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The Impact of Childhood Trauma on the Brain & Interventions for the School Counselor

Chelsea Scott
Winona State University, cbambenek11@winona.edu

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Chelsea Scott

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Capstone Project Supervisor: Anquinetta V. Calhoun

Anquinetta V. Calhoun, Ph.D.

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Abstract

Schools are experiencing a rise in aggressive and defiant behaviors amongst students, as well as drop-out rates and absences. Many of these students have adverse childhood experiences, otherwise known as trauma. There is growing concern of how to manage and best support these students in the school environment. This literature review defines childhood trauma, the effects of childhood trauma on brain development, academic and social emotional concerns in relation to trauma, the role of the school counselor and evidence-based interventions that the school counselor can utilize. Trauma manifests itself differently in every individual, and the responses can look very different. School counselors are an important piece to the puzzle when supporting students that have experienced trauma. They are often on the front lines of crisis while the child is at school and are the main support for mental health needs schoolwide. It is important for the school counselor to have tools on hand to help work through difficult situations that the student may be experiencing. This paper explores four evidence-based interventions and their effectiveness.

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Introduction

The prevalence of trauma among young children and its impact on educational outcomes is quickly gaining attention (Cummings, Addante, Swindell & Meadan, 2017). The Substance Abuse and Mental Health Services Administration (SAMHSA), defines trauma as, "resulting from an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has lasting adverse effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being" (Cummings et al., 2017, p. 2728).

In 2010, the U.S Department of Health and Human Services reported that state child protective service agencies received three million reports of neglect and child abuse, with almost 700,000 cases verified as actual cases of abuse or neglect (Kindsvatter & Geroski, 2014). In 2015, "child protective services agencies collectively substantiated approximately 680,000 cases of child maltreatment and received four million reports of suspected maltreatment" (Reinsbergs & Fefer, 2017, p. 250). The U.S. Department of Health and Human Services (2019), reported that of the three and a half million children who were the subject of an investigation in 2017, an estimated 674,000 children were determined to be victims of maltreatment. Although the numbers of child victims have decreased, national prevalence surveys indicate that 13% of all children experience abuse or neglect during the prior year (Reinbergs & Fefer, 2017), and about one in four children experience potentially traumatic events before their third birthday (Cummings et al., 2017).

"Over the past decade, there has been increasing awareness of the prevalence and negative sequelae of exposure to trauma among school-age children" (Santiago et al., 2018, p. 1). Schools are increasingly recognized as critical venues to support students who have been exposed to trauma (Hoover et al., 2018). Many students and their families lack access, motivation, and ability to successfully participate in therapy and follow treatment plans, (Brunzell, Waters & Stokes, 2015) and for most students, attending school is the most regular and predictable routine in their young lives (Brunzell et al., 2015); therefore, making the school environment a prime location to provide counseling and therapy to trauma affected children.

It is believed that schools can be healing institutions in addition to academic institutions, for the student population who have been affected by trauma. (Brunzell et al., 2015). As the mental health professional in the school, school counselors are faced with the task of supporting students from many different backgrounds and cultures; therefore, making it very important to understand the effects of childhood trauma, as well as having a toolbox of interventions they can utilize while working with a student who has experienced trauma. Healthy, trusting relationships are extremely important while working with children who have experienced trauma and school counselors are an important source within the school, to help build trusting and supportive relationships with children. These and other positive relationships create the groundwork necessary to change brains (Maikoetter, 2011). When children have not experienced consistent safety and love in a relationship with a caregiver, all other relationships are compromised and can feel threatening (Maikoetter, 2011). Caring and competent caregivers can help the child to not only feel physically safe, but emotionally safe as well (Sciaraffa, Zeanah & Zeanah, 2017). School counselors, direct care workers, caseworkers,

teachers, and other staff create a web of support for children who have not had these healthy early attachments (Maikoetter, 2011), and can use a trauma-focused approach to help make school a safe and successful environment.

Trauma exposure exerts a negative impact on academic outcomes, and has a direct negative impact on neurobiology, attention, and cognitive processes (Santigo et al., 2018). Educational settings have increasingly begun to recognize the need for trauma-informed strategies to help increase identification of students who may be showing early signs of distress and to help prevent the impact trauma can have on current and future academic performance (Santigo et al., 2018). It is important to remember that one child could have experienced a similar traumatic event as another child, but one child may have more resilience than the other. Reinbergs and Fefer (2017) state that "although not all children who experience a potentially traumatic event develop traumatic stress symptoms, many children develop a variety of psychological concerns that interfere with their educational performance" (p. 250).

