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Understanding complex post traumatic stress disorders in adolescents: A literature review

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UNDERSTANDING COMPLEX POST TRAUMATIC STRESS DISORDERS IN ADOLESCENTS: A LITERATURE REVIEW

By

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Introduction

Child abuse is becoming known as "America's Silent Epidemic". The Administration for Children and Families reports that nearly 700,000 children were found to have experienced child maltreatment in 2016. In total, 74.9% of these children experienced neglect, 18.3% experienced physical violence, and 8.6% experienced sexual abuse. Between 2013 and 2017, referrals to Child Protective Services increased by 15% (Administration for Children and Families, 2019).

Chronic child abuse, which is often coupled with failures in attachment, often has a profound affect on the cognitive, affective, and psychological development of a child. Over the past few decades, it has become evident to researchers that a diagnosis of Posttraumatic Stress Disorder does not begin to describe the complex symptology that often follows chronic interpersonal trauma. As a survivor of child abuse reaches adolescence, it is common for them to develop dysregulations in emotional regulation, interpersonal relationships, self-perception, and somatization. Complex trauma can be described as an exposure to multiple, often prolonged or extended traumas overtime, potentially including events such as rape, physical assault, sex trafficking, and are often the result of child abuse and neglect (Briere & Scott, 2015). The diagnosis of Complex PTSD was suggested by Dr.Judith Herman of Harvard University to describe the effects of long term trauma (Briere & Lanktree, 2013). This literature review will examine the history of complex PTSD, its effects on adolescents, and current treatment recommendations.

Historical Context

History of Trauma

Studies of trauma date back to ancient Greece. Herodotus provided the earliest example of a written narrative caused by chronic symptoms prompted by sudden fright on the battlefield. According to Abdul-Hamid & Hughes (2014), Herodotus' accounts are usually cited as the first documented accounts of post-traumatic stress disorders in historical literature. His accounts of post combat disorders included symptoms of low mood, flashbacks, and sleep disturbance, symptoms experienced by many trauma survivors to this day. The Mesopotamians believed these symptoms were experienced due to spirit affliction- that is, the spirit of those enemies whom the patient had killed during battle were causing the symptoms.

Herman (2015) notes three modern eras that were important to the development of the current understanding of trauma. In the 19th century, studies focused on hysteria, believed to be a disorder causing incoherent and incomprehensive symptoms experienced by women. "Hysteria" meant literally, "wandering uterus," and physicians believed it was a disease occurring in women that originated in the uterus. The patriarch of the study of hysteria was French neurologist Jean-Martin Charcot, who illustrated his findings of hysteria through theatrical events entitled the "Tuesday Night Lectures," putting young women hospitalized for hysteria on display. Charcot also approached hysteria in a way he called "the great Neurosis," emphasizing careful observation, description, classification, and description of symptoms with use of drawings and photographs. He focused on symptoms that resembled neurological damage including sensory losses and amnesia, demonstrating they could be psychological. Charcot has

been credited for great courage in venturing to study hysteria and giving credibility to a field that had previously been considered beyond the scope of scientific investigation.

During the first and second World War, psychiatrists noticed that many soldiers who had witnessed the atrocities of battle, had reactions such as hopelessness, hyperarousal, and somatic complaints, termed shell shock, after the concussive effects of exploding shells. When the existence of combat neurosis could no longer be denied, controversy centered upon the character of the soldier. Soldiers were described as being either “moral invalids' ' (often court-martialed or dishonorably discharged), or, on the contrary, as being of high moral character. One of the well-known psychiatrists of this time, Abram Kardiner, saw numerous Veterans with combat neurosis in New York and went on to develop the clinical outlines of the traumatic syndrome as it is known today. As the Second World War came around, so did a medical interest in combat neurosis, as psychiatrists worked to remove the stigma surrounding trauma and combat (Herman, 2015.)

Later, in the 1970s, the Feminist movement brought women’s trauma to public attention and provided a renewed interest in women’s victimization. The initial method of the movement, “consciousness-raising”, consisted of groups of women sharing their traumas and overcoming barriers of shame and denial. In protected environments, women were believed and empowered by other women. This process lead to increased levels of public awareness, including public speakouts, greater research on sexual assault, and new laws and language surrounding sexual assault. One of the most profound research studies was conducted by sociologist Diana Russell, who surveyed over 900 women and found that one in four women will be the victim of sexual assault and one in three women will be sexually abused in childhood. Ultimately, the feminist

movement of the 1970s offered a new understanding for the impact of sexual violence and redefined sexual assault as a crime rather than a sexual act (Herman, 2015).

History of PTSD

The first edition of the Diagnostic and Statistical Manual (DSM) was published in 1952 and included a category of "gross stress reaction"- a temporary reaction of stress or trauma in otherwise healthy individuals caused by factors in the environment. When the DSM-II came out in 1968, this category was taken out and no mention of stress or traumatic stress was made (Friedman, n.d.)

