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THE RELATIONSHIP BETWEEN CHILDHOOD TRAUMA
AND SPECIAL EDUCATION: A LITERATURE REVIEW

MASTERS THESIS
SUBMITTED TO THE FACULTY OF
BETHEL UNIVERSITY

BY
ANDREA BECKER

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
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BETHEL UNIVERSITY

THE RELATIONSHIP BETWEEN CHILDHOOD TRAUMA
AND SPECIAL EDUCATION: A LITERATURE REVIEW

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APPROVED

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ABSTRACT

Each year as many as ten million children witness or experience domestic violence in the United States (Winder, 2015) and have shown to experience greater struggles in school. This type of trauma has no boundaries, it can occur in all socioeconomic levels, across all ethnic groups, and all education levels. The National Child Traumatic Stress Network of the United States reports forty percent of students have experienced some form of adversity or trauma (Brunzell et al., 2015). Trauma can be a life shattering experience that can forever alter your biology and view of the world being a safe place (Brunzell et al., 2015). The effects of trauma hinder a child's ability to thrive and succeed. This transfers into the classroom every day and can manifest as attention deficit hyperactivity disorder, conduct disorder, oppositional defiant disorder, reactive attachment, disinhibited social engagement, acute stress disorders (Brunzell et al., 2015), and emotional behavior disorders (Buxton, 2018). Childhood trauma and adversity is a public health concern with an invisible, underlying neurobiology in which educators are on the front line.

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CHAPTER I

INTRODUCTION

“Five US children kept locked in a dungeon,” “Man, 63, arranged to meet 14-year-old girl for sex,” “At least 17 dead in Florida school shooting” (*Child Abuse News Headlines*, 2018). Every day you open the newspaper or turn on the local news station to find headlines like these. Many American children live in the face of trauma. However, childhood trauma and adversity are not a new phenomenon, our awareness of its reach and lasting effects is beginning to come into full light. Daily, educators have conversations with students regarding incarcerated family members, violence, abuse, sexual assault. The place where these two worlds meet, in the classroom, is where educators can provide the most support. Every individual processes traumatic events differently and exhibit a wide variety of symptoms from developmental impediment to minimal transitional effects. Children who have consistent interventions and access to support systems can boost their resiliency and coping skills which determines how well they process their trauma (Frazier, 2015). There may be no fix to eliminating or preventing the exposure children have to traumatic events all together but interventions during childhood are showing to be the most effective way to reduce their impact (Turner et al., 2015).

According to a 2011 study conducted by the MN Behavioral Risk Factor Surveillance System (BRFSS), over half of reporting Minnesotans had experienced at least one of the following adverse childhood experiences (ACE); (1) physical abuse, (2) sexual abuse, (3) verbal abuse, (4) mental illness of a household member, (5) problematic drinking or alcoholism of a household member, (6) illegal street or prescription drug use by a household member, (7)

divorce or separation of a parent, (8) domestic violence towards a parent, and (8) incarceration of a household member. The exposure to chronic or severe trauma early in childhood, has a maladaptive and negative impact on multiple biological systems: immune, metabolic, neurobiology, attention, and cognitive processes (Santiago, 2018; Hornor, 2015). The CDC and BRFSS (2016) report almost two-thirds of Americans have an ACE score of at least one. An ACE score is determined by the sum of the individuals Adverse Childhood Experiences prior to the age of 18. The terms adverse experience and trauma are interchangeable in this review in the sense that the outcome and effects are the same. However, Merriam-Webster Medical Dictionary (2018) distinguish a slight difference between the two terms. Trauma is defined as a *disordered psychic or behavioral state resulting from severe mental or emotional stress or physical injury*. An adverse experience (ACE) can relate to not only personal trauma but also those witnessed, such as witnessing the abuse of a parent or sibling.