Review of Literature

Trauma

Twenty-two percent of children living in the United States, more than 15.6 million kids total, have had two or more adverse experiences, according to the latest results from the National Survey of Children's Health (Casey Foundation, 2018). The term adverse childhood experiences refers to a number of potentially traumatic events, including episodes of sexual, physical or emotional abuse as well as exposure to hardships like parental divorce and parental incarceration (Casey Foundation, 2018). SAMHSA, indicates that "individual trauma results from an event, series of events, or set of circumstances that is experienced by an individual as

physically or emotionally harmful or life threatening and that has lasting adverse effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being" (Cummings et al., 2017, p. 2728). Poor school performance and educational achievement is also often linked to trauma in childhood (Boden, Horwood & Fergusson, 2007).

According to the National Institute of Mental Health, there are two types of trauma, which include physical and mental (Kids Matter Inc., 2016). Physical trauma includes the body's response to serious injury and threat (Kids Matter Inc., 2016). Mental trauma includes frightening thoughts and painful feelings (Kids Matter Inc., 2016). Mental trauma can produce strong feelings, along with extreme behavior such as intense fear or helplessness, withdrawal or detachment, lack of concentration, irritability, sleep disturbance, aggression, hyper vigilance, or flashbacks of the traumatic event (Kids Matter Inc., 2016). It is important to note that not every stressful event result in trauma, meaning that what is traumatic for one child may not be traumatic for another (Kids Matter Inc., 2016). When trauma is left unresolved, it can cause further complications for the individual. For example, those suffering from unresolved trauma nearly always report unregulated body experience; an uncontrollable cascade of strong emotions and physical sensations, triggered by reminders of the trauma, which replay endlessly in the body (Ogden, Minton & Pain, 2006). Many individuals who have experienced a traumatic event, are left with a fragmented memory of their traumatic experiences, which turns into a host of easily reactivated neurobiological responses, and baffling, intense, nonverbal memories---sensorimotor reactions and symptoms that tell their story without words, as though the body knows what they cognitively do not know (Ogden et al., 2006). Many times, individuals are unaware that these reactions, such as intrusive body sensations, images, smells, physical pain

and constriction, numbing, and the inability to modulate arousal, are in fact, the remnants of their past trauma (Ogden et al., 2006).

Not all traumatic events occur just once and then it's over. Some individuals experience ongoing trauma throughout their childhood, and sometimes their lifetime. Children who live in a consistently stressful or harmful environment often manifest symptoms of what has become known as complex trauma, which is the cumulative effect of traumatic experiences that are repeated or prolonged over time (Terrasi & Crain de Galarce, 2017). According to Terrasi and Crain de Galarce (2017), "common sources of complex trauma include physical, sexual, or emotional neglect and abuse; being a witness to repeated acts of domestic violence, experiencing severe poverty, deprivation, or homelessness" (p. 36). Trauma has profound effects on the body and nervous system, and many symptoms of traumatized individuals are somatically driven (Ogden et al., 2006). Trauma can impact one's emotional regulation, impact behavior, attachment, and one's ability to function in mainstream classrooms.

Trauma Impact on the Brain

The goal of brain development is to produce an organism that is able to handle the many demands of the environment (O'Neill, Guenette & Kitchenham, 2010). The way trauma affects brain development and functioning is not yet fully understood; however, significant research has detected a link between childhood trauma and neurobiological consequences, leading to disadvantages in a child's educational journey (Brunzell et al., 2015) and the ability to form and maintain healthy relationships and attachments to others (Wasserman, 2003).

Significant brain development takes place around the time of birth, and this is the time where there is a high rate of brain growth and development of synaptic sites, which are small

gaps between cells that are important to neuron communication (Wasserman, 2003). Any damage or trauma to the brain at this stage could have a long-term, permanent impact on a child's behavior (Wasserman, 2003). An increase in myelination of neurons from the age of six months to three years has been documented, and a decrease in proportion of cerebral grey matter to white matter after the age of four, which makes six months to four years of age a developmental period of stress-related vulnerability (O'Neill et al., 2010).