Efforts to add PTSD to the DSM again did not occur again until after the Vietnam war, when anti-war psychiatrists began noticing trauma patterns emerging in Vietnam veterans. By the mid 1970s, informal"rap groups," consisting of intimate meetings of peers retelling stories and experiences at war began to surface. The purpose of these groups were to give solace to veterans who had experienced trauma and to raise awareness about the controversial war. As multiple rap groups began to form, the Veteran's Administration formed a psychological treatment program called Operation Outreach (Herman, 2015). PTSD was added to the DSM III in 1980, in three forms (acute, delayed, and chronic) under the Anxiety Disorders sections (Friedman, n.d.). In children and adolescents, a diagnosis of PTSD requires the presence of re-experiencing, avoidance, numbing, and arousal symptoms. PTSD in adolescents may begin to closely resemble that of adults. They may begin to engage in traumatic reenactment, in which they incorporate aspects of the trauma into their daily lives. They are also likely to inhibit impulsive or aggressive behaviors (Hamblen & Barnett, 2019).

Definitions of Trauma and Complex Trauma

Childhood Trauma

Understanding the stress response in children requires considering both the severity and consideration of the stressor. While children have stressful experiences, like the first day of school or illness, these stressors can be positive experiences when a nurturing adult helps the child to cope in a healthy way. While all forms of trauma can have effects on mental health, interpersonal trauma may have stronger negative effects.

Interpersonal trauma can be defined as "traumatic events in which an individual is personally assaulted or violated by another human being that is either known or unknown to the trauma survivor" (Lilly & Valdez, 2012.) Examples include abuse and neglect of a physical, emotional, or sexual nature. Many factors may increase the child's vulnerability to interpersonal trauma. The World Health Organization reports that young children (between the ages of 6-12) in the United States are more at risk for physical child abuse, while older children are more at risk for sexual abuse by a caregiver. Females are more at risk for experiencing neglect, sexual abuse, and infanticide, while males are more subjected to physical punishment. Children who have been born prematurely or have a disability also experience higher rates of abuse and neglect.

The World Health Organization defines physical abuse as acts of commission that cause or have the potential to cause physical harm, including hitting, kicking, burning or beating the child. This often results in injuries such as fractures and in severe cases may lead to loss of consciousness, disability, or death. With physical abuse, it is important to keep in mind the family's culture and beliefs about discipline because different cultures hold different beliefs

about acceptable parenting practices. Emotional abuse includes the failure to provide a supportive and nurturing environment for the child, such as threatening, ridiculing, or other forms of non-physical hostile treatment. Sexual abuse is defined as acts where a parent uses the child for sexual gratification, including statutory rape or molestation. Neglect is defined as failing to provide for the development of the child, and often includes deprivation of food, failure to seek healthcare, or abandonment of the child (World Health Organization, 2006)

The question of how to best organize the complexity of childhood trauma has been part of the study of trauma psychology for decades. Since the introduction of Posttraumatic Stress Disorder to the DSM, critics have believed that the usefulness of the diagnostic criteria of PTSD has been limited as it is based on symptoms in adults. Because most symptoms are subjective and require a verbal description, a diagnosis of PTSD in children and adolescents remains difficult. Childhood traumatization and neglect can be much more complex and may include psychosocial risk factors. Therefore, various proposals for diagnostic criteria have been published taking developmental psychology into consideration (Gold, 2017).

Most traumatic experiences that children and adolescents experience happen in their immediate home. Therefore, many neglected, malnourished, or abused children do not fit the strict diagnostic criteria in the adult sense. However, they are experiencing a multitude of psychopathological symptoms that can affect their life and persist into adulthood (Gold, 2017).

Defining Trauma

Since its introduction, professionals have struggled to find a clear definition of trauma and determine what constitutes a traumatic event (TE). In the DSM-III-R, introduced in 1987, it

was concluded that a traumatic event must be non ordinary (outside the range of normal human experience) and a universal human response, meaning it would cause distress in almost everyone. A TE is ambiguous enough to be open to interpretation, however, it must cause significant distress to an individual. Traumatic events can take many forms. Type I traumas consist of single-incident trauma (often unexpected events) such as an accident or natural disaster. Type II traumas refer to interpersonal and repetitive events (Courtois & Ford, 2009).

As attempts to determine the severity of traumatic reactions, the definitions have become more diverse. Today, research has led to a growing consensus that a traumatic event must include exposure to death, severe physical injury, or sexual exploitation. Severity can be determined by a self-report measure, the frequency of exposure, the circumstances of the event, or a combination of these measures (Gregorowski & Seedat, 2013.)

Introduction of Complex Trauma

Complex PTSD was first suggested by Dr. Judith Herman of Harvard University in 1988. It's diagnostic criteria was not added to the DSM IV as it was found that 92% of individuals with Complex PTSD (C-PTSD) also meet the criteria for a PTSD diagnosis. While it was reconsidered to be added to the DSM V, it was again excluded due to a lack of evidence. The 11th edition of the World Health Organization's International Classification of Diseases (ICD-11) included C-PTSD as a sibling condition under "disorders specifically associated with stress". While patients with posttraumatic stress disorder commonly experience a single traumatic event, patients with C-PTSD experience trauma that is sustained, prolonged, and often interpersonal, such as repeated sexual abuse, genocide, or domestic violence. Along with experiencing symptoms from PTSD, survivors of complex trauma experience three additional

clusters related to disturbances in self-organization: affect dysregulation, negative self-concept, and difficulties in interpersonal relationships (Warnser-Nanney, R. & Vandenberg, B.R. 2013.) Herman (2015) also names a few other areas that may be affected, namely consciousness, relationships with the perpetrator, and systems of meaning.