According to the U.S. Department of Health and Human Services (2012) 678,810 children were exposed to trauma; 78% exposed to neglect; 18%, physical abuse; 9%, sexual abuse; and 11%, other forms of maltreatment in a year. Ten million children witnessed domestic violence (U.S. Department of Health & Human Services, 2013). One in five children live in poverty (Hornor, 2015). Nearly every child in the United States has experienced some form of trauma and chronic exposure to trauma can lead to toxic stress (Hornor, 2015). Hornor (2015) defines toxic stress as extreme, chronic, or extended activation of the stress response that causes distress for the child and may lead to negative psychological and physical health outcomes.

Our brains activate several fight-flight-freeze or toxic stress processes that can contribute to physical changes in brain structure, hormone imbalance which manifest in memory deficits, learning, ability to regulate affect, social development, and processing impairments (Sinek, 2018). Trauma affects the way our brain communicates with the body through our neurons (neurotransmitter receptors, their synapses) and hormone interactions which are typically translated into maladaptive behaviors and negative coping strategies. Not only do experiences shape the physical development of the brain but several CDC reports expose the lasting negative marks trauma leaves on adult health and well-being. Violence and trauma at the personal, family or community level also have long-term effects on a child's ability to succeed in school and build healthy relationships (Brinamen & Page, 2012). This impact trauma can have on children manifests within the classroom as academic deficits, loss of instructional time and maladaptive behaviors-behaviors that are normal reactions to events that engulf and take over them (Stevens, 2014).

Children's emotional regulation and coping skills are hindered but there are other symptoms that can be misinterpreted and effect success within the classroom; loss of safety, loss of danger cues, loss of trust, shame, loss of intimacy, dissociation, loss of sense of self and self-worth (*The impact of trauma*, 2017). Since the original ACE study was introduced in 1998, childhood trauma awareness has increased and created a call to education systems to become more trauma-informed in order to meet the needs of this large population of children. Considering children spend eight hours a day sleeping, that leaves sixteen waking hours per day. On average, of those sixteen waking hours, half of them are spent within a classroom. Millions of children are walking into a classroom everyday affected by personal trauma and

requiring more than the traditional education system. Educators are not provided adequate knowledge, strategies, and tools to support these children. Area Health Education Center of Washington State University determined that children who experienced three or more traumatic life events or an ACE score of at least three, are three times as likely to struggle with academics, six times as likely to have behavioral problems, and five times as likely to have attendance problems (Blodgett, 2015). The most common federally recognized special education categorical label given to these students with behavioral/mental health concerns is Emotional Behavior Disorder-EBD (or Emotional Disturbance-ED) (Sullivan & Sadeh, 2014; Buxton, 2018). Childhood trauma and adversity have no boundaries and are a growing public health concern (Honor, 2015). More research needs to be done not only on how to support our children and build resiliency but also how to bridge the gap between special education services and general education. Qualifying individuals with behaviors and symptoms relating to an adversity such as EBD (Emotional Behavior Disorder) or ADHD (Attention Deficit/Hyperactivity Disorder) should not be the only avenue for support. On December 10, 2015 President Obama signed the Every Student Succeeds Act (ESSA). This act provided grants and federal supporting for schools to provide school-based mental health services based on trauma-informed practices and evidence-based interventions. This act opens the door to a culture shift and a step towards national awareness of childhood trauma.

Nadine Burke Harris is the pioneer in linking Felitti's 1998 groundbreaking ACEs study to the development of systems for children affected by adversity. She is the recipient of the prestigious, individual achievement award Heinz Award in 2016. Through Dr. Harris' research a revolutionary paradigm shift is required to create awareness, provide early interventions, and

create a better world for our future (Harris, 2018). Societies go through eras of change and revolutionary discoveries. Childhood adversity and the whole-body effects has developed “actionable theories and evidence-based interventions” (Shern et al., p. 9, 2016) to address this public health epidemic. Every individual, educators and children, would benefit from a trauma-informed perspective. Being a trauma-informed classroom, school, or district is not a fixed set of procedures and policies to enact but rather a lens and a mindset educators embrace.

Research Questions

This literature review will review the neurological/biological effects of trauma. What is the current status of US educational practices (special education and general education) and successful, evidence-based strategies for a trauma-informed practice? What role does trauma play in the classroom, particularly the relationship between trauma and special education?