A specific impact of stress and trauma on brain development involves the hippocampus, which is one of the parts of the limbic system, involved in memory and emotion (Wasserman, 2003). The hippocampus is involved in the evaluation of how incoming stimuli are spatially and temporally related with one another and with information previously stored in the brain (Kolk, McFarlane & Weisaeth, 1996). When the functioning of the hippocampus is decreased, hyper responsiveness to environmental stimuli occurs and can cause behavioral disinhibition (Kolk et al., 1996) resulting in the 'fight, flight, freeze' response (O'Neill et al., 2010). Brain studies have shown that people who have experienced traumatic events, have decreased hippocampal volume (Kolk et al., 1996). The shrinkage in the hippocampus is due to the effects of higher levels of cortisol, a stress hormone, which is known to be toxic to the hippocampus (Kolk et al., 1996). High levels of stress may result in forgetfulness along with problems with retention of academic learning (Wolpow, Johnson, Hertel & Kincaid, 2016).

Another important part of the brain is the cerebral cortex. This is the higher or thinking part of the brain, which influences abilities such as language, abstract thinking, basic aspects of perception, movement and adaptive responses to the outside world (Wolpow et al., 2016). The prefrontal lobe of the cerebral cortex is responsible for planned behaviors, decision making,

working memory and attention (Wolpow et al., 2016). When a child encounters severe stress, the stress hormones are activated and can turn off this prefrontal lobe inhibition of the limbic system (Wolpow et al., 2016). When the pre-frontal lobe is shut off, children can struggle with poor judgement and impulsive behaviors (Wolpow et al., 2016).

The limbic system, and in particular the amygdala, is involved with organizing emotions, especially those relevant to threat cues (Kindsvatter & Geroski, 2014). Children who have experienced traumatic stress are often operating within the mode of 'survival in the moment' (Wolpow et al., 2016). This is due to overstimulation of the amygdala, and the constant activation of fear centers in the brain. When the amygdala becomes overstimulated, what often results, are quick and exaggerated emotional responses, which in return can make it difficult for children to sustain attention on academic content (Terrasi & Crain de Galarce, 2017), and can result in an inability to calm down, present as melt-downs and can cause over-reactions to mistakes (Wolpow et al., 2016). An overactive amygdala in children who have experienced trauma, may also result in generalization of the fear response, leading to an overall increase in fearful behaviors and perceptions (Ogden et al., 2006). This makes it difficult for children to trust their environments, and the people in it. When faced with a threat, cortisol and other stress hormones are activated, with the amygdala triggering the fight or flight response (O'Neill et al., 2010). The fight or flight response occurs when a person believes they are in danger, and the body prepares the person to either flee from the danger or to fight whatever is causing the danger (Wasserman, 2003). For children who have experienced abuse, emotional arousal may be chronically activated, leaving them unable to self-soothe (O'Neill et al., 2010). Also, when stress hormones repeatedly flood the brain, they have a negative effect on a range of executive

functions, weakening children's concentration, language processing, sequencing of information, decision making and memory (Terrasi & Crain de Galarce, 2017).

Attachment has been described as a regulation process. This form of regulation, which begins between the mother and child, or another primary caregiver, initiates an attunement and regulatory process for the body's stress responses and relational hardiness. (Brunzell et al., 2015). Attachment with a parent or an adult caregiver is not only important for the infant's survival but is equally important for the infant's psychological and emotional development as well (Wasserman, 2003). If a child is abused or neglected by their primary caregiver, there is an increased risk for developing long-term problems (Wasserman, 2003). Research has found that separation between six months and three to four years of age was the most traumatic, with intense attachment taking place during these developmental times when children were unable to cognitively deal with separation (O'Neill et al., 2010). Children who lack early attachment with their primary caregiver, have smaller brains and lower IQ's (Wasserman, 2003). The damage created by interrupted attachment patterns in infants can lead to a lack of essential social skills such as feeling empathy and remorse, as well as an inability to adjust to change, resulting in defensive behaviors, difficulties understanding feelings of themselves and others, and pain (Wasserman, 2003). If the relationship with the primary caregiver is neglectful or abusive, the child may have significant issues with the development of appropriate coping skills, along with maintaining interpersonal relationships, coping with stressful situations and controlling emotions (Wasserman, 2003).

