, adaptive interpersonal skills. Children with complex trauma histories often do not experience safety within their relationships and are not able to use their primary caregiving relationships as a secure base on which to develop internal working models of themselves and others. In addition, secondary traumatic stressors that these children often continue to confront (eg, disruptions in foster placements, transitions in family composition) may further impede their ability to develop interpersonal skills and quality attachment relationships and also present additional risk factors to overcome. A study of 347 children in long-term foster and kinship care consistently identified significant social and interpersonal difficulties.⁷¹

Distortions in Attributions

Disruptions in attachment and the ability to regulate emotions and impulses is often linked to the evolution of distortions related to sense of self and expectations of others and the world.⁷² Complex trauma often occurs within the context of formative caregiving relationships that shape children's beliefs about themselves and the world around them. The abuse can involve the creation of distorted attributions (eg, being told that they are damaged), but the children may also develop distorted attributions as a way of coping with the trauma, their environment, and resulting symptoms (eg, believing they deserve the abuse and do not deserve anything better). Overall, these distortions facilitate the development of self-blame, low self-esteem, and poor self-efficacy.⁷³ These maladaptive beliefs may build a foundation for impaired social interactions and further mental health deficits.¹³

Biology

Complex trauma can interfere with many neurologic and physiologic developmental processes causing biological compromise.⁷ The neurobiological impact of trauma can impede the maturation of specific brain structures; neuroendocrine

responses; and the coordination of cognition, emotion regulation, and behavior.⁷⁴ The biological impact of trauma can decrease children's overall awareness of their bodies. Further, trauma may manifest as somatic symptoms, increased electrical irritability in limbic structures,⁷⁵ or may lead to serious long-term health risk behaviors and diseases.⁷⁶

PREDICTING CLINICAL OUTCOMES FOR COMPLEX TRAUMA EXPOSURE

Trying to appreciate how clinical outcomes associated with complex trauma exposure vary across development is like trying to pick the winning number on a roulette wheel. Because of the ever-changing developmental landscape, the frequency of victimization, and the ongoing presence of secondary adversities, there are many possible outcomes.

Exposure to interpersonal violence has been found to place children at greater overall risk for psychosocial impairment and PTSD than exposure to noninterpersonal violence and/or community violence.⁷⁷ Therefore, the presence of interpersonal victimization could be a helpful predictor. However, victimization rates have been found to be generally high across the developmental span of childhood. Further, research has shown that some of the commonly held beliefs about exposure to trauma, such as young children being more frequently exposed to domestic violence, are not necessarily as robust as was once thought.⁷⁸ In general, boys experience more peer assaults as they proceed through adolescence, sibling assaults peak in middle childhood and decline with age, and sexual victimization of girls increases in later adolescence.⁷⁸ These findings suggest that trying to predict clinical outcomes by exposure to interpersonal victimization at a given developmental period may be impractical.

Family system factors may offer more insight into understanding clinical outcomes across the developmental spectrum. Risk factors that influence the development of PTSD in children include externalizing characteristics, family mental health difficulties, family adversity, low intelligence quotient, and chronic environmental stressors.⁷⁹ These findings suggest that trying to anticipate clinical outcomes by evaluating the risk and protective factors (both intrinsic and extrinsic) to a child may be a more valid and reliable approach.

Overall, research has indicated that a multifaceted approach is required to understand the link between complex trauma experiences and outcomes.^{55,80} This approach includes considering traumatic stressors and their related events as well as the intrinsic/extrinsic factors of the child and their ongoing adjustment. The resulting picture may be intricate and difficult to predict, but also accurately reflects the complexity of both the traumas experienced and the children who live through them.

Family Issues

Offending caregiver dynamics

For many children and adolescents exposed to complex trauma, parents or other primary caregivers are the source of their trauma. Children who experience trauma caused by those responsible for protecting and nurturing them are likely to develop insecure attachment patterns, including disorganized attachment. As many as 90% of maltreated children show an insecure attachment style,⁸¹ with disorganized attachment style being present in half to three-quarters.⁸² Similar to complex trauma outcomes, disorganized attachment is associated with emotion regulation difficulties, externalizing problems, and impaired social functioning.⁸³

Betrayal trauma theory offers another framework for understanding the impact of caregiver-perpetrated or family-perpetrated trauma on children and adolescents. According to this theory, the violation of trust that occurs when children are victimized by caregivers or others in positions of trust constitutes a threat to their survival.⁸² Because a child's awareness of caregiver-inflicted trauma might cause withdrawal from that caregiver, thereby disrupting the attachment relationship that affords safety and protection to the child, it may be psychologically necessary for the child to remain unaware of the betrayal. This so-called betrayal blindness, although enabling the child to preserve a sense of security, may be associated with significant difficulties related to dissociation (the mechanism by which betrayal blindness occurs), cognition, mental health symptoms, and interpersonal functioning.⁸² For example, research indicates that experiencing childhood betrayal trauma is associated with later difficulty in recognizing interpersonal betrayals and detecting trustworthiness in people.

Trauma that originates in the family is likely to generate significant secondary adversities for children and adolescents.⁸¹ Caregiver-perpetrated trauma may necessitate placement in foster care or residential facilities, requiring adjustment to new caregivers, homes, neighborhoods, communities, and schools. Separation from family and peers, uncertainty about the future, loss of familiar routines, and the stress of system involvement can exacerbate trauma-related symptoms or create additional psychological distress in children placed outside the home. Other secondary adversities often resulting from intrafamilial trauma include economic problems caused by parental incarceration or estrangement, significant rifts in immediate or extended family relationships, residential instability, and legal system involvement.

Resilience/Coping

The family is a child's first and generally most significant social environment, and as such plays an important role in determining how children and adolescents adapt to complex trauma exposure. The role of the family environment in influencing the outcomes of traumatized children is especially significant given that family variables (eg, caregiver support, parenting practices) are potential targets of intervention, whereas variables specific to the trauma exposure (eg, type and duration of exposure) are often immutable.^{84,85} Certain family characteristics and relationship qualities are associated with resilience and adaptive functioning among children who are maltreated or exposed to chronic stress. Other types of family conditions and behaviors seem to contribute to, or exacerbate, trauma symptoms.⁸⁶

Parenting practices can mediate the impact of trauma on children and adolescents. Research suggests that there is great variability in parenting practices among families experiencing child maltreatment and family violence, and aspects of parenting predict differential outcomes for traumatized children.^{87,88} Valentino and colleagues⁸⁹ found that hostile/coercive parenting was associated with greater PTSD and internalizing symptoms in children exposed to trauma; in the same study, engaged and supportive parenting strongly predicted child-reported adjustment. Graham-Bermann and colleagues⁹⁰ found that parenting warmth and effectiveness differentiated children who seemed to be coping adequately following exposure to domestic violence from those with problems in adjustment.

