CME

Complex Trauma in Children and Adolescents

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The immediate and long-term consequences of children's exposure to maltreatment and other traumatic experiences are multifaceted. Emotional abuse and neglect, sexual abuse, and physical abuse, as well as witnessing domestic violence, ethnic cleansing, or war, can interfere with the development of a secure attachment within the caregiving system.

Complex trauma exposure results in a loss of core capacities for self-regulation and interpersonal relatedness. Children exposed to complex trauma often experience lifelong problems that place them at risk for additional trauma exposure and cumulative impairment (eg, psychiatric and addictive disorders; chronic medical illness; legal, vocational, and family problems). These problems may extend from childhood through adolescence and into adulthood (van der Kolk, see page 401).

EDUCATIONAL OBJECTIVES

1. Describe a new theoretical framework for understanding complex trauma in children.
2. Explain how to apply new framework to assessment of traumatized children and families.
3. Discuss intervention models designed specifically for traumatized children and their families.

DIAGNOSTIC ISSUES

The diagnosis of posttraumatic stress disorder (PTSD) does not capture the developmental effects of complex trauma exposure. Children exposed to maltreatment, family violence, or loss of their caregivers often meet diagnostic criteria from the *Diagnostic and Statistical Manual for Mental Disorders*, fourth edition (*DSM-IV*),[1]

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SIDEBAR 1.

Domains of Impairment in Children Exposed to Complex Trauma

I. Attachment

- Problems with boundaries
- Distrust and suspiciousness
- Social isolation
- Interpersonal difficulties
- Difficulty attuning to other people's emotional states
- Difficulty with perspective taking

II. Biology

- Sensorimotor developmental problems
- Analgesia
- Problems with coordination, balance, body tone
- Somatization
- Increased medical problems across a wide span (eg, pelvic pain, asthma, skin problems, autoimmune disorders, pseudoseizures)

III. Affect regulation

- Difficulty with emotional self-regulation
- Difficulty labeling and expressing feelings
- Problems knowing and describing internal states
- Difficulty communicating wishes and needs

IV. Dissociation

- Distinct alterations in states of consciousness
- Amnesia
- Depersonalization and derealization
- Two or more distinct states of consciousness
- Impaired memory for state-based events

V. Behavioral control

- Poor modulation of impulses
- Self-destructive behavior
- Aggression toward others
- Pathological self-soothing behaviors
- Sleep disturbances
- Eating disorders
- Substance abuse
- Excessive compliance
- Oppositional behavior
- Difficulty understanding and complying with rules
- Reenactment of trauma in behavior or play (eg, sexual, aggressive)

VI. Cognition

- Difficulties in attention regulation and executive functioning
- Lack of sustained curiosity
- Problems with processing novel information
- Problems focusing on and completing tasks
- Problems with object constancy
- Difficulty planning and anticipating
- Problems understanding responsibility
- Learning difficulties
- Problems with language development
- Problems with orientation in time and space

VII. Self-concept

- Lack of a continuous, predictable sense of self
- Poor sense of separateness
- Disturbances of body image
- Low self-esteem
- Shame and guilt

for depression, attention-deficit/hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), conduct disorder, anxiety disorders, eating disorders, sleep disorders, communication disorders, separation anxiety disorder, and reactive attachment disorder. Each of these diagnoses captures a limited aspect of the traumatized child's complex self-regulatory and relational impairments.

A comprehensive review of the literature on complex trauma suggests seven primary domains of impairment observed in exposed children: attachment, biology, affect regulation, dissociation (ie, alterations in consciousness), behavioral regulation, cognition, and self-concept.[2] Sidebar 1 provides a list of each domain, along with examples of associated symptoms.

DOMAINS OF COMPLEX TRAUMA

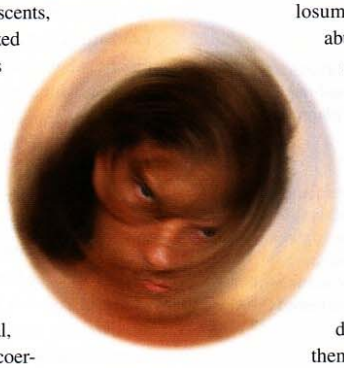
Attachment

Early caregiving relationships provide the relational context in which children develop the earliest psychological representations of self, other, and self in relation to others. These working models form the foundation of a child's developmental competencies, including distress tolerance, curiosity, sense of agency, and communication.