Trauma Impact on School Counseling Services

Academics & College/Career Readiness. There is a relationship between childhood trauma and student's ability to learn successfully in the mainstream classroom. As a consequence of the neurological damage resulting from trauma, trauma has been shown to lead to disadvantages in a child's educational journey (Brunzell et al., 2015), such as reduced cognitive capacity, sleep disturbance, memory difficulties and language delays (Downey, 2007). One study conducted in Washington, revealed that trauma affected children are two and a half times more likely to fail a grade, score lower on standardized tests, have difficulties with expressive and receptive language, are suspended and expelled more often, and are placed in special education settings more often (Wolpow et al., 2016). These students are also more likely to be at risk for multiple academic and behavioral challenges in the classroom setting (O'Neill et al., 2010). This research is alarming, making it very important for school counselors to have the strategies and support needed in order to meet the complex needs that students may bring to the school environment.

Having the ability to problem solve in the classroom is important for academic success. Children of trauma demonstrate less creativity and flexibility in problem solving, have significant delays in receptive and expressive language, and have lower IQ scores (O'Neill et al., 2010). In the classroom, teachers and school counselors may observe complex trauma symptoms beyond learning disabilities, including fear, hyperactivity, aggression, somatic problems in younger children, depression and self-harming behavior (O'Neill et al., 2010). Most traumatized children have not been able to find competence in many areas of their lives, and

the brain's primary purpose is that of survival, which makes any other task, such as learning math, simply not as important (Maikoetter, 2011).

Many times, cognitive and academic delays in children who experienced trauma, is due to hyperarousal or dissociation. Hyperarousal usually leads to attention problems, which lead to academic and cognitive difficulties, as the child finds it difficult to concentrate on learning (Downey, 2007). Dissociation can lead to gaps in learning also because of difficulties with concentration (Downey, 2007).

Social and Emotional. The effects of trauma on a child severely impact the ability to self-regulate and sustain healthy relationships with others (Brunzell et al., 2015). Trauma has been described as an overwhelming experience that can forever alter one's belief that the world is good and safe (Brunzell et al., 2015). These children are constantly bouncing back and forth both physically and emotionally from the past to the future, trying to determine if they are in immediate danger (Maikoetter, 2011). This can make it extremely difficult for children to be fully present in their friendships and relationships, or to fully experience a range of emotions (Maikoetter, 2011). Children who have experienced trauma can also find friendships difficult, and other children often react negatively to their aggressive behaviors, silliness, bossiness, or sometimes controlling behavior (Downey, 2007).

Many traumatized children experience hyper-arousal or dissociation in order to alleviate their discomfort (Maikoetter, 2011). These behaviors can be intimidating to other peers and may alienate the trauma affected child away from social situations with peers, in the long run, causing difficulties in forming healthy relationships with others. Traumatized children have ongoing problems controlling their anger and impulses and maintaining their attention and

connection (Downey, 2007). Children with trauma histories, often struggle with relationship skills. They find it difficult to engage in play with other peers, because they often down understand the underlying rules of relationships such as taking turns and sharing (Downey, 2007). Traumatized children have had no control over what has happened to them in the past, causing them to potentially want to control their environments and the adults within those environments as a response to that earlier lack of control, leading to power struggles (Downey, 2007). Traumatized children may find connections with adults or other peers very threatening and may display aggressive and oppositional behaviors as a way to push others away, trying to control them through making them angry at them (Downey, 2007).

The Role of the School Counselor

School counselors are often the main sources of mental health interventions in schools and are on the front lines of many mental health crises at school. School counselors also play an important role in advocating for the needs of students who have experienced trauma, and helping others understand the sometimes-difficult behavioral patterns of these students. It is important that the school counselor understand the effects trauma can have on many areas of the student's life and have a toolbox of resources and interventions they can utilize when working with a student that has been exposed to a traumatic experience. It is especially important for the school counselor to have an understanding of how to help promote success for the student in the area of academics, college and career readiness, and social and emotional skills. Most importantly, school counselors need to build a strong relationship with the student to help ground the student in safety and belonging at school (Brunzell et al., 2015). Addressing the needs of students with trauma is a challenge but is certainly feasible. These students

require, first and foremost, a trusting relationship, and one in which attachment to a caring person is primary (O'Neill et al., 2010). A safe environment is critical for children with complex trauma reactions, with the establishment of safety being the first stage of all trauma work (O'Neill et al., 2010). Having healthy and supportive relationships and attachments with school counselors and teachers, increases student's academic motivation in a positive manner (O'Neill et al., 2010).