Caregiver support is a primary protective factor in children exposed to trauma, predicting the degree to which children experience and resolve trauma reactions. Research findings consistently show that children who have a supportive caregiver show fewer behavioral and emotional symptoms following trauma.^{84,87,91} As noted by Cook and colleagues,⁷ supportive caregiving responses following trauma can be

conceptualized as involving 3 factors: (1) believing and validating the child's experience, (2) tolerating the child's affect, and (3) the caregivers' regulation of their own emotional response. In contrast, when caregivers deny children's experiences, the children's recovery is impeded because they cannot integrate the traumatic experiences or develop positive coping strategies.⁷

Research on trauma and attachment provides additional support to the salience of the parent-child relationship in the aftermath of trauma. Attachment theory posits that children are biologically driven to seek proximity to a caregiver, especially in situations perceived as frightening or dangerous.⁹² Through a secure attachment with the caregiver, children learn to regulate their emotions and make sense of what is happening in the environment. Secure attachment can mitigate the impact of overwhelming stressors and support recovery and healing following exposure to trauma.⁹³

Systemic Issues

Implications for children in care

Children and adolescents in the child welfare system have high rates of trauma exposure, including complex trauma exposure. A recent study of foster children referred for treatment found that 70.4% of the sample reported at least 2 forms of recurrent interpersonal trauma perpetuated by caregivers (ie, sexual abuse, physical abuse, emotional abuse, neglect, or domestic violence); 11.7% reported having experienced all 5 trauma types.¹⁰ Among children involved with the child welfare system, children with complex trauma histories experience more mental health symptoms, including symptoms of traumatic stress, compared with children with other types of trauma.^{10,94}

Findings related to the prevalence of complex trauma exposure among children in the child welfare system and the adverse mental health outcomes associated with such exposure have important practice implications. First, child welfare professionals need increased awareness of the nature of complex trauma exposure and its relationship to adverse mental health outcomes. When workers better understand how children are affected by complex trauma experiences, they will be better able to determine treatment priorities and address service gaps.¹⁰ In addition, frontline workers should be trained to complete trauma screening on all children who enter the child welfare system, ideally using a standardized assessment tool that has been empirically validated.¹⁰ Identifying children with trauma histories, including complex trauma histories, helps ensure that they are linked with appropriate treatment providers. In addition, foster parents, residential care workers, and other frontline providers should receive specialized training related to meeting the needs of children with complex trauma histories. For example, foster parents should learn how to identify trauma triggers and support children's development of self-regulation capacities. The National Child Traumatic Stress Network has developed the Resource Parent Curriculum for this purpose; see the Network's Web site (www.nctsn.org) for more information.

Juvenile justice

The correlation between trauma exposure and involvement in the juvenile justice system has been well documented. Approximately 90% of youth in juvenile justice facilities report having experienced at least one potentially traumatic event.^{64,95} Because of definitional issues, estimates of complex trauma among justice-involved youth are more difficult to determine. However, Ford and colleagues⁹⁶ report that a hierarchical cluster analysis of a large representative sample of youth in detention settings yielded an estimated prevalence of 35% with complex trauma histories. Another study¹¹ found that more than half (62.14%) of their justice-involved sample had experienced trauma in

the first 5 years of life and 90% experienced multiple trauma types over their lifetimes. In addition, arrest and juvenile justice confinement experiences can be traumatic for some youth, compounding their already complex trauma histories, increasing their risk for additional trauma, and/or triggering memories of prior traumatic experiences.⁹⁷

The disruption of self-regulation capacities that stems from complex trauma poses challenges in milieu management and treatment in juvenile justice settings.⁹⁶ Many youth with complex trauma histories are unlikely to have the self-regulation skills necessary to participate in the educational and recreational milieu activities or respond positively to motivational or crisis prevention interventions offered in these settings.⁹⁶ A complex trauma perspective favors milieu interventions that build skills in self-regulation rather than assuming that youth already possess them.⁹⁶

The Sanctuary Model is an example of an intervention that can be used to address the needs of youth with complex trauma histories in the juvenile justice system. Developed by Dr Sandra Bloom⁹⁸ and her colleagues in the 1980s, the Sanctuary Model recognizes the treatment environment as a core modality for healing the wounds of psychological trauma, and intervenes at the level of organizational culture to create new, developmentally grounded, trauma-informed routines for the children being served, their families, staff members, and the organization as a whole.⁹⁸ This model is currently being implemented as a systematic organizational change process for more than 250 human service delivery systems including juvenile programs⁹⁸ and has been associated with significant decreases in negative interactions between youth and staff in juvenile detention centers.⁹⁹

Clinical Assessment of Complex Trauma

Effective assessment of complex trauma exposure and outcomes in children and adolescents requires the integration of knowledge from a variety of areas, including trauma, child development, neurodevelopment, attachment, family systems, and child welfare. Furthermore, this knowledge must be exercised while developing a therapeutic alliance with a youth (and often caregivers) who presents with self-regulation and interpersonal deficits, and frequent safety concerns. This process is clinically and personally challenging.

Complex trauma assessment should be embedded in the typical assessment process at the initiation of services. It is critical to establish a genuine working alliance with the youth and caregiver(s). This alliance relies on a careful balance between identifying vulnerabilities (the standard goal of most assessments) while accommodating those vulnerabilities (eg, titrating the assessment process to avoid the youth decompensating) and validating youths' strengths and accomplishments.⁶³ However, as long as sensitive issues (eg, trauma history) are discussed in a noncoercive, collaborative fashion, screening does not seem to cause increased deterioration or crises.⁶⁴ The building of a working alliance is likely to be tested by the presence of safety risks or unreported abuse. It is important to respond immediately and calmly to such disclosures to enhance the youth's actual or perceived safety and control.⁶³ This enhancement can often be accomplished through transparency, providing a clear rationale for the clinician's actions and trying to make events as predictable and controllable as possible for the youth (eg, clearly explaining the investigatory process to a youth when having to make a hotline report).

Developing a detailed trauma history is a crucial aspect of assessing youth exposed to complex trauma.^{63,100} Formal screening instruments may be helpful in this process. Such instruments include the Traumatic Experiences Screening Instrument¹⁰¹ and the UCLA Posttraumatic Stress Disorder Reaction Index.¹⁰² However, even when directly evaluated, it is common for traumatic experiences to go undisclosed during initial

assessment. Additional disclosures may occur more organically over time as the youth develops increased trust with the service provider.¹⁰⁰ Thus assessment of complex trauma is often an ongoing process that occurs throughout the course of treatment.