When the child-caregiver relationship is the source of trauma, the attachment relationship is severely compromised; 80% of maltreated children develop insecure attachment patterns.[3] When the primary caregiver is too preoccupied, distant, unpredictable, punitive, or distressed to be reliably responsive, children become distressed easily and do not learn to collaborate with others when their own internal resources are inadequate. This sets the stage for many of

the problems outlined in this article and others in this issue.

Of the primary insecure patterns, the most problematic for children's adaptation is the disorganized attachment. In younger children, the disorganized attachment patterns consist of erratic behavior in relation to caregivers (ie, alternately clingy, dismissive, and aggressive). In older children, adolescents, and adults, disorganized attachment manifests itself in survival-based behaviors that are rigid, extreme, and dissociative.[4] Disorganized attachment behaviors revolve either on themes of helplessness (eg, abandonment, betrayal, failure, dejection) or coercive control (eg, blame, rejection, intrusiveness, hostility).



When attachment is severely disrupted (in humans and animals), this often engenders lifelong risk of physical disease and psychosocial dysfunction. This risk occurs along three pathways that reflect impairments in core biopsychosocial competencies: increased susceptibility to stress (eg, difficulty focusing attention and modulating arousal); inability to regulate emotions without external assistance (eg, feeling and acting overwhelmed by intense or numbed emotions); and altered help-seeking (eg, excessive help-seeking and dependency or social isolation and disengagement).

Biology

Toddlers or preschool-aged children with complex trauma histories are at risk for failing to develop brain capacities necessary for modulating emotions in response to stress. Nontraumatized young children gradually learn to orient to both the external and internal environment, rather than responding reflexively to whatever stimulus presents itself, through a gradual shift from right hemisphere dominance (feeling and sensing) to primary reliance on the left hemisphere (language, abstract reasoning, and long-range planning) and to an integration of neural communication across the two brain hemispheres (corpus callosum).[5,6] Under stress, abused and neglected children's analytical capacities tend to disintegrate, leaving them disorganized cognitively, emotionally, and behaviorally and prone to react with extreme helplessness, confusion, withdrawal, or rage.[7]

In middle childhood and adolescence, the most rapidly developing brain areas are those responsible for three core features of "executive functioning" necessary for autonomous functioning and engagement in relationships. These features, involving primarily the prefrontal cortex, are conscious self-awareness and genuine involvement with other people, ability to assess the valence and meaning of complex emotional experiences, and ability to determine a course of action based on learning from past experiences and an inner frame of reference informed by understanding others' perspectives. Traumatic stressors or prior deficits in self-regulatory abilities that manifest during adolescence, in the absence of sustaining relationships, may lead to disruptions in regulation of affect, behavior, consciousness, cognition, and self-concept integration.

It is important to note that stressors early or later in life that are predictable, escapable, or controllable, or in which responsive caregiver contact is available and safe opportunities for exploration are reinstated, tend to enhance biological integrity.

Affect Regulation

Posttraumatic impairment of attachment and neurobiological integrity can lead to severe problems with affect regulation. Affect regulation begins with the accurate identification of internal emotional experiences, which requires the ability to differentiate among states of arousal, interpret these states, and apply appropriate labels (eg, "happy," "frightened"). Deficits in the ability of maltreated children to discriminate among and label affective states in both self and others have been demonstrated as early as age 30 months.[8]

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Following the identification of an emotional state, a child must be able to express emotions safely and to modulate or regulate internal experience. Complexly traumatized children show impairment in both of these skills. Children with complex trauma histories evidence both behavioral and emotional expressions of pathology due to impaired capacity to self-regulate and self-soothe. These expressions may include dissociation, chronic numbing of emotional experience, dysphoria and avoidance of affectively laden situations (including positive experiences), and maladaptive coping strategies (eg, substance use). These children therefore often present as emotionally labile, with extreme rapidly escalating responses to minor stressors.

SIDEBAR 2.