Differences in Symptoms between PTSD and C-PTSD

Herman stated that affect regulation is one of the main things that may be affected by patients with complex posttraumatic stress disorder(2015.) Affect regulation is defined as difficulties in managing or recovering from extreme states of affect. This may include overregulation or under-regulation (Van Dijke, Annemiek, Julliette, & Ford, 2018.) Many survivors of interpersonal trauma have not been taught effective ways of eliciting support, and may resort to maladaptive measures to show their needs. Commonly seen in patients in CPTSD is persistent dysphoria, chronic suicidality, self-injury, compulsive sexuality, or anger. They may resort to lashing out in front of others (Herman, 2015.)

As previously stated, complex trauma includes trauma that is often interpersonal, and with someone the survivor knows personally, such as a family member, or close family friend. Herman states, "...the child faces a formidable developmental task. She must find a way to form primary attachments to caregivers who are either dangerous or, from her basic perspective, negligent. She must find a way to develop a sense of basic trust and safety with caregivers who are untrustworthy and safe. She must develop a sense of self in relation to others who are helpless, uncaring, or cruel" (p. 101.) Children learn their self-worth from the reactions of others, especially caregivers. This had led to alterations in self-perception and difficulties with self-concept being a symptom for individuals with complex trauma. Abuse and neglect can make

a child feel despondent, helpless and worthless. Survivors may have feelings of shame and guilt, feeling alone and believing no one understands, or a sense of stigma (Herman, 2015.)

Van der Kolk (1996) mentions that not only do survivors have to face the suffering that has been inflicted on them, but deep down they are often even more haunted by the shame of what they did or did not do during the traumatic events, and despise themselves for the emotions they felt. In cases of child abuse, it is common for a survivor to suffer from shame about the actions they took to maintain a relationship with their perpetrator, especially if the child depended on the perpetrator. This prolonged and interpersonal trauma often leads to difficulty in relationships with others. Some survivors of trauma may choose to isolate and withdraw, and some survivors, especially if the relationship is of a sexual nature, may struggle with intimacy. Herman (2015) adds, "And ultimately, she must develop a capacity for intimacy out of an environment where all intimate relationships are corrupt, and an identity out an environment which defines her as a whore and a slave" (p. 101.) The survivor wants care and protection, they are looking for a "savior." In their search they may seek out authority figures who offer a caretaking relationship, idealizing them and keeping fears of abandonment at bay.

Individuals with CTSD often deal with alterations in consciousness. Many trauma survivors may dissociate to escape from emotional or physical distress no actual physical escape is possible. However, chronic dissociation can have devastating consequences in all aspects of life. Clinical presentations of dissociation may include vivid flashbacks of the trauma, amnesia, interruptions in awareness, and identity alteration (Lanius, 2015.) Under severe cases of early and prolonged abuse, some children may begin to form separated personality fragments. These

fragments have their own names, psychological functions, and memories (termed *alters*). Through this dissociation becomes a principle of personality organization (Herman, 2015.)

Symptoms of hyperarousal also intensify for individuals with CPTSD. A fear of all traumatized patients is that the trauma will recur, and this fear is realized in survivors of chronic trauma. They may feel anxious, agitated, and hypervigilant. There is no longer a baseline state of calm. Eventually, survivors may experience physical symptoms such as tension headaches or abdominal pain. Studies show that the psychosomatic symptoms were found to be universal with survivors of the Holocaust and concentration camp refugees in Southeast Asia. These somatic symptoms are real and can be debilitating (Herman, 2015.)

Adolescent Development

Neuropsychological Development

Recent advances in brain imaging technologies, including the Functional magnetic resonance imaging (fMRI) and positron emission tomography (PET scans) have allowed for greater research and understanding on the development of the human brain during adolescence. The brain contains both white and gray matter, both of which are essential to development. The white matter serves as the link between various parts of the brain and nervous system and develops from front to back. The gray matter develops from back to front, and is found primarily in the cerebral cortex which performs higher-order functioning tasks. During early adolescence, there is an increase in neural connections (synapses) in the brain's gray matter, therefore the latter parts of this maturation occur during adolescence in the frontal lobes, responsible for reasoning and problem solving. The frontal lobe does not develop until late adolescence, which sheds light on much of the behaviors found in adolescents. Additionally, the process known as

“synaptic pruning” occurs during adolescence. And unused synapses are eliminated to speed up the function of useful connections. During this period the brain loses nearly 10% of unused synapses to allow for more efficient mental processing (Shapiro & Applegate, 2018.)