Although developing a detailed trauma history is important, focusing only on past events is not sufficient.⁶³ It is equally important to identify current or potential events that may be retraumatizing (eg, facing a perpetrator while testifying at court) or result in the youth reenacting prior traumatic experiences (eg, a sexually abused youth engaging in sexualized behavior). These triggers and reenactments can profoundly affect the youth's daily functioning and often present as observable behavior patterns (eg, youths becoming belligerent every time their employers give feedback regarding their work performance).

The assessment of complex trauma involves more than identifying past traumas and future triggers. It is also necessary to assess relevant areas of current functioning. As mentioned previously, youth exposed to complex trauma typically present with dysregulation associated with affect, behavior, attention/consciousness, cognition, interpersonal functioning, attributions toward self and others, and biological functioning. Related to these deficits, Ford and colleagues⁶³ recommend that assessment should identify problems and strengths affecting a youth's ability to:

1. Identify/prepare for triggers/reenactments and develop coping skills to prevent harm to self or others
2. Develop or restore emotion regulation (ie, ability to access emotions [especially trauma-related emotions such as shame and betrayal], capacity to tolerate emotional expression)
3. Acquire or regain the capacity to accurately monitor bodily sensations and arousal
4. Develop or restore cognitive and behavioral self-regulation to reduce the occurrence/severity of maladaptive behaviors (eg, substance abuse, self-harm, sexualized behaviors)
5. Experience safety and attunement in family, peer, and therapeutic relationships and subsequently develop secure inner models of relationships
6. Develop a personal identity of resiliency and self-determination

These areas can be assessed many ways, but because of complex biographic histories and symptom presentations, it is unlikely that the assessment process can be accomplished through any single measure or technique.⁶⁵ Instead it is recommended to use a variety of approaches with multiple informants.¹⁰³ For example, the assessment process for youth exposed to complex trauma could include the following:

1. Biopsychosocial interviews conducted with the youth, caregiver(s), and other relevant familial (eg, grandparent) or professional (eg, caseworker, teacher) entities
2. Semistructured interview for child and adolescent psychiatric disorders (eg, Kiddie Schedule for Affective Disorders and Schizophrenia¹⁰⁴)
3. Behavioral observations of youth in multiple settings (eg, home, school, community)
4. Wide range of youth-report measures (eg, Youth Self Report,¹⁰⁵ Multiphasic Personality Inventory-A¹⁰⁶)
5. Wide range of adult-report measures (eg, Behavior Assessment System for Children,¹⁰⁷ Child Behavior Checklist,¹⁰⁵ Teacher Report Form¹⁰⁵)
6. Trauma-specific youth-report assessment measures (eg, Trauma Symptom Checklist for Children¹⁰⁸)
7. Trauma-specific adult-report assessment measures (eg, Trauma Symptom Checklist for Young Children,¹⁰⁹ Child Sexual Behavior Inventory¹¹⁰)

The Challenge of Diagnosing Youth Exposed to Complex Trauma

As discussed earlier, evaluating youth exposed to complex trauma is challenging. However, this is intensified by the lack of a psychiatric diagnosis that fully accounts for the symptom presentation of youth exposed to complex trauma.¹³ Using DSM-IV-TR criteria, PTSD has not been the most common diagnosis for traumatized youth, and comorbid diagnoses are common.¹¹¹

Therefore it has been argued that PTSD criteria, particularly before DSM-5, do not fully describe the symptom presentation of many traumatized youth. A wide variety of diagnoses (eg, ADHD, oppositional defiant disorder, and bipolar disorder) tends to be used to capture the range of presented difficulties. This variety of diagnoses results in a confusing diagnostic picture that obscures causal factors and may result in effective trauma-focused treatments being underused and under-reimbursed for this population.¹³

One attempt to address this situation has been the revision of PTSD criteria for DSM-5.¹¹² The DSM-5 PTSD criteria included a new symptom domain based on negative alterations in cognitions or mood (eg, persistent negative beliefs about oneself, others, or the world; persistent negative emotional states), expanded the hyperarousal domain to include reckless or destructive behavior (eg, reckless driving, excessive substance use), and added a PTSD subtype characterized by dissociation. DSM-5 PTSD criteria seem to capture outcomes of complex trauma more fully than previous iterations. The new criteria seem to better describe the impaired self-regulation across multiple domains (ie, affect, physiology, cognition, behavior, motivation, relationships, and self-identity).¹¹³

Another effort to better capture the sequelae of complex trauma has been the formulation of DTD. DTD is an attempt to organize the self-regulation deficits derived from clinical observation and research focused on complex trauma and distinguish it as a separate diagnosis that includes symptoms of PTSD but also extends beyond PTSD criteria.⁶³ DTD symptom clusters include PTSD symptoms as well as affective/physiologic dysregulation, attentional/behavioral dysregulation, and self/relational dysregulation.⁶³ Although DTD was not included in DSM-5, it is undergoing validation in an international field trial,⁶³ which may result in its inclusion in future iterations of the DSM.

Debate regarding the validity and usefulness of DTD will likely be a hallmark of the field for the near future. For example, Schmid and colleagues¹¹⁴ summarize arguments for and against formalized DTD criteria. Arguments in support of DTD suggest that DTD will (1) allow more specific diagnosis, (2) sensitize professionals and the public to the impact of chronic trauma, (3) highlight the developmental course of mental disorders, (4) stimulate research on complex trauma, (5) help explain the high rate of comorbidity among traumatized youth, (6) promote development and refinement of effective treatments, and (7) decrease social and legal stigmatization of traumatized youth. Arguments against the formalization of DTD criteria include (1) the presence of overlap with other diagnoses (eg, borderline personality disorder); (2) lack of clarity regarding the cause of DTD; (3) not all severely traumatized children develop any disorder, much less DTD; (4) the possibility that emotional dysregulation may precede complex trauma rather than be caused by it; (5) lack of age/developmentally sensitive criteria; (6) DTD may result in true comorbid diagnoses going untreated; and (7) increased pressure to identify past trauma experiences resulting in disrupted therapeutic relationships or false trauma memories.

In conclusion, the diagnosis of complex trauma outcomes is a contentious topic and will likely remain so for the foreseeable future. The heart of this debate is whether or

not complex trauma outcomes represent a distinct disorder from PTSD or are better conceptualized as simply a more severe form of PTSD. However, the current knowledge base regarding this question is insufficient to make that distinction,^{12,114} highlighting the need for further investigation.

Treatment of Youth Exposed to Complex Trauma

Treating youth exposed to complex trauma can be a complicated, overwhelming process. The needs of these youth are typically intense, varied, and rapidly changing, particularly early in treatment. It can be argued that no gold standard treatment exists for this population; however, substantial progress has been made in identifying effective treatment approaches.