CHAPTER II

REVIEW OF LITERATURE

Each year as many as ten million children witness or experience domestic violence in the United States (Winder, 2015) and have shown to experience greater struggles in school. In 2013, childhood abuse and neglect was reported over 679,000 times in the United States (Beltran et al., 2016). The United States is a widely diverse community and that cultural context affects traumatized individuals differently from how they perceive a traumatic event to the access to community supports (“Children and trauma,” 2008). Trauma can take on many shapes from involving a family, community or entire nations (Cavanaugh, 2016) and can occur at the individual incident level or day-to-day life circumstance. Child abuse and neglect are the most common form of trauma (Type III-characterized as multiple traumatic experiences beginning at a young age) reported to child protection agencies (Winder, 2015) across the United States (Solomon & Heide, 2005). This type of trauma has no boundaries, it can occur in all socioeconomic levels, across all ethnic groups, and all education levels. The reach of trauma occurs at a basic human biological level and can happen anywhere to anyone (Harris, 2018). Researchers Van Wesel et al., (2011) trauma as a “broad and complex phenomenon” driven by experiences influencing emotions as well as behavior. Trauma is anything that hinders the optimal growth and development of a child. Childhood trauma and adversity is a public health concern with an invisible, underlying neurobiology in which educators are on the front line.

The National Child Traumatic Stress Network of the United States reports forty percent of students have experienced some form of adversity or trauma (Brunzell et al., 2015). Trauma can be a life shattering experience that can forever alter your biology and view of the world

being a safe place (Brunzell et al., 2015). The effects of trauma hinder a child's ability to thrive and succeed. This transfers into the classroom every day and can manifest as attention deficit hyperactivity disorder, conduct disorder, oppositional defiant disorder, reactive attachment, disinhibited social engagement, acute stress disorders (Brunzell et al., 2015), and emotional behavior disorders (Buxton, 2018). A child's classroom may be the most consistent and predictable place in their life placing classrooms at the pinnacle and powerful position to support trauma affected students, in both general and special education contexts (Brunzell et al., 2015).

Childhood experiences shape the developing brain and the impact trauma can have on children manifests within the classroom as academic deficits and behaviors. Trauma can affect brain chemistry creating changes in ability to pay attention, impulse control, or sleep problems (Winder, 2015). Trauma impacts the daily lives of children emotionally, often visible through maladaptive behaviors which have a negative impact on academic success. Children who were exposed to adverse experiences are at risk of developing significant emotional and behavioral deficits ranging from internalizing and externalizing symptoms. In a study of urban youth exposed to trauma, sixteen percent of the children met the criteria for posttraumatic stress disorder (PTSD) (Beltran et al., 2016). Within the education field, trauma and Adverse Childhood Experiences (ACE) score tend to be used simultaneously but are actually distinct in one criteria, who experiences the first-hand event. Direct, witnessed, or community is related to trauma and ACE can be associated with family member trauma (Blodgett & Lanigan, 2018). Where these two overlap are within the brains neurodevelopment.

The Brain and Trauma

Our brain is a miraculous structure and the source of “all human behavior, simultaneously controlling a myriad of unbelievably complex functions” (Wolf, 2010, p.22). The brain is processing a lot of information in every second and determining and interpreting the risk. In order for humans to survive they had to develop an “efficient way of processing information, and the stress-response system is one of them” (Harris, 2018, p.47). Neuroscience research provides evidence that neurochemical and physical brain structures are altered when trauma is experienced resulting in a significant impact on functioning and influence behavioral dysregulation (Hudspeth, 2015; O'Neill, Guenette & Kitchenham, 2010). “Traumatic experiences cause traumatic stress, which disrupts homeostasis” (Solomon & Heide, 2005, p.52). Trauma affects the neurotransmitter receptors, their synapses, and hormone interactions which is typically translated into maladaptive behaviors and coping strategies. People who have experienced trauma have effects ranging from physical changes in brain structure, hormone imbalance which manifest in memory deficits, learning, ability to regulate affect, social development, and processing impairments.