Additionally, research shows that the cerebellum and amygdala continue to develop late into adolescence. The cerebellum, originally thought to be involved with physical coordination and balance, can also assist with higher-order functioning. The underdevelopment of the cerebellum explains why adolescents may seem uncoordinated and clumsy and can be prone to accidents. The development of the amygdala, in charge of emotional expression, shows that younger adolescents rely primarily on the amygdala to identify emotional expressions, while older adolescents and adults are more likely to use the frontal lobe. This accounts for the impulsivity of adolescents--they rely heavily on emotion (Shapiro & Applegate, 2018.)

Social Development

Social cognition, defined as the way people think about themselves in the context of others, also develops in the adolescent years. Teenagers began to develop perspective, understanding the thoughts and emotions of others. Being able to take the perspective of others is an important aspect of social development, allowing for teenagers to be successful at social interactions. However, another aspect of social cognition is adolescent egocentrism, which is mild in the middle childhood years and reaches a new mature form during the adolescent years. At this stage, adolescents may believe they are especially unique, and arrive at the conclusion that everyone is watching and judging them (an imaginary audience.) This may explain why many adolescents are self-conscious about their appearance and personality. Additionally, adolescent egocentrism produces a belief in a “personal fable,, where the adolescent believes

their life experience is unmatched and extraordinary. This personal uniqueness that adolescents feel can have drastic consequences- adolescents may begin to believe they are invincible and begin taking risks without thought of harm or injury (Gilmore & Meersand, 2015.)

Gilmore and Meersand (2015) add that identity is another difficult and crucial part of the development of the adolescent and can take up to 20 years. The adolescent identity development often begins with momentous entry into middle school and is under continuous construction for years but remains subject to environmental feedback. The father of socioemotional development, Erik Erikson (1980), theorized that individuals progress through eight stages of life, each of which entails a positive and negative outcome. Erikson believed that the fifth stage of socioemotional development, occurring during adolescence, entails a conflict of identity versus role confusion. At the core of the adolescent experience, Erikson theorized, was a search for who they are as they leave childhood behind and gradually enter the confusion of the adult world. Adolescents are often in a state of internal strife, wondering who they are and who they will become in the future. They wonder if they are popular, if they are a good friend, if they find true love, etc. (Milevsky, 2015.)

Adolescent Trauma Development

Literature shows that childhood trauma may disrupt the development of an adolescent. Trauma may influence the development of threat processing and emotion regulation areas of the brain, which contributes to the risk of affective disorders. Childhood trauma is also associated with reduced grey matter in the hippocampus in both adults and children, making the areas smaller. Abnormal hippocampus activity is associated with trauma-related memories, therefore impairments in memory and learning can be detected in survivors of child maltreatment, such as

discriminating between past and present memories. It is believed that abuse has the greatest impact on hippocampal volume prior to age 14 (Shapiro & Applegate, 2018.)

Studies show that in cases of complex trauma, the amygdala, important in evaluating emotional significance of stimuli, may become more highly in tune with potential threats. In these cases, extra norepinephrine is produced in the amygdala and is not well regulated by the prefrontal cortex. The effects of this overproduction include hyperarousal and increased wakefulness, resulting in children and adolescents feeling on edge, having difficulty sleeping, or being easily triggered. Additionally, a reactive amygdala causes traumatized individuals to be impulsive as a result of constantly feeling on alert (Cross, Fani, Powers, & Bradley, 2017.)

Studies have been done on the impact of trauma on the connectivity between the prefrontal cortex (PFC) and the amygdala. The prefrontal cortex, making up over a third of the human cortex and important to governing behavior, has extensive connections allowing it to accentuate or inhibit other areas in the brain. Lesions in the prefrontal cortex shown in patients impair ability to focus attention, and increase irritability and lack of insight. Studies in rodents have shown that sustained stress-exposure induces a loss of dendrites and spines in the prefrontal cortex, resulting in an impaired working memory. The loss of grey matter in the PFC has also been studied in human subjects, showing that the more adverse experiences one has, the smaller the grey matter in the PFC. Chronic stress can also weaken the cortex's functional connectivity, resulting in more persistent changes in the brain circuits (Arnsten, Raskind, Taylor, & Connor, 2015.)

Theoretical Understandings of Complex Trauma

ACES

For social work practitioners interested in the lasting impacts of childhood trauma on the developing brain, the Adverse Childhood Experiences (ACE) studies are particularly important, demonstrating from an epidemiological perspective the connections between specific types of childhood adversity and health outcomes across time (Felitti, et. al., 1998.) Adult subjects are given a 10 item questionnaire which asks them to state whether they had experienced specific adverse experiences as children, such as a parental divorce or neglect. Subjects are in turn given an ACE score, which represents the number of adverse experiences endorsed. Early ACE studies have found that the higher an individual's score, the more likely they are to experience negative health outcomes as adults. Specific associations have been noted between childhood trauma and chronic diseases, depression, alcohol abuse, and cancer (Shapiro & Applegate, 2018.) Further studies have shown that the vulnerability to adverse childhood experiences is higher for children exposed to poverty or family psychopathology (Garrido, Weiler, & Taussig, 2018.) Shapiro states that from a social work perspective, research on adverse childhood experiences "points to the importance of primary prevention and protecting the developing child from exposure to toxic stress" (p. 95.)