The general consensus among experts is that a phase-based approach is most effective.^{5,115,116} In this approach, treatment occurs sequentially, with later phases building on previous phases. For example, early in treatment, youth may be taught skills to alleviate current emotional dysregulation but also to provide the tools needed for subsequent trauma processing. Although treatment is generally sequential, phases may not always proceed in a linear fashion, and previous phases may be revisited as needed, allowing the therapist to sensitively respond to the chaos and changing needs of the population.¹¹⁷

Several models of phase-based treatment of complex trauma have been developed. Ford and colleagues¹¹⁵ describe one approach, consisting of 3 phases: (1) engagement, safety, and stabilization; (2) recalling traumatic memories; and (3) enhancing daily living. In phase 1, the therapist works to form a therapeutic alliance and increase the youth's sense of safety. This phase is often a significant and lengthy portion of treatment in light of characteristic difficulties with dysregulation, attachment, and environmental instability. When these difficulties have become manageable, the second phase of treatment begins. This phase focuses on trauma-related content and processing traumatic memories. This phase occurs at a safe, manageable pace through graduated exposure and ongoing use of the self-regulation skills learned in phase 1. When symptoms of posttraumatic stress (eg, intrusive memories, arousal to trauma cues, maladaptive trauma-related beliefs) have been addressed, the therapist and client move to phase 3, focusing on developing a healthy lifestyle that is not ruled by trauma triggers or reenactments.

Multiple evidence-based treatment models have been adapted or created to adhere to a phase-based approach and have shown effectiveness. Effective treatment models tend to have similar characteristics that include (1) prioritization of safety and stability, (2) heavy emphasis on relationships, (3) interventions that balance immediate needs and long-term goals, (4) focus on strengths and resiliency, (5) consistent development of self-regulation skill in multiple domains (eg, emotion, information processing, awareness, somatic, relational), (6) mastery of traumatic memories, and (7) prevention of and preparation for losses and crises.¹¹⁸

The following list (in alphabetical order) provides some examples of evidence-based treatment models that have been developed or adapted for youth exposed to complex trauma. This list should not be considered exhaustive and, because of length constraints, does not provide a detailed description of each model.

Attachment, self-regulation, and competency

Components-based intervention framework for youth exposed to complex trauma and their surrounding systems of care.^{119,120}

Child-parent psychotherapy

Psychodynamic, caregiver-child dyadic model for preschoolers.¹²¹

Dialectical behavior therapy

Flexible, principle-driven, manualized treatment model that integrates cognitive-behavioral principles with mindfulness practice to enhance self-regulation.^{122,123}

Eye movement desensitization and reprocessing

Trauma-focused treatment model that emphasizes information processing systems and the resolution of physiologically stored memories.^{124,125}

Integrative treatment of complex trauma

Multicomponent therapy for children and adolescents that integrates complex trauma, attachment theory, the self-trauma model, and aspects of trauma-focused cognitive behavior therapy.¹²⁶

Parent-child interaction therapy

Manualized parent-training program based on social learning and attachment theories for children aged 2 to 7 years with externalizing behavior problems.¹²⁷

Real-life heroes

Integrated trauma and resiliency-centered treatment model for latency-aged youth with history of exposure to complex trauma.¹²⁸

Seeking safety

Structured psychoeducational model for co-occurring PTSD and substance abuse.¹²⁹

Structured psychotherapy for adolescents responding to chronic stress

Group intervention for adolescents integrating aspects of trauma-focused treatment and dialectical behavior therapy.¹³⁰

Trauma affect regulation: guide for education and therapy

Brief group or individual program for youth with complex trauma histories and their families.¹³¹

Trauma-focused cognitive behavior therapy

Phase-oriented individual treatment model for traumatized youth and nonoffending caregivers.^{103,132}

Trauma systems therapy

Systemic-based intervention focused equally on dysregulation in youth exposed to complex trauma and factors in the social environment that trigger and maintain dysregulation.¹³³

SUMMARY

It is difficult to overstate the current and future importance of complex trauma to child and adolescent mental health and to society. As described in this article, large numbers of children and adolescents are exposed to chronic trauma and polyvictimization during highly vulnerable developmental periods. This exposure disrupts early attachment relationships and takes a severe toll on the developing brain, resulting in complex and severe symptom presentations resulting from impaired self-regulation. The subsequent needs of these youth place high demands on the resources of systems with which they interact, including biologic and adoptive families, education, child welfare, medical, and juvenile justice. Because of the diversity and severity of complex trauma outcomes, the provision of mental health services to this population is replete with challenges. However, gifted researchers and clinicians are increasingly devoting resources to address the needs of this population. The fruits of this labor can

be seen in the development of a comprehensive conceptual framework and multiple, promising evidence-based treatment models. Challenges remain for youth exposed to complex trauma and the professionals who work with them, but the knowledge and tools that have developed over the last 25 years give cause for optimism.

REFERENCES

1. Terr L. Childhood traumas. *Am J Psychiatry* 1991;148:10–20.
2. Ford JD, Courtois CA. Defining and understanding complex trauma and complex traumatic stress disorders. In: Courtois CA, Ford JD, editors. *Treating complex traumatic stress disorders: an evidence-based guide*. New York: The Guilford Press; 2009. p. 13–30.
3. Weathers F, Keane T. The Criterion A problem revisited: controversies and challenges in defining and measuring psychological trauma. *J Trauma Stress* 2007; 20:107–21.
4. Finkelhor D, Ormrod RK, Turner HA. Poly-victimization: a neglected component in child victimization. *Child Abuse Negl* 2007;31:7–26.
5. Cook A, Spinazzola J, Ford J, et al. Complex trauma in children and adolescents. *Psychiatr Ann* 2005;35(5):390–8.
6. van der Kolk BA. Developmental trauma disorder. *Psychiatr Ann* 2005;35(5): 401–8.
7. Cook A, Blaustein M, Spinazzola J, et al, editors. *Complex trauma in children and adolescents*. National Child Traumatic Stress Network; 2003. Available at: http://www.nctsn.net/nctsn_assets/pdfs/edu_materials/ComplexTrauma_All.pdf. Accessed October 28, 2013.
8. Turner HA, Finkelhor D, Ormrod R. Poly-victimization in a national sample of children and youth. *Am J Prev Med* 2010;38:323–30.
9. Grasso DJ, Ford JD, Briggs-Gowan MJ. Early life trauma exposure and stress sensitivity in young children. *J Pediatr Psychol* 2012;38(1):94–103.
10. Greeson JK, Briggs EC, Kisiel CL, et al. Complex trauma and mental health in children and adolescents placed in foster care: findings from the National Child Traumatic Stress Network. *Child Welfare* 2011;90:91–108.
11. Dierkhising CB, Ko SJ, Woods-Jaeger B, et al. Trauma histories among justice-involved youth: findings from the National Child Traumatic Stress Network. *Eur J Psychotraumatol* 2013;4:1–12.
12. Resick PA, Bovin MJ, Calloway AL, et al. A critical evaluation of the complex PTSD literature: implications for DSM-5. *J Trauma Stress* 2012;25(3):241–51.
13. D’Andrea W, Ford J, Stolbach B, et al. Understanding interpersonal trauma in children: why we need a developmentally appropriate trauma diagnosis. *Am J Orthop* 2012;82(2):187–200.
14. Cloitre M, Stolbach BC, Herman JL, et al. A developmental approach to complex PTSD: childhood and adult cumulative trauma as predictors of symptom complexity. *J Trauma Stress* 2009;22(5):399–408.
15. Ford JD, Elhai JD, Connor DF, et al. Poly-victimization and risk of posttraumatic, depressive, and substance use disorders and involvement in delinquency in a national sample of adolescents. *J Adolesc Health* 2010;46(6):545–52.
16. Ford JD, Wasser T, Connor DF. Identifying and determining the symptom severity associated with polyvictimization among psychiatrically impaired children in the outpatient setting. *Child Maltreat* 2011;16(3):216–26.
17. Anda RF, Brown DW, Felitti VJ, et al. Adverse childhood experiences and prescribed psychotropic medications in adults. *Am J Prev Med* 2007;32(5):389–94.