The release of the stress hormone cortisol activates our natural adaptation and coping response (Strelzyk et al., 2012). Cortisol is not intended to remain in our system for long periods of time. For human to thrive and survive cortisol is released when we sense danger and then disperse when we perceive the threat to be gone. When this natural ebb and flow do not occur and we live in a constant state of fear (whether the danger is real or imagined, the stress we feel is real) our internal system will become unbalanced and cause lasting effects to our body (Sinek, 2018).

A critical period in a child's neural development occurs when the "presence or absence of an experience results in irreversible changes" (Harris, p. 144, 2018). When a child experiences adversity during these times of growth they experience maximal neuroplasticity (the brain's ability to rewire and grow new neurons and synapses). There are two types of neuroplasticity, cellular and synaptic. Cellular is changing the number of brain cells communicating and synaptic is changing the strength of the connection between cells. Experiences directly shape our brain (Harris, 2018).

Childhood adversity has a strong link between both child and adult affective psychopathology such as; anxiety disorders, posttraumatic stress, depression, impairment in cognitive functioning, declarative and working memory, and dysregulation of emotional responses. Brain development is an ongoing process that lasts into early adulthood. This process can be influenced by a variety of factors including childhood experiences and adversities leading to differentiation in the maturing brain structures and functions. Brain development occurs through the formation of new neurons, dendrites and synapses. Each formation is strengthened by myelination and selective pruning (building stronger connections and getting rid of unused ones). These processes are affected by hormones like cortisol and catecholamines, stress hormones (Rinne-Albers et al., 2013).

A literature review of 26 structural MRI studies of neuroimaging and trauma published between the year 1999-2012 revealed found abnormalities in several brain structures and functions in children and adults who have experienced childhood adversity; the hippocampus, corpus callosum, prefrontal cortex, cerebellum, and amygdala (Rinne-Albers et al., 2013). These structures play a significant role in many cognitive and emotional deficits (ADHD, autism,

schizophrenia, anorexia, addiction, emotional regulation). A 2017 meta-analysis of MRI (magnetic resonance imaging) studies, consisting of fifteen papers and 1,781 participants, found an association between childhood adversity, self-reported, and lower hippocampus volumes (Calem et al., 2017). This neuroanatomical reduction in the hippocampus decrease our brain's memory bank and regulation of emotions (Rinne-Albers et al., 2013).

Without understanding the brain and behavior principles we cannot create and implement successful interventions (Brendtro, 2015) and understand how they relate to children and trauma. The amygdala is our brain's security system and processes emotional reactions. When a child is exposed to continual or severe trauma the amygdala is compromised and either stays on high alert at all times or tune out all emotions (Brendtro, 2015). In order for children to learn and sustain attention in academic subjects in school they must engage their prefrontal cortex which means the amygdala (alarm center) needs to be disengaged (Harris, 2018). Developmental trauma, multiple adverse events in early childhood, including physical, emotional, and educational neglect and maltreatment (Brendtro, 2015). This type of trauma leads to children who cannot regulate emotions and exhibit fight, flight, or freeze behaviors, which "high-jacks logical thinking" (Brendtro, 2015, p.43).

Children with a history of adversity (chronic, unpredictable, and stress-inducing events) and lack of positive, consistent adult support are more likely to develop mood disorders, have poor executive functioning and decision-making skills (Nakazawa, 2016). Scientists have found that a developing brain exposed to chronic stress hormones shrinks the size of the hippocampus, the area of the brain responsible for emotions, memory, and managing stress (Nakazawa, 2016).

Adverse Childhood Experiences (ACE) and Trauma

The original ACE study conducted by Dr. Vincent Felitti, and Dr. Robert Anda in 1998, was conducted in a middle-class population, seventy percent college educated. They developed a questionnaire revolving around seven categories of adverse childhood experiences, some personal and some relating to family members (“Got Your ACE Score”, 2018) For every question you answer ‘yes’ you would get a point, resulting in your overall ACE score (1-10) (see table 1).