Bruce Perry of the Child Trauma Academy identifies self-regulation as a core developmental need for children (Brunzell et al., 2015). Emotional regulation is another priority of trauma-informed teaching (Brunzell et al., 2015). School counselors should assist in teaching self-regulation and emotional regulation techniques to children that have experienced trauma. Trauma-affected students must have opportunities to regulate emotion by identifying and acknowledging difficult feelings, linking their internal feelings with external experiences, and learning personal strategies for de-escalating heightened emotions that enable them to return to a calm state after emotional arousal (Brunzell et al., 2015). School counselors can help students with emotional regulation by analyzing texts through an emotion lens, facilitating drama-based activities, such as role plays, where students act out and de-escalate emotions, or collaboratively problem solve using student examples, or scenario questions (Brunzell et al., 2015).

In the school counseling environment, work on relational repair in therapeutic relationships where counselors help the child with affect regulation, interpersonal skills, self-capacity and reducing self-harming behaviors is the basis for improvement (O'Neill et al., 2010). School counselors may benefit from using the PACE stance while engaging with children who

are affected by trauma. The PACE stance is a general approach which consists of playfulness, acceptance, curiosity and empathy (O'Neill et al., 2010). Specific techniques such as eye movement desensitization reprocessing (EMDR), and trauma focused cognitive behavioral therapy (TF-CBT) may assist traumatized children in the development of their new life narrative, through strengthening positive cognitions and feelings and increasing relaxation skills for self-soothing (O'Neill et al., 2010). The Attachment, Self-Regulation and Competency (ARC) strengths-based model developed by Kinniburgh and Blaustein, is a components-based framework informed by attachment and traumatic stress theories (O'Neill et al., 2010). This model has a focus on the re-building or building of safe relationship systems, and helps to enhance regulatory capacity, builds skills, and stabilizes destress in children (O'Neill et al., 2010).

Students who have difficulties regulating emotions and staying engaged in the classroom can benefit from working with the school counselor to improve social and emotional skills, as well as improving academic skills. Regulatory activities can be employed with students when they are having a difficult time staying engaged in classroom tasks (Brunzell et al., 2015). It is recommended that school counselors and teachers use a proactive and planned use of regulatory activities in the daily classroom schedule (Brunzell et al., 2015). Students must have multiple opportunities throughout the day to build emotional regulatory capacities to notice, understand, and communicate their feelings to others (Brunzell et al., 2015). By making sense of their own and other's behaviors, children become aware that behaviors and actions are caused by thoughts and feelings, leading to the development of emotional intelligence, emotional attunement, social cognition, and interpersonal competence (O'Neill et al., 2010).

Current Trauma Interventions

As the growing body of literature supports the connection between mental health and academic outcomes, there is an increase need for trauma related services in schools to address the ongoing issue of violence exposure amongst youth (Wong et al., 2007). More than half of the students enrolled in public schools have faced traumatic or adverse experiences and one in six struggles with complex trauma (Terrasi & Crain de Galarce, 2017). Complex trauma can be defined as "the cumulative effect of traumatic experiences that are repeated or prolonged over time" (Terrasi & Crain de Galarce, 2017, p. 36). Schools can be a great place to offer the safe and supportive environments necessary to buffer against the negative impacts of trauma and can help return students to the routines and rituals important to resuming everyday functioning after they are exposed to a traumatic event (Hoover et al., 2018). School counselors are responsible for providing support to those students that have been exposed to adverse experiences or a traumatic event, and to help make the school setting a safe and supportive place for these students. The school counselor should first evaluate the student to determine the severity and source of trauma for the student, and then appropriately choose which intervention strategy will be most effective for that student. It must be noted that one intervention may work for one student but may be non-effective for another student that has experienced similar adverse experiences. There are several evidence-based interventions that have been created and reviewed, however, there are four interventions further discussed in this article.