18. Briere J, Kaltman S, Green BL. Accumulated childhood trauma and symptom complexity. *J Trauma Stress* 2008;21(2):223–6.
19. Stolbach BC, Minshew R, Rumpala V, et al. Complex trauma exposure and symptoms in urban traumatized children: a preliminary test of proposed criteria for developmental trauma disorder. *J Trauma Stress* 2013;26(4):483–91.
20. Klasen F, Gehrke J, Metzner F, et al. Complex trauma symptoms in former Ugandan child soldiers. *J Aggress Maltreat Trauma* 2013;22(7):698–713.
21. Finkelhor D, Ormrod R, Turner H, et al. Pathways to poly-victimization. *Child Maltreat* 2009;14(4):316–29.
22. Finkelhor D, Ormrod RK, Turner HA. Re-victimization patterns in a national longitudinal sample of children and youth. *Child Abuse Negl* 2007;31(5):479–502.
23. De Bellis MD, Keshavan MS, Clark DB, et al. Developmental traumatology part II: brain development. *Biol Psychiatry* 1999;45:1271–84.
24. Ogle CM, Rubin DC, Siegler IC. The impact of the developmental timing of trauma exposure on PTSD symptoms and psychosocial functioning among older adults. *Dev Psychol* 2013;49(11):2191–200.
25. Cohen JA, Perel JM, De Bellis MD, et al. Treating traumatized children: clinical implications of the psychobiology of posttraumatic stress disorder. *Trauma Violence Abuse* 2002;3(2):91–108.
26. Teicher MH, Samson JA, Polcari A, et al. Sticks, stones, and hurtful words: relative effects of various forms of childhood maltreatment. *Am J Psychiatry* 2006;163(6):993–1000.
27. Ehring T, Quack D. Emotion regulation difficulties in trauma survivors: the role of trauma type and PTSD symptom severity. *Behav Ther* 2010;41(4):587–98.
28. Gabowitz D, Zucker M, Cook A. Neuropsychological assessment in clinical evaluation of children and adolescents with complex trauma. *J Child Adolesc Trauma* 2008;1:163–78.
29. Wilson DR, Hansen DJ, Li M. The traumatic stress response in child maltreatment and resultant neuropsychological effects. *Aggress Violent Behav* 2011;16:87–97.
30. Karl A, Schaefer M, Malta LS, et al. A meta-analysis of structural brain abnormalities in PTSD. *Neurosci Biobehav Rev* 2006;30(7):1004–31.
31. Teicher MH, Andersen SL, Polcari A, et al. The neurobiological consequences of early stress and childhood maltreatment. *Neurosci Biobehav Rev* 2003;27(1–2):33–44.
32. Watts-English T, Fortson BL, Gibler N, et al. The psychobiology of maltreatment in childhood. *J Soc Issues* 2006;62(4):717–36.
33. Ford JD. Neurobiological and developmental research: clinical implications. In: Courtois CA, Ford JD, editors. *Treating complex traumatic stress disorders: an evidence-based guide*. New York: The Guilford Press; 2009. p. 31–58.
34. Ford JD, Blaustein ME, Habib M, et al. Developmental trauma therapy models. In: Ford JD, Courtois CA, editors. *Treating complex traumatic stress disorders in child and adolescents: scientific foundations and therapeutic models*. New York: The Guilford Press; 2013. p. 261–76.
35. Althoff RR, Ayer LA, Rettew DC, et al. Assessment of dysregulated children using the Child Behavior Checklist: a receiver operating characteristic curve analysis. *Psychol Assess* 2010;22(3):609–17.
36. Kernic MA, Holt VL, Wolf ME, et al. Academic and school health issues among children exposed to maternal intimate partner abuse. *Arch Pediatr Adolesc Med* 2002;156(6):549–55.