Table 1

Determining Adverse Childhood Event (ACE) score

ACE question	Yes	No
Did a parent or other adult in the household often or very often... Swear at you, insult you, put you down, or humiliate you? or Act in a way that made you afraid that you might be physically hurt?		
Did a parent or other adult in the household often or very often... Push, grab, slap, or throw something at you? or Ever hit you so hard that you had marks or were injured?		
Did an adult or person at least 5 years older than you ever... Touch or fondle you or have you touch their body in a sexual way? or Attempt or actually have oral, anal, or vaginal intercourse with you?		
Did you often or very often feel that ... No one in your family loved you or thought you were important or special? or Your family didn't look out for each other, feel close to each other, or support each other?		
Did you often or very often feel that ... You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? or Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?		
Were your parents ever separated or divorced?		
Was your mother or stepmother: Often or very often pushed, grabbed, slapped, or had something thrown at her? or Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? or Ever repeatedly hit over at least a few minutes or		

threatened with a gun or knife?		
Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?		
Was a household member depressed or mentally ill, or did a household member attempt suicide?		
Did a household member go to prison?		

Adapted from "Got Your ACE Score?" (2018, July 10). Copyright 2018 by <https://acestoohigh.com/got-your-ace-score/>.

Participants of Felitti's (1998) study were adults who had recently completed a standardized medical evaluation at a local HMO (health maintenance organization) firm (Felitti et al., 1998). Adverse childhood experiences in of themselves "are a risk factor for many of the most common and serious diseases in the United States (and worldwide), regardless of income or race" (Harris, 2018, p. 39). A questionnaire about adverse childhood experiences (psychological, physical, or sexual abuse; violence against mother; or living with household members who were substance abusers, mentally ill or suicidal, or even imprisoned) was given to 13,494, 70.5% responded (9,508). Over half of those who responded reported at least one adverse childhood experience, and one fourth reported more than two. The study revealed that the higher amount of adverse experiences you had as a child (under the age of 18) the more likely you are to have multiple health complications as an adult (Felitti et al., 1998). Adverse childhood experiences correlated with the presence of adult diseases; ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease. The foundational ACE study and scores use 10 types of adverse childhood experiences however, White, suggests other subsequent types; racism, witnessing violence outside home, bullying, losing a parent to

deportation, living in an unsafe neighborhood, foster care, being homeless, living in a war zone, being an immigrant, moving multiple times, witnessing sibling being abused, involvement with criminal justice system, and attending a zero- tolerance school. It does not matter the combination or types of ACEs, there were the same “statistical health consequences” (White, 2017, p. 2).

Preliminary data shows that stressors at the household level have greater effect on a child’s well-being than stressors at the community level. Household level would be traditional ACEs criteria where community level can range from community violence, homelessness, discrimination, bullying, school shootings, 9/11, etc. (Harris, 2018). For example, if a child grows up with a stressful community level environment but has a supportive buffer caregiver they are more likely to remain in tolerable, normal stress zones (Harris, 2018).

Childhood adversity and ACE scores are common amongst Americans, sixty-seven percent have experienced at least one category and 12.6 percent had four or more categories. Two- thirds of the United States population has experienced some form of childhood adversity (Harris, 2018). The higher the ACE score the higher the health risk. A person with an ACE score of four or more is twice as likely to develop heart disease and cancer and 3.5 percent more likely to develop chronic obstructive pulmonary disease (COPD) as a person with a zero ACE score (Harris, 2018).

Harris describes three different types of stress responses; positive stress, tolerable stress, and toxic stress. The first two types of stress are healthy and temporary as long as a child has consistent, positive support network is in place (Harris, 2018). Toxic stress response occurs when there is a prolonged “activation of the stress-response system” (Harris, 2018, p. 55)

without a support network. Children with toxic stress have prolonged levels of noradrenaline (the brain chemical released to prepare the body to fight, flight, or freeze) which dysregulates other areas in the brain (prefrontal cortex, locus coeruleus, and amygdala) resulting in an inability to concentrate and complex problem solving, but in others it externalizes as impulsive behavior and aggression (Harris, 2018). Traumatic school events such as Columbine and Sandy Hook tend to catch national media attention and flood the systems with supports for the affected children. However, there are children in classrooms each day affected by toxic stress and trauma- adverse childhood experiences (Walkley & Cox, 2013). Childhood stress is on a continuum. On one end you have normative, typically developing stressors (waiting in line, having to choose between activities.) that build resilience and coping skills. On the other end of the continuum is traumatic or toxic stress which is unpredictable, chronic and has costly effects on brain development, “these experiences actually alter brain structure” (Walkley & Cox, 2013, p. 123). Young children are the most at risk for adversity but they are also the most accepting for healing when interventions start early (Harris, 2018).