Cognitive Behavioral Intervention for Trauma in Schools (CBITS). The Cognitive Behavioral Intervention for Trauma in Schools (CBITS) is an evidence-based program designed

in collaboration between Los Angeles Unified School District, RAND Corporation, and UCLA to relieve the psychological symptoms that are related to trauma, within the school setting (Wong et al, 2007). CBITS is a school-based intervention to support students in fifth to twelfth grade who have witnessed or experienced traumatic life events such as community and school violence, accidents and injuries, physical abuse and domestic violence, and natural and man-made disasters (Hoover et al., 2018). CBITS continues to be tailored to meet the needs of a variety of traumatic experiences as well as diverse cultural and racial groups (Wong et al., 2007).

The intervention consists of 10 group sessions, one to three individual sessions, two parent psychoeducational sessions and one teacher educational session (Hoover et al., 2018). The overall goal of CBITS is to reduce symptoms of posttraumatic stress disorder (PTSD), depression, and behavioral problems, and to improve functioning, grades and attendance, peer and parent support, and coping skills (Hoover et al., 2018). It is recommended that this intervention be administered by school mental health professionals. Components of the intervention include evaluating the cognitive assumptions made about the traumatic event, connecting thoughts and emotions, addressing fears, reducing anxiety, developing coping skills, solving problems, and identifying problem behaviors (Wong et al., 2007).

Effectiveness. Results from a randomized study assessing the effectiveness of CBITS have demonstrated that the intervention significantly reduces adolescents' symptoms of trauma and improves their overall behavior (Wong et al., 2007). More specifically, Stein and collegues found that middle school students who received intervention showed a 64% reduction in PTSD after three months, a 47% reduction in depression, and parents reported a

35% reduction in psychosocial dysfunction when compared to those on a waitlist and had not yet received treatment (Wong et al., 2007). In addition, preliminary data also indicated that as PTSD symptoms decreased, grades improved (Wong et al., 2007). Another randomized controlled trial showed large effect sizes (1.08 standard deviations) in the reduction of PTSD scores, moderate effects on depression (.45 standard deviations), and large reductions in parent reported psychosocial dysfunction (.77 standard deviations) after using the CBITS intervention (Reinbergs & Fefer, 2017).

Trauma-Focused Cognitive Behavioral Therapy. Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) is a structured, 12 to 16 session outpatient intervention, which was originally developed to treat posttraumatic stress disorder and related emotional and behavioral difficulties in youth who have a history of child sexual abuse (Webb, Hayes, Grasson, Laurenceau & Deblinger, 2014). In the past decade, this model has been developed further, to help treat children who have been affected by a variety of potentially traumatic events (Webb et al., 2014). TF-CBT was developed to address the multiple negative impacts of traumatic life events for youth aged five to 17 years old and their parents or primary caregivers (Murray, Cohen & Mannarino, 2013). TF-CBT is a model that works to enhance coping skills for trauma symptoms, process traumatic memory, and enhance safety after treatment is over (Snyder, 2018). There are several components to this treatment model. These components include psychoeducation, relaxation, cognitive coping, trauma narrative and processing, in-vivo experience, conjoint parent-child sessions, and enhancing safety skills (Murray et al., 2013). TF-CBT's components are delivered in 90-minute weekly sessions that are split evenly between

children and their parents (Webb et al., 2014). Children and their parents meet with the counselor individually to start, and then begin conjoint sessions later.

***Effectiveness*.** Several studies have been done to evaluate the effectiveness of TF-CBT. Multiple randomized studies conducted in high-income countries have demonstrated that TF-CBT is highly effective in treating the sequelae of child trauma (Murray et al., 2013). Follow-up studies provide evidence of sustained benefit at six months, one year, and two years posttreatment (Murray et al., 2013). In a juvenile detention center a study was done to determine the effectiveness of TF-CBT when used with youth in the detention environment (Snyder, 2013). Overall, the youth saw some level of symptom reduction and made meaningful treatment gains from TF-CBT in the detention setting (Snyder, 2013).