Aside from Complex Posttraumatic stress disorder, an estimated 45% of this population is at risk for developing other childhood onset psychiatric disorders. Most notably, depressive disorders, anxiety disorders, substance abuse disorders (SUDs), suicide attempts, psychosis, dysregulation disorders, and later on, personality disorders are comorbid with C-PTSD. Unfortunately, along with these conditions comes a poorer treatment response and many children receive costly and fragmented treatment (van der Kolk, 2019.) The treatment is often complicated by a lack of a proper diagnosis, inability to adhere to a treatment regimen, or lack of

insurance. Many individuals who experience chronic and interpersonal traumas are also exposed to other barriers including lower education, substance abuse, and unemployment, which can also affect their ability to receive adequate treatment. The number and complexity of these symptoms will increase significantly if multiple forms of traumatic victimization have occured (National Child Traumatic Stress Network, 2019.)

Attachment

Attachment and emotion regulation is an important part of childhood development, and early caregiving relationships (i.e. parents) are especially important to provide the relational context for children to develop early representations of themselves and others. It is through relationships with attachment figures that children learn to trust others, regulate emotions, and develop a sense of the world. Secure and healthy relationships between children and caregivers help provide protection from negative effects of trauma. Therefore, when young children and their caregivers are exposed to interpersonal trauma, it has been shown to disrupt or alter the child's attachment bonds (Bowlby, 1998.)

Bowlby (1998) emphasized that trauma is the most destructive factor in an attachment relationship. He mentions that a caregivers' negligent, unpredictable, or unsafe behaviors can minimize the potential of a child with regards to dealing with long-term effects of trauma. The child often lacks a secure base to turn to when under threat and therefore must find other ways to cope. As a consequence, children generally may experience imperfections in terms of developmental domains, such as making and sustaining friends, being distant from caregivers, abusing substances, or lacking certain emotions such as empathy or compassion. The child may

also lose the expectation of being protected by other people, including the trust in social agencies.

The lack of attachment bonds can affect an adolescent's ability to build relationships with others. Attachment is a learned behavior, something humans are learning from infanthood. Survivors of complex trauma typically emerge with gaps in their ability to form attachment bonds. Franco (2018) adds that this does not mean that their desire for attachment or relationship is not any less than their peers. Their feelings of loneliness and unfulfilled desire for connection can be a major contributing factor to the symptoms they experience.

Romantic Relationships

Many begin their first romantic relationships during the adolescent years. For those experiencing complex trauma, however, shame, guilt, and dissociation is commonly experienced which may have an impact on intimate relationships. The difficulty forming attachments, discussed earlier, may also have an impact on forming relationships. The disorder has been described as a relational disorder because of its antecedents in relational trauma and relational disconnectedness (Girme, Overall Simpson, & Fletcher, 2015.)

Feelings of shame can cause an individual to have difficulty relating to others. Dorahy et.al (2017) explains that while guilt is usually associated with actions during or after a traumatic event, shame reflects how the adolescent feels about themselves during or after the event. Shame is usually a noticeable peritraumatic and posttraumatic effect. Shame rather than guilt is a significant risk factor for the onset and maintenance of many mental health conditions (Dyer, et. al. 2017.) Individuals who have been chronically traumatized especially may feel shame not only for what has happened to them but for who they are. Guilt and shame may

coexist or guilt may give way to shame. If repair is not possible, emotional torment, feelings of worthlessness, and isolation may follow. Shame affects a survivor's ability to form relationships by occasionally causing them to withdraw in social situations, or defend against the feeling by attacking thsmelves or others.

Dissociation can also have effects on relational functioning for adolescents with complex PTSD. More recently an understanding between dissociation and emotional relationships has been found. Studies show how disorganized attachments, often associated with neglectful or abusive parents, can lead to dissociation. If the child is not nurtured or attended to, they sever emotional links to their caregiver. This leads to the child dissociating in moments of fear. This escape may provide emotional numbing, depersonalization, and derealization. The child's ability to remain emotionally present is affected and therefore can have considerable consequences on the ability to sustain emotional relationships. (Dorahy, et. al. 2017.)

Academic Achievement

Multiple studies have shown that children and adolescents exposed to chronic childhood trauma are at significant risk of poor academic achievement. This is especially true of those who are also of low-income or of ethic or racial minority groups. It was found that the effects of trauma and community violence were gendered, with females having lower grade-point averages and males having less student-teacher connectedness. Childhood trauma can also make children more likely to drop out of school (Larson, Chapman, Spetz & Brindis, 2017.) Additionally, Slade and Wissow (2007) found that middle and high school students who have experienced chronic child maltreatment had lower grade point averages, lower ratings on performance from teachers, difficulty completing homework, lower scores on standardized testing, lower

attendance rates, and higher rates of suspension and expulsion. Parent-child interactions can have a tremendous influence on a child's emotions and behaviors at school. The heightened sensitivity that children who live in households with frequent interpersonal conflict or maltreatment often develop increased risk for behavioral problems in school such as suspensions and expulsions. Behavioral problems may also result in academic difficulty that reduce the ability to perform well on assignments.