Since adverse childhood experiences (ACE) are common in the United States and have a strong correlation to life-long maladaptive effects Felitti recommends prevention strategies as being the primary support. This however, “has proven difficult and will ultimately require societal changes that improve the quality of family and household environments during childhood” (Felitti et al., 1998, p. 225). Difficult, but these strategies are possible with increased recognition of occurrence and understanding of behavioral coping strategies that can be taught to reduce the emotional impact.

In addition to Felitti's preventive strategies, the Kaiser Health Plan, in San Diego California, created a Healthy Steps Program designed to address preventative care. They develop a close relationship with children and their families from birth to three years through office visits, home visits, and an advice hotline for parents. Providing a family-based prevention approach that can be replicated and implemented may increase the long-term benefits and quality in adult health (Felitti et al., 1998).

The Classroom and Trauma

Childhood adversity is associated with many observable conditions as early as infancy. Exposure to ACEs is associated with growth delay, cognitive delay, learning difficulties and behavioral problems (Harris, 2018). High ACE scores are closely related to many school challenges with social, emotional, and cognitive impairment, engaging in high risk behaviors, disability, and social problems (Cavanaugh, 2016). In the classroom teachers might observe indicators beyond learning deficits including fear, hyperactivity (unable to control energy) or hypoactive (unable to generate energy to interact) (Keels, 2018), aggression, somatic problems, depression, and self-harm. These observations often result in an outside diagnosis of attention deficit/ hyperactivity disorder (ADHD), mood disorders, or anxiety (O'Neill, Guenette & Kitchenham, 2010). However, children presenting learning deficits and behavioral problems often have underlying, hidden diagnosis of complex trauma. The traumatic experiences predates special education services and determining a disability carrying with them behavioral, emotional, social and academic deficits into the classroom.

In a 2018 case study of 2,101 randomly selected, deidentified K-6 children students deemed at risk for academic, behavioral, and attendance concerns. Thirty-four percent were

failing to meet grade level standards in one of the core areas (reading, writing, and math) (Blodgett & Lanigan, 2018). Students attendance concerns were more prevalent in higher ACE scores. Twenty-eight percent were reported to have extreme behavior concerns in schools (Blodgett & Lanigan, 2018). The correlation between higher ACE scores and school attendance, academic discrepancies and behavioral deficits has strong relationship. A higher ACE score is associated with retention, absenteeism, failure to achieve academic standards, behavior problems in classrooms, and special education enrollment (Blodgett & Lanigan, 2018).

A 2018 retrospective record review (RRR) study was conducted in Connecticut. Three districts that volunteered to be a part of the study, submitted twelve IEPs (Individual Education Plans) of children with behavior needs between the ages of 12-18 for the school year 2015/2016. Buxton's study used four core domains which trauma manifests within a school setting; (a) academics, (b) relationships, (c) self-regulation, and (d) physical functioning. Eighty-three percent of the IEPs contained responses that exhibited three out of the four domains (Buxton, 2018). One-hundred percent had academic deficits (written expression, math calculation, reading comprehension, and fluency), seventy-five percent had relationships deficits (lack of prosocial skills, withdrawal/isolation, limited empathy, etc.), and ninety-two percent had self-regulation deficits (hostile, disruptive, destructive, etc.). There was no evidence of any physical functioning impairments (Buxton, 2018).