37. Beers SR, De Bellis MD. Neuropsychological function in children with maltreatment-related posttraumatic stress disorder. *Am J Psychiatry* 2002; 159(3):483–6.
38. Bücker J, Kapczinski F, Post R, et al. Cognitive impairment in school-aged children with early trauma. *Compr Psychiatry* 2012;53(6):758–64.
39. Pugh RH, Tepper FL, Halpern-Felsher BL, et al. Changes in abused children's social and cognitive skills from intake to discharge in a residential treatment center. *Resid Treat Child Youth* 1997;14(3):65–83.
40. Lui S, Huang X, Chen L, et al. High-field MRI reveals an acute impact on brain function in survivors of the magnitude 8.0 earthquake in China. *Proc Natl Acad Sci U S A* 2009;106(36):15412–7.
41. Chen L, Lui S, Wu QZ, et al. Impact of acute stress on human brain microstructure: an MR diffusion study of earthquake survivors. *Hum Brain Mapp* 2013; 34(2):367–73.
42. Bossini L, Tavanti M, Calossi S, et al. Magnetic resonance imaging volumes of the hippocampus in drug-naïve patients with post-traumatic stress disorder without comorbidity conditions. *J Psychiatr Res* 2008;42(9):752–62.
43. Bremner JD. Traumatic stress: effects on the brain. *Dialogues Clin Neurosci* 2006;8(4):445–61.
44. Andersen SL, Tomada A, Vincow ES, et al. Preliminary evidence for sensitive periods in the effect of childhood sexual abuse on regional brain development. *J Neuropsychiatry Clin Neurosci* 2008;20(3):292–301.
45. Schore AN. Relational trauma, brain development, and dissociation. In: Ford JD, Courtois CA, editors. *Treating complex traumatic stress disorders in child and adolescents: scientific foundations and therapeutic models*. New York: The Guilford Press; 2013. p. 3–23.
46. Schore AN. Relational trauma and the developing right brain: the neurobiology of broken attachment bonds. In: Baradon T, editor. *Relational trauma in infancy*. London: Routledge; 2010. p. 19–47.
47. Bernard K, Dozier M. Examining infants' cortisol responses to laboratory tasks among children varying in attachment disorganization: stress reactivity or return to baseline? *Dev Psychol* 2010;46(6):1771–8.
48. Luijk MP, Velders FP, Tharner A, et al. FKBP5 and resistant attachment predict cortisol reactivity in infants: gene-environment interaction. *Psychoneuroendocrinology* 2010;35(10):1454–61.
49. Benetti S, McCrory E, Arulanantham S, et al. Attachment style, affective loss and gray matter volume: a voxel-based morphometry study. *Hum Brain Mapp* 2010; 31(10):1482–9.
50. Lyons-Ruth K, Jacobvitz D. Attachment disorganization: unresolved loss, relational violence, and lapses in behavioral and attentional strategies. In: Cassidy J, Shaver PR, editors. *Handbook of attachment: theory, research, and clinical applications*. New York: The Guilford Press; 1999. p. 520–54.
51. MacDonald HZ, Beeghly M, Grant-Knight W, et al. Longitudinal association between infant disorganized attachment and childhood posttraumatic stress symptoms. *Dev Psychopathol* 2008;20(2):493–508.
52. Jacobvitz D, Hazen N. Developmental pathways from infant disorganization to childhood peer relationships. In: Solomon J, George C, editors. *Attachment disorganization*. New York: The Guilford Press; 1999. p. 127–59.
53. Schore AN. Early relational trauma, disorganized attachment, and the development of a predisposition to violence. In: Siegel D, Solomon M, editors. *Healing trauma: attachment, mind, body, and brain*. New York: WW Norton; 2003. p. 107–67.

54. Aspelmeier JE, Elliott AN, Smith CH. Childhood sexual abuse, attachment, and trauma symptoms in college females: the moderating role of attachment. *Child Abuse Negl* 2007;31(5):549–66.
55. Cicchetti D, Toth SL. A developmental psychopathology perspective on child abuse and neglect. *J Am Acad Child Adolesc Psychiatry* 1995;34(5):541–65.
56. Ford JD, Connor DF, Hawke J. Complex trauma among psychiatrically impaired children: a cross-sectional, chart-review study. *J Clin Psychiatry* 2009;70(8):1155–63.
57. Pearlman LA, Courtois CA. Clinical applications of the attachment framework: relational treatment of complex trauma. *J Trauma Stress* 2005;18(5):449–59.
58. Bailey HN, Moran G, Pederson DR. Childhood maltreatment, complex trauma symptoms, and unresolved attachment in an at-risk sample of adolescent mothers. *Attach Hum Dev* 2007;9(2):139–61.
59. Dorahy MJ, Corry M, Shannon M, et al. Complex PTSD, interpersonal trauma and relational consequences: findings from a treatment receiving Northern Irish sample. *J Affect Disord* 2009;112:71–80.
60. Green BL, Goodman LA, Krupnick JL, et al. Outcome of single versus multiple trauma exposure in a screening sample. *J Trauma Stress* 2000;13:271–86.
61. Cloitre M, Courtois CA, Charuvastra A, et al. Treatment of complex PTSD: results of the ISTSS Expert Clinician Survey on best practices. *J Trauma Stress* 2011;24:615–27.
62. Heim C, Nemeroff CB. The role of childhood trauma in the neurobiology of mood and anxiety disorders: preclinical and clinical studies. *Biol Psychiatry* 2001;49:1023–39.
63. Ford JD, Nader K, Fletcher KE. Clinical assessment and diagnosis. In: Ford JD, Courtois CA, editors. *Treating complex traumatic stress disorders in child and adolescents: scientific foundations and therapeutic models*. New York: The Guilford Press; 2013. p. 116–39.
64. Ford JD, Hartman JK, Hawke J, et al. Traumatic victimization, posttraumatic stress disorder, suicidal ideation, and substance abuse risk among juvenile justice-involved youth. *J Child Adolesc Trauma* 2008;1:75–92.
65. Briere J, Spinazzola J. Phenomenology and psychological assessment of complex posttraumatic states. *J Trauma Stress* 2005;18(5):401–12.
66. Ford JD, Connor D. ADHD and posttraumatic stress disorder (PTSD). *Current Attention Disorder Reports* 2009;1:61–6.
67. Ford JD. Dissociation in complex posttraumatic stress disorder or disorders of extreme stress not otherwise specified (DESNOS). In: Dell PF, O’Neil JA, editors. *Dissociation and the dissociative disorders: DSM-V and beyond*. New York: Routledge; 2009. p. 471–83.
68. Dorahy MJ, Corry M, Shannon M, et al. Complex trauma and intimate relationships: the impact of shame, guilt and dissociation. *J Affect Disord* 2013;147:72–9.
69. Kernhof K, Kaufhold J, Grabhorn R. Object relations and interpersonal problem in sexually abused female patients: an empirical study with the SCORS and the IIP. *J Pers Assess* 2008;90:44–51.
70. Taylor S, Asmundson GJ, Carleton RN. Simple versus complex PTSD: a cluster analytic investigation. *J Anxiety Disord* 2006;20:459–72.
71. Tarren-Sweeney M. An investigation of complex attachment- and trauma-related symptomatology among children in foster and kinship care. *Child Psychiatry Hum Dev* 2013;44(6):727–41.