Bounce Back Trauma Intervention. The Bounce Back Intervention is a developmentally tailored, skill building group comprising 10 sessions and led by school-based social workers and/or school psychologists (Santiago et al., 2018). This intervention is an extension of CBITS. The group targets students from kindergarten to fifth grade and uses TF-CBT to teach students coping skills (Santiago et al., 2018). Students receive psychoeducation about the prevalence and symptoms of trauma and learn affect identification, relaxation techniques, cognitive coping, social support, and problem-solving (Santiago et al., 2018). Students are guided in creating a fear hierarchy, allowing students to gradually face an anxiety-provoking situation to improve functioning (Santiago et al., 2018). In addition to their 10 group sessions, the child and counselor or social worker meet individually for two sessions to put together and process their trauma narrative, and then for the third session, the child's caregiver is invited for the child to share their narrative with (Santiago et al., 2018). Finally, caregivers are invited to a maximum of

three psychoeducation sessions with the social worker or counselor to introduce them to skills that children learn in the group (Santiago et al., 2018).

Effectiveness. A randomized controlled trial (N=74) of racially diverse youth, found Bounce Back to be moderately effective in reducing symptoms of traumatic stress and highly acceptable to the children and their families (Reinsbergs & Fefer, 2017). In another study, symptoms of PTSD were significantly reduced among students who received Bounce Back immediately compared with those on the waitlist (Santiago et al., 2018). This trial also indicated improvements in active coping skills, problem-solving skills, emotional regulation, and emotional expression (Santiago et al., 2018). At a six-month follow-up for the immediate treatment group, the improvements in PTSD symptoms and coping skills were still maintained (Santiago et al., 2018).

Child-Centered Play Therapy. Child-Centered Play Therapy (CCPT), is an intervention created to respond to the developmental needs of children and has been recognized as one of the most popular therapeutic approaches for treating childhood mental health concerns (Pester, Lenz & Aquila, 2019). CCPT came from the client-centered theory posed by Carl Rodgers (Hall, 2019). In this approach, counselors remain consistent in their beliefs and interactions of acceptance and competency of clients' self-direction, thus freeing the client to explore experiences, self, and life in a new way with new goals and meaning in a safe environment (Hall, 2019). CCPT is a unique model of play therapy that emphasizes confidence in the child's ability to grow and develop while also demonstrating the belief that the child has the ability to heal through self-direction (Blanco, Holliman, Ceballos & Farnam, 2019). Because of a child's concrete view of the world, a child's ability to express complex thoughts and feelings

through words is limited (Pester et al., 2019). Play is a natural way for children to communicate and increase self-awareness as well as communicate this awareness to others (Hall, 2019). In addition, play has been identified as a natural part of a child's emotional, social and cognitive growth; and therefore, is a more developmentally appropriate therapeutic modality for addressing childhood mental health issues when compared to traditional talk therapy modalities (Pester et al., 2019).

Materials and toys are provided for the child to use directly or symbolically play out emotions, thoughts, or experiences that occur in their concrete and active world (Hall, 2019). Throughout the CCPT process, children are validated in their feelings and actions, which therefore decreases anxiety and self-defeating coping mechanisms (Hall, 2019). The primary technique for CCPT, is the use of the relationship formed between the counselor and the child (Pester et al., 2019). Through this relationship, the counselor accepts the child in a way that creates permissiveness for the child to freely express their feelings and attitudes in a therapeutic structure of time and behavior maintained through the use of therapeutic limit setting (Pester et al., 2019). Toys in the playroom should include police and emergency vehicles, and personnel dolls or puppets, handcuffs, weapons and doctor kits (Hall, 2019). It is important to have symbolically meaningful materials consistently available in the playroom for each session; however, the counselor must be mindful of those that may trigger memories of personal trauma in a negative, harmful way (Hall, 2019).

Effectiveness. In a study that included three elementary schools in the Southwestern United States, Child-Centered Play Therapy was found to be effective in enhancing academic development for children who were identified as at-risk for academic failure (Blanco et al.,

2019). A meta-analytic review of CCPT was conducted, and found a medium, treatment effect in which children with CCPT intervention performed one half of a standard deviation better on outcome measures than children who did not have treatment or who participated in an alternative treatment (Pester et al., 2019). A third review was conducted of CCPT in a school setting. This study found statistically significant improvements between treatment and non-treatment groups (Pester et al., 2019). The results from that study indicated that CCPT interventions yielded small effect sizes for internalizing outcomes, externalizing outcomes, total problem behaviors, self-efficacy, and academic outcomes (Pester et al., 2019).