“Since trauma has a significant impact on a child's ability to function successfully in school settings, it is important to view the behavioral responses among children from a trauma-informed perspective” (Buxton, 2018, p.31). Toxic stress changes the brain and children live in a constant world of danger. Much of their behavior is out of their control and choice, they are in

survival mode, which “trumps everything else” (Stevens, 2012, p.6). Special education professionals are encouraged to work together with trauma-informed professionals to create better opportunities for these children to learn (Buxton, 2018).

Trauma related to attachment (emotional abuse and the inadequate consistent adult support) has a significant impact on a child’s ability to navigate developmental crisis, regulation of emotional experiences, and problem solving (O’Neill et al., 2010). A school’s goal is to educate however traumatized children require basic survival and relational needs to be met before they can profit from learning. Providing a child with a consistent, trusting relationship and a safe environment is essential to student learning for children who view their world in a negative light due to their experiences (O’Neill et al., 2010). Children who experienced trauma live in the moment and need specific interventions to be successful. Teacher’s must know the individual and how their trauma effects their world. There are several interventions that have shown to assist traumatized children such as PACE (playfulness, acceptance, curiosity, and empathy), EMDR (Eye Movement Desensitization and Reprocessing), TF-CBT (trauma focused-cognitive behavioral therapy) and teacher awareness around childhood trauma and what types of behaviors children can and cannot control (O’Neill et al., 2010).

In 2013, the first replication and extension of the school-based intervention for elementary students exposed to trauma was Bounce Back (an elementary trauma intervention). It is developmentally adapted from the successful evidence based Cognitive Behavioral Intervention for Trauma in Schools (CBITS), which is designed for upper level grades 5th-12th. This intervention consists of ten sessions of skills building groups focusing on teaching students psychoeducation around trauma and learning “affect identification, relaxation techniques,

cognitive coping, social support, and problem solving” (Santiago DeCarlo et al., 2018, p.4).

Participants included fifty-two 1st through 4th graders from an urban school district in Illinois from 2013 to 2016. Children selected were based on student, parent, and teaching staff assessments and were determined to have experienced trauma and PTSD symptoms. Students were placed in one of two groups; delayed intervention group- waitlist, or immediate intervention group. The immediate treatment group showed greater reduction in PTSD and improvement in coping compared to the control group (Santiago DeCarlo et al., 2018). These findings help support Bounce Back as an effective trauma intervention and reduces the PTSD symptoms and improves coping skills. However, Bounce Back needs more replications across a variety of populations and trauma to be considered evidence based.

Researchers Cummings, Addante, Swindell and Meadan (2017) conducted qualitative interviews of fourteen community-based professionals on their experiences with children and trauma as well as how teachers can be positive influences. Post-traumatic stress disorder (PTSD) is the most common diagnosis for persons who experienced a traumatic event. Four beneficial assumptions and practices that would be helpful for teachers working with children who experienced trauma; (a) realize the impact of trauma, (b) recognizing the signs of trauma, (c) respond by integrating knowledge about trauma within the environment, and (d) actively resist re-traumatization (Cummings et al., 2017). These four themes require a range of skills and knowledge that most teachers receive limited training on. Seventy-nine percent of participants in this study report children they work with have behavior problems at school and many of these approaches can be implemented at the classroom level. The impact trauma has on children interrupt typical functioning and display an array of maladaptive behaviors. Behavioral

and emotional patterns appear differently across individuals based upon individual characteristics, context, and the traumatic event experienced (Cummings et al., 2013). Seventy-nine percent of participants agreed that children who have experienced trauma might display signs of biological developmental trajectories and might need more support than their same-age peers in order to demonstrate various social and emotional competencies (Cummings et al., 2013).

There are three classroom strategies suggested when responding to trauma and PTSD (a) be attuned and understand while anticipating the needs of children and their families and then responding accordingly, (b) convey positive intentions, and (c) collaboration with parents and other professionals (Cummings et al., 2013). Teachers should be aware of different aspects of a student's environment (social, temporal, physical/sensory) that may re-traumatize a child. The classroom might be the only safe, secure setting a child encounters in a day.

According to a 2008 American Psychological Association report on posttraumatic stress disorder and trauma in children and adolescents, a vast majority (more than two thirds) of children in America are exposed to traumatic experiences. In 2006, 7.9 million children received medical treatment for unintentional injuries (car crash, dog bites, near drowning, fires, etc.). More than 400,000 for injuries due to violence ("Children and trauma," 2008).