72. Baldwin MW, Fehr B, Keedian E, et al. An exploration of the relational schemata underlying attachment styles: self-report and lexical decision approaches. *Pers Soc Psychol Bull* 1993;19:746–54.
73. Burack JA, Flanagan T, Peled T, et al. Social perspective-taking skills in maltreated children and adolescents. *Dev Psychol* 2006;42:207–17.
74. van der Kolk BA. The neurobiology of childhood trauma and abuse. *Child Adolesc Psychiatr Clin N Am* 2003;12:293–317.
75. Marsella AJ, Friedman MJ, Gerrity ET, et al, editors. *Ethnocultural aspects of posttraumatic stress disorder: Issues research, and clinical applications*. Washington, DC: American Psychological Association; 1996.
76. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: the Adverse Childhood Experiences (ACE) study. *Am J Prev Med* 1998;14:245–58.
77. Luthra R, Abramovitz R, Greenberg R, et al. Relationship between type of trauma exposure and posttraumatic stress among urban children and adolescents. *J Interpers Violence* 2009;24:1919–27.
78. Finkelhor D, Ormrod RK, Turner HA. The developmental epidemiology of childhood victimization. *J Interpers Violence* 2009;24:711–31.
79. Koenen K, Moffitt TE, Poulton R, et al. Early childhood factors associated with the development of post-traumatic stress disorder: results from a longitudinal birth cohort. *Psychol Med* 2007;37:181–92.
80. Pynoos RS, Steinberg AM, Wraith R. A developmental model of childhood traumatic stress. In: Cicchetti D, Cohen D, editors. *Developmental psychopathology vol. 2: risk, disorder, and adaptation*. Oxford (England): John Wiley & Sons; 1995. p. 72–95.
81. van der Kolk BA. Child abuse and victimization. *Psychiatr Ann* 2005;35(3):374–8.
82. Kaehler LA, Babcock R, DePrince AP, et al. Betrayal trauma. In: Ford JD, Courtois CA, editors. *Treating complex traumatic stress disorders in child and adolescents: scientific foundations and therapeutic models*. New York: The Guilford Press; 2013. p. 62–78.
83. Alexander PC. Relational trauma and disorganized attachment. In: Ford JD, Courtois CA, editors. *Treating complex traumatic stress disorders in child and adolescents: scientific foundations and therapeutic models*. New York: The Guilford Press; 2013. p. 39–61.
84. Deblinger E, Steer RA, Lippmann J. Two-year follow-up study of cognitive behavioral therapy for sexually abused children suffering post-traumatic stress symptoms. *Child Abuse Negl* 1999;23(12):1371–8.
85. Yancey CT, Hansen DJ. Relationship of personal, familial, and abuse-specific factors with outcome following childhood sexual abuse. *Aggress Violent Behav* 2010;15(6):410–21.
86. Turner HA, Finkelhor D, Ormrod R. Family context, victimization, and child trauma symptoms: variations in safe, stable, and nurturing relationships during early and middle childhood. *Am J Orthop* 2012;82(2):209–19.
87. Haskett ME, Nears K, Ward CS, et al. Diversity in adjustment of maltreated children: factors associated with resilient functioning. *Clin Psychol Rev* 2006;26(6):796–812.
88. Howell KH. Resilience and psychopathology in children exposed to family violence. *Aggress Violent Behav* 2011;16(6):562–9.

89. Valentino K, Berkowitz S, Stover CS. Parenting behaviors and posttraumatic symptoms in relation to children's symptomatology following a traumatic event. *J Trauma Stress* 2010;23(3):403-7.
90. Graham-Bermann SA, Gruber G, Howell KH, et al. Factors discriminating among profiles of resilience and psychopathology in children exposed to intimate partner violence (IPV). *Child Abuse Negl* 2009;33(9):648-60.
91. Elliott AN, Carnes CN. Reactions of nonoffending parents to the sexual abuse of their child: a review of the literature. *Child Maltreat* 2001;6(4):314-31.
92. Bowlby J. Attachment and loss. New York: Basic Books; 1980.
93. Blaustein M, Kinniburgh K. Intervention beyond the child: the intertwining nature of attachment and trauma. *British Psychological Society* 2007;26:48-53. Briefing paper.
94. Kisiel C, Fehrenbach T, Small L, et al. Assessment of complex trauma exposure, responses, and service needs among children and adolescents in child welfare. *J Child Adolesc Trauma* 2009;2:143-60.
95. Abram KM, Teplin LA, Charles DR, et al. Posttraumatic stress disorder and trauma in youth in detention. *Arch Gen Psychiatry* 2004;61:403-10.
96. Ford JD, Chapman J, Connor DF, et al. Complex trauma and aggression in secure juvenile justice settings. *Crim Justice Behav* 2012;39:694-724.
97. National Child Traumatic Stress Network. Trauma-focused interventions for youth in the juvenile justice system. Available at: <http://www.nctsn.org/products/trauma-focused-interventions-youth-juvenile-justice-system-2004>. Accessed September 24, 2013.
98. Bloom SL. Sanctuary model. In: Ford JD, Courtois CA, editors. *Treating complex traumatic stress disorders in child and adolescents: scientific foundations and therapeutic models*. New York: The Guilford Press; 2013. p. 277-94.
99. National Juvenile Justice Trainers Association Honors NYS Office of Children and Family Services. New York State Office for Children and Family Services web site. Available at: http://ocfs.ny.gov/main/news/2008/2008_10_07_jjtAward.asp. Accessed September 24, 2013.
100. Courtois CA. Complex trauma, complex reactions: assessment and treatment. *Psychother Theor Res Pract Train* 2004;41(4):412-25.
101. Ippen CG, Ford J, Racusin R, et al. Traumatic events screening inventory - parent report revised. 2002. Available at: <http://www.ptsd.va.gov/professional/pages/assessments/assessment-pdf/TESE-C.pdf>. Accessed September 18, 2013.
102. Steinberg AM, Brymer MJ, Decker KB, et al. The University of California at Los Angeles post-traumatic stress disorder reaction index. *Curr Psychiatry Rep* 2004;6(2):96-100.
103. Kliethermes M, Wamser R. Adolescents with complex trauma. In: Cohen JA, Mannarino AP, Deblinger E, editors. *Trauma-focused CBT for children and adolescents: treatment applications*. New York: The Guilford Press; 2012. p. 175-96.
104. Kaufman J, Birmaher B, Brent D, et al. Schedule for affective disorders and schizophrenia for school-age children-present and lifetime version (K-SADS-PL): initial reliability and validity data. *J Am Acad Child Adolesc Psychiatry* 1997;36(7):980-8.
105. Achenbach TM, Rescorla LA. *Manual for the ASEBA school-age forms and profiles*. Burlington (VT): University of Vermont, Research Center for Children, Youth, & Families; 2001.