Self Endangerment

Adolescents with complex trauma may engage in risky behaviors that may threaten his or her safety. Commonly seen behaviors include suicidal behavior, nonsuicidal self-injury, involvement in physical altercations, substance abuse, and dysfunctional sexual behavior. The adolescent may seek out ways to externalize distress, and may be further traumatized when others fight back or may become involved in the juvenile justice system (Briere & Lanktree, 2012.) For trauma-impacted adolescents, the highest priorities are often centered around minimizing danger, seeking safety, and to get emotional, physical, and relational needs met. As a result, children adapt to their environments and develop interpersonal patterns that optimize survival (Osofsky & Groves, 2018.) These youth may be diagnosed with externalizing disorders, including conduct disorder.

Substance Use

Exposure to traumatic childhood experiences has also been linked to substance use disorders. Early traumatic experiences in particular may increase the risk for substance use due to attempts to self-medicate or dampen mood symptoms associated with a dysregulated biological stress response. However, on the other hand, early-onset substance use may further

disrupt the biological stress response by increasing plasmic cortisol A study done at Emory University's School of Medicine demonstrates strong associations between Adverse Childhood Experience scores and past and current exposure to substances. Gender differences are also shown in this study. Researchers observed that childhood physical abuse is linked to lifetime heroin use in men and cocaine and marijuana use in women (Khoury, Tang, Bradley, Cubells & Ressler, 2010.)

Substantial research has indicated that child maltreatment is a risk factor for substance use during the adolescent age. In particular, alcohol, tobacco, and marijuana are the most prevalent substances used by teenagers, but those who have experienced trauma may experience with harder substances. The estimates of substance use among youth who have experienced trauma vary depending on how substance use is defined, however studies have consistently reported that youth involved in the child welfare system show higher rates. Yoon, Kobulsky, Yoon & Kim (2017) state that physical abuse during childhood has been reported to be a significant indicator of polysubstance (using more than one substance at a time) and an increase in illicit substance use over time. Sexual abuse is also a strong risk factor, particularly for girls. Emotional abuse is associated with 2.5 times higher odds of initiating alcohol use during early adolescence, as well as higher use of tobacco and illicit drugs. Childhood neglect is associated with regular alcohol use and binge drinking (Yoon, Kobulsky, Yoon, & Kim, 2017.)

Resilience in Adolescents

Although the effects of interpersonal and prolonged trauma can be many, not all will develop symptoms of complex PTSD. The National Child Traumatic Stress Network (2016) defines resilience of the ability of children to recover and show early and effective adaptation

following a trauma. Although much of the research regarding Complex Trauma has been focused on its effects, a growing number of researchers are focusing on factors that promote positive adaptation. Studies suggest that about 10-20% of children who have experienced neglect will show resilience.

Many factors can enhance a child's resilience following traumatic events. These include support from others (family, friends, school, and the community), resources to buffer negative consequences, having high self-esteem, having a place of safety (i.e. school), a sense of meaning, and possessing talents or skills in certain areas. Because children are dependent on others for their safety, their community can play a role in promoting resilience. Having a sense of belonging with other family members or peers can help a child deal with trauma. It is helpful for a child to have other family members share time with them, resolve conflicts, and keep the child safe. In schools, personnel must work to provide a positive social network and a safe place and foster the child's cognitive skills. The greater community can be of help by providing essential services such as childcare, after school programs and recreational activities.

The movement toward resilience is greatly influenced by the nature and quality of social support a survivor has. Studies have shown a significant relationship in social support and resilience functioning. From an ecological perspective, the relations expand to relationships with family, the community, and the child's social and cultural beliefs. A child's ability to be resilient can exist can exist alongside difficulties in interpersonal functioning, so it is important to attend to the nuances of relational ships of the recovery process in order to understand the challenges faced by survivors as they navigate interpersonal relationships.

Treatments of Complex PTSD in Adolescents

Although complex trauma is common, there are few evidence-based treatment options that are developed specifically for multiple traumatized children or adolescents, which is in part due to the challenging nature of the problem. The range of the impacts of chronic childhood trauma often require a multimodal, multicomponent treatment strategy. Treatments are often limited to a single modality (i.e. exposure therapy, cognitive therapy) and are insufficient, especially if they are not adapted to the specific experiences of clients (Briere & Lanktree, 2012.)

Briere & Lanktree (2012) outline the importance of a positive therapeutic relationship when treating multiple abused or traumatized adolescents. In these cases, it may not be sufficient to merely wait for a positive relationship to build on its own, as traumatized youth may experience ambivalence regarding any enduring attachment to an older, more powerful figure such as a therapist or social worker. Others may attach more quickly, with a connection remaining insecure due to early attachment deprivation. It is important for the therapist to show the client they are a safe person, by showing non intrusiveness, visible positive regard, reliability, transparency, and careful attention to countertransference. Psychotherapy is a form of "recovery environment for the client, and is often the only time the client has shared personal details of their traumatic history (Tummala-Narra, et.al. 2012). A central part of healing includes the therapist bearing witness to the trauma story and holding hope for the client. The goal of psychotherapy for adolescents with complex trauma involves all the domains of biosocial functioning. The clinician must focus on all these domains while maintaining an awareness of the child as a whole person- not simply as a collection of emotions, thoughts, and behaviors (Courtois & Ford, 2009).