Discussion

Numerous studies and research have been done to help determine the effects of childhood trauma on brain development, as well as the effect trauma can have on students in the educational setting. It has been identified that trauma does have an impact on poor school performance and educational achievement (Boden et al., 2007), as well as lower IQ scores, and lack of ability to manage emotions and behaviors. The school counselor plays an important role in the school setting, to help link students to appropriate mental health care services and help educate other individuals in the school on trauma approaches they can utilize when faced with a situation. This makes it very important for the school counselor to have a strong understanding of trauma, and the impacts it can have on school age children, as well as have knowledge of specific interventions that can be utilized while working with children affected by trauma.

Traumatic experiences may include exposure to physical abuse, sexual abuse, domestic violence, home destabilization, neglect, and death of a loved one. This is only a very short list of

the examples of traumatic experiences children may face in their short lifetime. These traumatic events have been directly linked to causing alterations in brain development in children. Although there has been research already conducted to determine just how trauma effects brain development, more extensive research is needed to fully understand the linkage between traumatic experiences and the effects on children's brains. However, the current research shows a significant amount of stress hormones constantly being released in the brain of a trauma affected child. Although this may seem obvious, many individuals do not realize that when the brain is flooded with stress hormones, the cerebral cortex may turn off. The cerebral cortex is the part of the brain that controls language, abstract thinking, perception, movement and adaptive responses to the world. If this part of the brain is turned off, children may experience impulsive behaviors, and poor judgment of the world around them. Children have an overwhelming amount of stress hormones in their brain, may always view the world around them as unsafe, and may view adults in their lives as threatening, even if they are safe adults. Another part of the brain that is affected by trauma is the limbic system. This part of the brain is involved with emotions. Children affected by trauma struggle with identifying emotions in themselves and others, due to them constantly living in a state of fear. Since their fear is always activated, children may overreact to situations that are not as big of a deal to their peers who are not affected by trauma, and may resort to running away from the situation, or fighting whatever is in their way, also known as 'fight or flight.' Often, this results in physical aggression towards peers and adults, or danger to the traumatized youth.

These impacts on the brain can make the learning environment especially difficult for children. If a child is constantly living in fear, and is analyzing their environment for potential

threat, they are unable to fully focus on the content that is being taught. When children are unable to self-soothe and understand the feelings and emotions of themselves and others, they may struggle to control their strong emotions they may experience in the classroom, again, turning their attention away from the educational content, and many times resulting in explosive, aggressive behaviors. It has been proven that there is a direct link between trauma and poor school performance, and higher drop out rates.

Friendships and relationships are important for school aged children. When children have experienced trauma, they may have a difficult time forming relationships with others and maintaining relationships due to their lack of healthy social skills and being able to understand the perception of others. Early attachment patterns with a primary caregiver can aide in altering this ability for children. This can make the educational environment even more of a threat, since they may not have steady friendships, and may experience bullying. Children who have had unstable attachment in their infant years, may also struggle with attaching and forming relationships with others in their futures. They may fear their teacher, or not trust adults, making the education experience even more difficult.

The school counselor can make a positive impact on students that have experienced trauma and can help teachers and parents better understand where children's behaviors may be stemming from. By understanding the effects trauma can have on brain development, and the impact it can have on academics and social emotional and behavioral needs, the school counselor will be able to look through the defiant, and aggressive behaviors of the student, and work on the root cause of the issues. There are several evidence-based interventions designed to work effectively with children with traumatic backgrounds. Cognitive Behavioral Intervention

for Trauma in Schools (CBITS), Trauma-Focused Cognitive Behavioral Therapy (TF-CBT), The Bounce Back Trauma Intervention and Child-Centered Play Therapy, are a few examples of interventions the school counselor may utilize while working with a trauma affected student. These interventions have been researched, and many studies have been conducted to determine their accuracy. Likewise, these interventions have been proven to be effective in increasing coping skills, problem solving skills, reducing anxiety and fear, and changing maladaptive thinking patterns into healthy and positive thinking patterns. These interventions have also helped children identify problem behaviors within themselves and better understand feelings and emotions in themselves and others.

Further research needs to be done in order to fully prove the relationship between childhood trauma and college and career readiness. Research has shown that trauma can impact school drop out rates, as well as failing test scores. This information suggests that children impacted by trauma have less of a chance of going to college, or obtaining a career; however, there is no concrete data available to prove this is true.

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