106. Butcher JN, Williams CL, Graham JR, et al. Minnesota Multiphasic Personality Inventory-Adolescent Version (MMPI-A): manual for administration, scoring and interpretation. Minneapolis (MN): University of Minnesota Press; 1992.
107. Reynolds CR, Kamphaus RW. Behavior assessment scale for children manual. 2nd edition. New York: Pearson; 2006.
108. Briere J. Trauma symptom checklist for children (TSCC) professional manual. Odessa (FL): Psychological Assessment Resources; 1996.
109. Briere J. Trauma symptom checklist for young children (TSCYC). Odessa (FL): Psychological Assessment Resources; 2005.
110. Friedrich WN. The child sexual behavior inventory professional manual. Odessa (FL): Psychological Assessment Resources; 1998.
111. Copeland WE, Keeler G, Angold A, et al. Traumatic events and posttraumatic stress in childhood. *Arch Gen Psychiatry* 2007;64(5):577–84.
112. American Psychiatric Association, DSM-5 Task Force. Diagnostic and statistical manual of mental disorders: DSM-5. 5th edition. Arlington (VA): American Psychiatric Publishing; 2013.
113. Ford JD. Hijacked by your brain: how to free yourself when stress takes over. Psychology Today Web site. Available at: <http://www.psychologytoday.com/blog/hijacked-your-brain/201306/ptsd-becomes-more-complex-in-the-dsm-5-part-1>. Published June 11, 2013. Accessed November 25, 2013.
114. Schmid M, Petermann F, Fegert JM. Developmental trauma disorder: pros and cons of including formal criteria in the psychiatric diagnostic systems. *BMC Psychiatry* 2013;13:3.
115. Ford JD, Courtois CA, Steele K, et al. Treatment of complex posttraumatic self-dysregulation. *J Trauma Stress* 2005;18(5):437–47.
116. Herman JL. Complex PTSD: a syndrome in survivors of prolonged and repeated trauma. *J Trauma Stress* 1992;5:377–91.
117. Courtois CA. Recollections of sexual abuse: treatment principles and guidelines. New York: Norton; 1999.
118. Ford JD, Cloitre M. Best practices in psychotherapy for children and adolescents. In: Courtois CA, Ford JD, editors. *Treating complex traumatic stress disorders: an evidence-based guide*. New York: The Guilford Press; 2009. p. 59–81.
119. Kinniburgh KJ, Blaustein M, Spinazzola J, et al. Attachment, self-regulation, and competency. *Psychiatr Ann* 2005;35(5):424–30.
120. Blaustein M, Kinniburgh K. *Treating traumatic stress in children and adolescents: how to foster resilience through attachment, self-regulation, and competency*. New York: The Guilford Press; 2010.
121. Klatzkin A, Lieberman AF, Van Horn P. Child-parent psychotherapy and historical trauma. In: Ford JD, Courtois CA, editors. *Treating complex traumatic stress disorders in child and adolescents: scientific foundations and therapeutic models*. New York: The Guilford Press; 2013. p. 295–314.
122. Linehan MM. *Cognitive-behavioral treatment of borderline personality disorder*. New York: The Guilford Press; 1993.
123. DeRosa RR, Rathus JH. Dialectical behavior therapy with adolescents. In: Ford JD, Courtois CA, editors. *Treating complex traumatic stress disorders in child and adolescents: scientific foundations and therapeutic models*. New York: The Guilford Press; 2013. p. 225–45.
124. Shapiro F. *Eye movement desensitization and reprocessing: basic principles, protocols and procedures*. 2nd edition. New York: The Guilford Press; 2001.

125. Wesselmann D, Shapiro F. Eye movement desensitization and reprocessing. In: Ford JD, Courtois CA, editors. *Treating complex traumatic stress disorders in child and adolescents: scientific foundations and therapeutic models*. New York: The Guilford Press; 2013. p. 203–24.
126. Briere J, Lanktree CB. *Treating complex trauma in adolescents and young adults*. Los Angeles (CA): Sage; 2011.
127. Urquiza AJ, Timmer S. Parent-child interaction therapy. In: Ford JD, Courtois CA, editors. *Treating complex traumatic stress disorders in child and adolescents: scientific foundations and therapeutic models*. New York: The Guilford Press; 2013. p. 315–28.
128. Kagan R. *Rebuilding attachments with traumatized children: healing from losses, violence, abuse, and neglect*. Binghamton (NY): Haworth Press; 2004.
129. Najavits LM, Gallop RJ, Weiss RD. Seeking safety therapy for adolescent girls with PTSD and substance use disorder: a randomized controlled trial. *J Behav Health Serv Res* 2006;33(4):453–63.
130. DeRosa R, Pelcovitz D. Group treatment for chronically traumatized adolescents: igniting SPARCS of change. In: Brom D, Pat-Horenczyk R, Ford JD, editors. *Treating traumatized children: risk, resilience, and recovery*. London: Routledge; 2008. p. 225–39.
131. Ford JD, Russo E. Trauma-focused, present-centered, emotional self-regulation approach to integrated treatment for posttraumatic stress and addiction: trauma adaptive recovery group education and therapy (TARGET). *Am J Psychother* 2006;60(4):335–55.
132. Cohen JA, Mannarino AP, Deblinger E. *Treating trauma and traumatic grief in children and adolescents*. New York: The Guilford Press; 2006.
133. Saxe GN, Ellis BH, Kaplow JB. *Collaborative treatment of traumatized children and teens: the trauma systems therapy approach*. New York: The Guildford Press; 2007.

Complex Trauma. Working with the "difficult" young person on remand. Young People on Remand Units; The initial traumatic experiences and the resulting emotional dysregulation and the inability to detect or respond to danger cues, often lead to subsequent trauma exposure. emotional abuse. physical abuse. sexual abuse. What are we talking about? Complex Trauma in adolescence. Outcomes of Complex Trauma include a range of enduring clinical symptomatology spanning multiple domains The Complexity of Racial Trauma: Important New Website Section. Read More. New Psychotherapy Book Provides Practical Blueprint for How the Body Changes the Score with Children and Youth Impacted by Complex Trauma. Read More. Complex Trauma-Informed Residential Services for Children, Youth, and Young Adults. Read More. Coping Strategies for Complex Trauma Survivors Contending with the COVID-19 Pandemic (in English, Spanish, French, & Portuguese). Read More. A Complex-Trauma and a Complex-PTSD is not the same. Lots of people suffer a Complex Trauma (traumatic experiences), but not all of them meet also the criteria (symptoms) of a Complex PTSD (clinical diagnose). * * * Psych-traumatology handles three terms to define and indicate a Psychologically-trauma. PTSD, Post-traumatic stress syndrome. Complex Trauma (multiple and divers traumatic experiences). Complex PTSD may be diagnosed in people who have repeatedly experienced traumatic events, either as a child or an adult.Â Complex PTSD - Post-traumatic stress disorder (PTSD). Contents. Overview. Symptoms. Causes. Treatment. Complex PTSD. Complex PTSD may be diagnosed in adults or children who have repeatedly experienced traumatic events, such as violence, neglect or abuse. Complex post-traumatic stress disorder (C-PTSD; also known as complex trauma disorder)[1] is a psychological disorder that can develop in response to prolonged, repeated experience of interpersonal trauma in a context in which the individual has little or no chance of escape.Â Children and adolescents. The diagnosis of PTSD was originally developed for adults who had suffered from a single event trauma, such as rape, or a traumatic