Evidenced Based Treatments

Trauma Focused CBT

Cognitive behavioral therapy (CBT) is a treatment that seeks to improve mental health by identifying the beliefs, feelings, and behaviors associated with disturbance and revisiting them with a critical analysis. Trauma-focused cognitive behavioral therapy was designed for children in adolescents specially who have experienced trauma and has shown reductions in complex trauma symptoms including mood regulation and interpersonal problems (Cohen, Mannarino, Kliethermes & Murray, 2012.) The treatment has been largely adapted from other cognitive-behavioral interventions, including Eye Movement Desensitization and Reprocessing (EMDR) and cognitive processing therapy (CPT.)

PRACTICE is an acronym typically used to describe the steps of treatment recommended for TF-CBT (Psychoeducation and Parenting, Relaxation, Affective modulation skills, Cognitive coping skills, Trauma narrative, In vivo master of trauma reminders, Conjoined Sessions, and Enhancing future safety) (Cohen, Mannarino & Deblinger, 2012.) This model has been proven effective in many randomized controlled trials (RCTs) for adolescents who have experienced sexual or interpersonal trauma. Once the child starts therapy, they are provided with psychoeducation about the condition and the trauma they have experienced, and the treatment they will receive. Psychoeducation continues throughout the course of treatment. Parents will receive parallel sessions with the therapist to learn intervention skills to use at home. This is important as many parents have not received adequate parenting lessons on addressing behavioral difficulties. Both the guardian and the child will then learn individualized relaxation skills aiming to reverse any physiologic changes resulting from the trauma. Affective modulation

skills will also be taught, often in the form of identifying feelings. The therapist will help the child identify affective difficulties, such as social skills or being overly responsive. Cohen, Mannerino & Deblinger (2012) add that relaxation and affective modulation skills are important to add to the child's "toolkit" to use when stressful situations arise. The therapist will then develop a graduated exposure program, especially if the client has developed avoidance tendencies. For example, if a child experienced multiple traumas in the bathroom the therapist will work with the child to realize that not all bathrooms are dangerous.

Conjoined sessions with the child and the parent are an important part of TF-CBT treatments. Cohen, Mannerino and Deblinger (2012) add that "...children experience added benefits when the parent participates." (p. 161.) During conjoined sessions, the communication will shift from the adolescent talking about the trauma to the therapist to sharing their experiences to their parents, and parents and children will build on their ability to discuss the trauma and feelings resulting from it. Enhancing the safety of the child is also an important part of the treatment part of the treatment. This often comes in the form of crisis intervention or education about healthy sexuality or drug use.

Eye Movement Desensitization and Reprocessing

Studies have shown that Eye Movement Desensitization and Reprocessing can also be effective in reducing symptoms of Complex Trauma. Chen, et. al. (2018) describes EMDR as a structured and integrated psychotherapy that combines several psychotherapeutic techniques. The aim is to information processing of traumatic events with an eight phase program. During EMDR, the client will attend to emotional disturbing material in brief doses while focusing on stimuli (usually therapist directed eye movements) (EMDR institute, n.d.)

The eight phases of EMDR coincide with phase-based treatment. First, an EMDR therapist will prepare the client for treatment by decreasing self-injurious behaviors, suicidality, phobias of attachment, and emotion regulation difficulties. The client must learn coping skills and maintain dual attention on the past and present in order to move forward in EMDR (Korn, 2009). Once the adolescent is stable, they will move on to processing the trauma and reducing trauma related beliefs. The clinician will determine an appropriate "Big T" (a shock trauma) and "little t" (developmental trauma). The patient is instructed to recognize the most salient image associated with the trauma and will be helped to identify negative beliefs associated with it, and positive self-statements to believe instead. Emotions and physical sensations that arise when thinking about the trauma will also be identified. A validity of cognition (VOC) scale may be used to help the client describe how the positive statement feels, on a scale of 1 (completely false) to 7 (completely true). For patients with complex trauma, additional strategies will be used to help with processing especially if dissociation or other defenses are in play. When trauma processing with Complex PTSD patients, the therapist must act as a "psychobiological regulator" and help the client stay within a window of tolerance. They must remain alert to signs of dysregulation, such as hyperarousal or shutting down (Korn, 2009.) The client will then work to change the trauma-related sensory experiences and associations by attending to both the target images and the eye movements.

Phase-Oriented Treatments

In addition, trauma professionals have developed a set of best practice guidelines for the treatment of complex trauma. These treatments universally recommend phase-oriented treatment for complex trauma, in which there are three phases of treatment. Phase one focuses on

establishing safety and developing emotional and behavioral regulation, which are necessary for the next two stages. Courtois & Ford (2009) state, “Helping children enhance their abilities to regulate emotions and impulses may increase the child’s self-control, thereby reducing the risk or severity of the myriad of dilemmas that occur when emotions are dysregulated” (p. 61.)