Six Core Components of Complex Trauma Intervention

1. **Safety:**
   The installation and enhancement of internal and environmental safety.
2. **Self-regulation:**
   Enhancement of the capacity to modulate arousal and restore equilibrium following dysregulation across domains of affect, behavior, physiology, cognition (including redirection of dissociative states of consciousness), interpersonal relatedness and self-attribution.
3. **Self-reflective information processing:**
   Development of the ability to effectively engage attentional processes and executive functioning in the service of construction of self-narratives, reflection on past and present experience, anticipation and planning, and decision making.
4. **Traumatic experiences integration:**
   The transformation, incorporation, or resolution of traumatic memories, reminders and associated psychiatric sequelae into a nondebilitating, productive, and fulfilling existence through such therapeutic strategies as meaning-making, traumatic memory containment or processing, remembrance and mourning of the traumatic loss, symptom management and development of coping skills, and cultivation of present-oriented thinking and behavior.
5. **Relational engagement:**
   The repair, restoration or creation of effective working models of attachment, and the application of these models to current interpersonal relationships, including the therapeutic alliance, with emphasis on development of such critical interpersonal skills as assertiveness, cooperation, perspective-taking, boundaries and limit-setting, reciprocity, social empathy, and the capacity for physical and emotional intimacy.
6. **Positive affect enhancement:**
   The enhancement of self-worth, esteem and positive self-appraisal through the cultivation of personal creativity, imagination, future orientation, achievement, competence, mastery-seeking, community-building and the capacity to experience pleasure.

The long-term effect of complex trauma on affect regulation is illustrated by the findings of twin studies, where genetic and family factors were controlled.[9] Children who experienced sexual abuse involving penetration had adjusted odds ratios for depression and suicide attempts that were 8 and 12 times higher, respectively, than those not reporting sexual abuse.[10] Childhood trauma appears not only to increase risk for major depression but also to predispose toward earlier onset,[11] longer duration, and poorer response to standard treatments.[12]

Dissociation: Alterations in Consciousness

Maltreated children make three fundamental dissociative adaptations in their awareness of self and experience:[13] automatization of behavior (ie, deficits in judgment, planning, and organized goal-directed behavior), compartmentalization of painful memories and feelings, and detachment from awareness of emotions and self. These alterations in consciousness reflect a "failure to integrate or associate information and experience in a normally expectable fashion."[13] Thus, thoughts and emotions are disconnected, somatic sensations are outside conscious awareness, and behavioral repetitions take place without conscious choice, planning, or self-awareness. Dissociation thus places a child at risk for further victimization, other forms of trauma (eg, accident-proneness), and learning difficulties. It also compounds the problems associated with dysregulated affect and attachment (eg, reducing emotional awareness and compromising bonding with adults or peers).

Dissociation is associated with biological alterations in the brain (eg, decreased left hippocampal volume in women)[14] and in cerebrospinal fluid levels of neurotransmitters and their metabolites[15] that are consistent with the biological mechanisms described above as likely substrates of complex trauma. Chronic trauma exposure may lead to an increasing overreliance on dissociation as a coping mechanism that, in turn, can exacerbate difficulties with behavioral management, affect regulation, and self-concept.

Behavioral Regulation

Complex childhood trauma is associated with both undercontrolled and overcontrolled behavior patterns. Abused children may demonstrate rigidly controlled behavior patterns as early as the second year of life, including as compulsive compliance with adult requests, resistance to changes in routine, inflexible bathroom rituals, and rigid control of food intake.[16] Childhood victimization also has been shown to be associated with the development of aggressive behavior and oppositional defiant disorder.

Overcontrolled or undercontrolled behavior may be due to the re-enactment of specific aspects of traumatic experiences (eg, aggression, self-injurious behaviors, sexualized behaviors, controlling relationship dynamics). Such behaviors serve a number of functions for the traumatized child, including au-

tomatic behavioral reactions to reminders (eg, compulsive avoidance behaviors), attempts to gain a sense of mastery or control, avoidance of intolerable levels of emotional arousal, or attempts to achieve acceptance and intimacy.

Cognition

Prospective studies have shown that children of abusive and neglectful parents demonstrate impaired cognitive functioning by late infancy when compared with nonabused children.[17] The sensory and emotional deprivation associated with neglect appears to be particularly detrimental to cognitive development, with neglected infants and toddlers demonstrating delays in expressive and receptive language development, as well as deficits in overall IQ.[18] By early childhood, maltreated children demonstrate less flexibility and creativity in problem-solving tasks than same-age peers. Children and adolescents with a diagnosis of PTSD secondary to abuse or witnessing violence demonstrate deficits in attention, abstract reasoning, and executive function skills.[19]

By early elementary school, maltreated children are more frequently referred for special education services. A history of maltreatment is associated with lower grades and poorer scores on standardized tests and other indices of academic achievement. Maltreated children have three times the dropout rate of the general population. These findings have been demonstrated across a variety of trauma exposures (eg, physical abuse, sexual abuse, neglect, exposure to domestic violence) and cannot be accounted for by the effects of other psychosocial stressors such as poverty.[20,21]

Self-Concept

By age 18 months, maltreated toddlers already are more likely to respond to self-recognition with neutral or negative affect than nontraumatized children.[22] Over time, children normally consolidate a stable and integrated sense of identity.[23] Responsive, sensitive caretaking and positive early life experiences allow children to develop a model of self as generally worthy and competent.