This phase is targeted at recreating a world for the child that is safe, structured, and predictable. Here, it is important to ensure that the adolescent’s voice is privileged in decision-making regarding to spend sessions, what activities to engage in, and with whom and how to share information. Information about the child is gathered through multiple avenues, including through the child, current caregivers, parents, and teachers. Non-directive play interventions may be used in this phase as a way for the therapist or social worker to attune to the child’s non-verbal communication skills, and the therapist may also provide. psychoeducation to the child and their caregivers regarding the impacts of trauma (Dauber, Lotsos, & Paulido, 2015.) Tummalo-Narro, et.al adds that while a client may not move through the phases in a linear path, an adolescent must have a reasonable degree of safety in order to proceed.

Stage two focuses on supporting the adolescent in affect identification and teaching adaptive coping skills. This phase includes structured interventions that will support children in differentiating between emotional states, developing language to label those states, and developing gradations of emotions. Focus of treatment will then shift to increasing the capacity to modulate their arousal states. Skills often taught include mindfulness, visualization, and other strategies that can decrease affective arousal and promote relaxation.

Additionally during the middle phase, the therapist or social worker will simultaneously work with the caregiver(s), giving guidance as they raise an adolescent who is dealing with

complex trauma. The therapist will aim to help the caregiver(s) read, understand, and respond to the child's unmet attachment needs. Therefore, the middle phase integrates interventions and techniques aimed at helping caregivers interpret behavior, tend to emotional needs and develop responses that are consistent, predictable, and responsible (Blaustein & Kinniburgh, 2018.)

The final stage of treatment focuses on integrated traumatic experiences into the child's "life story", and on creating opportunities for healing relationships and repairing ruptured attachment bonds. Dauber et. al (2018) add that successful trauma processing should include the recognition of how trauma has shaped the adolescent's core belief system and how maladaptive beliefs can be reshaped. A nurturing adult caregiver is also crucial for the success of the adolescent's treatment.

Assessment

The first step of the therapist is to conduct a thorough evaluation, being aware of the many disguises a complex trauma disorder may have. With patients who have experienced chronic and interpersonal trauma, the assessment is not often straightforward, states Herman (2015). The adolescent may present with only physical symptoms, or of symptoms such as insomnia, anxiety, or intractable depression. Explicit questioning is often required to determine whether the adolescent has ever lived in fear of someone's violence.

Often, the adolescent may not have a full recall of the traumatic history, or may only remember bits and pieces, burying painful experiences in the subconscious. More commonly, the patient remembers part of the trauma but does not make the connection between their past experiences and their psychological problems in the present. Some may deny childhood trauma completely. It is stated that if the therapist believes a client is suffering from a trauma disorder,

this information should be shared, as the patient is often relieved to hear of the diagnosis, discovering there is a language for the experiences they have had (Herman, 2015.)

There are few assessment measures that have been rigorously validated to assess children with complex trauma, although a number of measures for adults exist. In addition to questionnaire and structured interview measures for childhood trauma, it may be useful for clinicians to consider the selective use of other psychometric measures to assess dysregulation, resilience, and relationships. Direct observation of the parent-child interaction (if possible) can provide insight on the child's strengths and difficulties related to self-regulation, and self-report questionnaires assessing externalizing, attention difficulties, depression, anxiety, somatization, and withdrawal can also be an important addition. For adolescents, it is also important to also assess for key risks such as self harm, suicidal ideation, and substance abuse (Courtois & Ford, 2009.)

Many clients may be assessed in special populations, including inpatient psychiatric units, day treatment programs, juvenile justice system, or special education programs. In these cases, it is important for assessment measures to be adapted and valid for these children. Courtois and Ford (2009) state that in the Juvenile Justice rehabilitation programs, for example, screening for complex trauma history is standard. Across all age groups, thorough assessment of the family history is essential for the treatment plan and understanding the child's behavioral and emotional difficulties.

Integrative Treatment

Integrative Treatment of Complex Trauma for Adolescents (ITCT-A) is a treatment method adopted by the Miller Children's Abuse and Intervention Center to assist culturally

diverse children, many of whom were experiencing stress from immigration. The treatment model complex trauma reactions and comorbidities and stressors such as socioeconomic status. (Briere & Lanktree, 2013) The ITCT-A is an assessment driven treatment focusing on the client's current safety, trauma history and symptoms to help clinicians develop a specific treatment plan. Treatment is also developed keeping the client's age, gender, socioeconomic status, and culture in mind. Assessments (including interviews and measures) are given every three to four months to re-prioritize the treatment goals.

Treatment in the ITCT-A depends on specific problem areas determined in the assessment. This may include safety, aggression, identity issues, substance use, etc. Components often include psychoeducation, group therapy, distress reduction, or trigger identification. In some situations, psychotherapy may not be enough. There may also be an advocacy and systems intervention component, including dealing with social welfare bureaucracies, school personnel, and the judicial system. ITCT-A treatment providers may provide emergency financial assistance, transportation, food, clothing if resources allow (Briere & Lanktree, 2013.)

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