In contrast, repetitive experiences of harm, rejection, or both by significant others, and the associated failure to develop age-appropriate competencies, are likely to lead to a sense of self as defective, helpless, deficient, and unlovable. Children who perceive themselves as powerless or incompetent and who expect others to reject and despise them are more likely to blame themselves for negative experiences and have problems eliciting and responding to social support.

ADAPTATION TO COMPLEX TRAUMA IN THE FAMILIAL CONTEXT

The response of the child's social support system, and particularly the child's mother, is perhaps the most important factor in determining the child outcomes and is more important than objective elements of the victimization itself.[24] Caregiver support is a critical mediating factor in determining how children adapt to victimization. Familial support and parental emotional functioning strongly mitigate the development of PTSD symptoms and enhance a child's capacity to resolve the symptoms.[25]

There are three main elements in caregivers' responses to their children's trauma: believing and validating their child's experience, tolerating the child's affect, and managing the caregivers' own emotional response. When a caregiver denies the child's experiences, the child is forced to act as if the trauma did not occur. The child also learns he or she cannot trust the primary caregiver and does not learn to use language to deal with adversity.

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Also, it is not caregiver distress per se that is necessarily detrimental to the child. Instead, when the caregiver's distress overrides or diverts attention away from the needs of the child, the child is adversely affected. Children may respond to their caregiver's distress by avoiding or suppressing their own feelings or behaviors, by avoiding the caregiver altogether, or by becoming "parentified" and attempting to reduce the distress of the parent.[26]

In addition, victimized children often rekindle painful feelings in caretaking adults. Caregivers who have had impaired relationships with attachment figures in their own lives are especially vulnerable to problems in raising their own children. Caregivers' ability to access information about their own childhood and to tell their own story coherently may be the strongest indicators of parental capacity and effective parenting.[27]

Caregivers with histories of childhood complex trauma may avoid experiencing their own emotions, which may make it difficult for them to respond appropriately to their child's emotional state. Parents and guardians may see a

child's behavioral responses to trauma as a personal threat or provocation, rather than as a reenactment of what happened to the child or a behavioral representation of what the child cannot express verbally. The victimized child's simultaneous need for and fear of closeness (ie, disorganized attachment) also can trigger a caregiver's own memories of loss, rejection, or abuse, and diminish parenting abilities.

ETHNOCULTURAL ISSUES

Children's risk of exposure to complex trauma also can be affected by where they live and by their ethnocultural heritage and traditions (eg, war/genocide are prevalent in some parts of the world; inner cities are frequently plagued with high racial tension).[28] Children, parents, teachers, religious leaders, and the media from different cultural, national, linguistic, spiritual, and ethnic backgrounds define key trauma-related constructs in many different ways and with different expressions (eg, flashbacks may be "visions," hyperarousal may be "attacque de nervios," dissociation may be spirit possession).[29] The threshold for defining a complex trauma reaction as a problem warranting intervention differs not only across national and cultural groups, but also within sub-groups (eg, geographic regions of a country with different subcultures; different religious communities within the same geographic area).

RESILIENCE FACTORS

A victimized child may function well in certain domains (eg, academic) while exhibiting distress in others.[30] Areas of competence also can shift as children are faced with new stressors and developmental challenges. The factors that have been shown to be linked to children's resilience in the face of stress mirror the seven domains affected by complex trauma:[30]

- Positive attachment and connections to emotionally supportive and competent adults within a child's family or community (attachment).
- Development of cognitive and self-regulation abilities (affect regulation, cognition, altered consciousness, biology).
- Positive beliefs about oneself (self-concept).
- Motivation to act effectively in one's environment (behavioral control).

Additional individual factors associated with resilience include an easygoing disposition, positive temperament, and sociable demeanor; internal locus of control and external attributions for blame; effective coping strategies; degree of mastery and autonomy; special talents; and creativity and spirituality.[31]

Children's risk of exposure to complex trauma can be affected by where they live and by their ethno-cultural heritage and traditions.

COMPREHENSIVE ASSESSMENT OF COMPLEX TRAUMA IN CHILDREN

Thorough and ongoing assessment is essential for case conceptualization and determination of treatment goals. Before the clinician can implement appropriate interventions, the child needs to be evaluated in the seven relevant domains discussed earlier in this article.

A comprehensive assessment of complex trauma includes information from a number of sources, including the child's or adolescent's own disclosures, collateral reports from caregivers and other providers, the therapist's observations, and standardized assessment measures. Standardized assessment measures that are culturally sensitive and language-appropriate are completed by the patient, the caregiver, and, if possible, by the child's teacher.[32]

Because many traumatized children have potential court involvement, the evaluation needs to be conducted in a forensically sound and clinically rigorous manner. Assessment should address both complex trauma exposures and complex posttraumatic outcomes. These should be investigated in addition to developmental history, family history, trauma history for child and family, primary attachment relationships, child protective services involvement and placement history, parental/family mental illness, substance abuse, legal history, coping skills, strengths of child/adolescent and family, and environmental stressors (eg, community violence, racial discrimination).

TREATMENT OF CHILDREN WITH COMPLEX TRAUMA IMPAIRMENT

Employing an expert consensus model, the Complex Trauma Workgroup (CTWG) of the National Child Traumatic Stress Network has identified six core components of complex trauma intervention (Sidebar 2, see page 394). While often implemented concurrently in practice, these components build on each other in a sequential, phase-oriented manner. In light of the many individual and contextual differences in the lives of children and adolescents affect-

ed by complex trauma, implementation of these core intervention components rarely can be conducted successfully based on rigid adherence to a specific manualized protocol. Instead, good treatment requires the flexible adaptation of treatment strategies in response to such factors as patient age and developmental stage, gender, culture and ethnicity, socioeconomic status, and religious or community affiliation.

Further, best practice with this population typically involves adoption of a systems approach to intervention and use of multiple intervention modalities. This may include individual, family and group psychotherapy, parent training, and milieu-based intervention. Often, this means working with child protective services, the court system, the schools, and social service agencies.

Complex Trauma Treatment Models

A number of trauma-specific treatment programs are being developed for children and adolescents.[33-39] One particularly important framework for systemic, milieu-based intervention with complex trauma in children and adolescents, Attachment, Self-Regulation, and Competence (ARC), is described elsewhere in this issue (Kinniburgh et al., see page 424) .

A number of treatments have been developed to target complex trauma exposure and sequelae during specific phases of child development. Several treatments specifically address the effects of complex trauma on youth and their caregiving systems. These vary in method (ie, group versus individual), point of intervention (ie, child, caregiver, dyad), and length, but all address to varying extents some or all of the six primary domains discussed above.

For young children, expert consensus highlights the importance of the attachment system to overall healthy development, and treatment protocols designed for infants, toddlers, and young elementary-school aged children specifically target the caregiver-child dyad.[38] Several treatment protocols for complex trauma, particularly those for use with adolescents, use a group therapy format to address skills development, affect regulation, interpersonal connection, and competence and resiliency-building. These include Skills Training in Affect and Interpersonal Regulation (STAIR),[33] Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS),[34] and Trauma Adaptive Recovery Group Education and Training (TARGET).[39] Common across these intervention protocols is an emphasis on contextualization of symptoms through a trauma lens, development of concrete skills, and use of group process to decrease stigmatization and increase normalization and social support.

Psychopharmacologic interventions for victimized children and adolescents primarily are adjunctive to psychosocial treatment modalities, aiding in the management of symptoms that might interfere with the attention and learning demands of psychosocial treatments, or that can threaten to disrupt a placement.

SUMMARY

Preliminary data from some of the various treatment approaches outlined above suggest that they provide symptom relief as well as improvement in social competence and emotion management, and that they are consistently superior to nonspecific supportive therapies. These programs, however, are in an early phase of development and require refinement and adaptation for culturally and geographically diverse populations. Finally, there is consensus that interventions should build strengths as well as reduce symptoms. In this way, treatment for children and adolescents also serves as a prevention program against poor outcomes in adulthood.

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