Traumatized children experience a disruption of daily life and a wide array of impact other than the usual known PTSD symptoms professionals working with children are educated on (Van Wesel, Boeije & Allisic, 2011). Cummings et al. (2013) suggest an additional subtype of PTSD; the pre-school subtype characterized by (a) exposure to a traumatic event, (b) re-

experiencing, (c) avoidance or negative alteration in mood or cognition, (d) hyperarousal, (e) one-month duration, and (f) impairment in functioning.

Special Education Relationship to Trauma

Schools are the primary service provider for students with mental health needs (Sullivan & Sadeh, 2014). The most common federally recognized label given to these students with behavioral/mental health concerns is Emotional Behavior Disorder-EBD (or Emotional Disturbance-ED) (Sullivan & Sadeh, 2014; Buxton, 2018). With 1.03%, Minnesota has almost double the prevalence of ED than the national mean (Sullivan & Sadeh, 2014).

The most frequently qualifying categorical label used for children who experience trauma is Emotional Behavioral Disorder (EBD). However, EBD criteria is too vague to properly address the needs of children who have faced trauma- Winder (2015) suggests creating a subcategory of trauma within EBD to better identify children thus creating more trauma sensitive schools and encouraging an educational paradigm shift. This lack of clarity is leaving schools without guidance and unequipped to serve this population of students (Winder, 2015).

With a large majority of educational research being done around trauma-informed classrooms and how to best support traumatized children there seems to be lacking research in the relationship between special education Emotional Behavior Disorders behavior manifestation and that of trauma responses (Buxton, 2018). Children with a four or more ACE score is “thirty-two times as likely to have been diagnosed with learning and behavior problems” (Harris, 2018, p. 61). Congress enacted the Education for All Handicapped Children, now Individuals with Disabilities Education Act (IDEA), in 1975 to provide access to free appropriate public education (FAPE) to all children (Sullivan & Sadeh, 2014).

However, there has been much scholarly debate over the definitions of EBD and other related socially maladjusted behaviors. There is no federal definition of the variances and qualification of each but rather is left up to the individual states to interpret (Sullivan & Sadeh, 2014). Historically, it has proven difficult to define differences leaving many states to elect to omitted a clause in their special education statutes differentiating between the two, including Minnesota (Sullivan & Sadeh, 2014).

Children who demonstrate a pattern of antisocial, defiance, or aggressive behaviors that impair their functioning are commonly initially identified and supported within the school system (Forness et al., 1993). When a child is formally found to qualify for special education services they are assured specialized and individualized interventions and supports. Special education labels are broad administrative categories placed on individuals to ensure access to services (Sullivan & Sadeh, 2014). However, as much as seven percent of children with maladaptive behaviors may qualify for special education services and often go unidentified (Forness et al., 1993). For these unidentified students who remain in classroom with their emotional and behavioral needs going unsupported their risk for academic failure and referral to mental health facilities increase dramatically (Forness et al., 1993).

Currently, the state of Minnesota, Department of Education and Children with Disabilities Act (Emotional or Behavioral Disorders, 2007) determines eligibility for special education services under the categorical label of emotional or behavioral disorder (EBD) (see appendix for full criteria). In a National Institute of Child Health and Development (NICHD) study of early child care and special education 1,700 children, under the age of seven, currently enrolled in special education services, only sixteen percent were identified prior to the age of

three and twenty-nine percent were identified prior to the age of five (La Paro, Olsen, & Pianta, 2002). Identification and early intervention for children who may benefit from special education services is a challenge within the special education field (La Paro et al., 2002). However, early intervention services have significantly increased positive outcomes for children. Children were more likely to be identified by a clinical professional for special education services by the age three when high levels of behavior (particularly destructive behavior) and health problems were reported by parents (La Paro et al., 2002).

It is so important for school staff to be aware and understand the effects trauma can have on children. Children are often mislabeled of having attention deficit disorder (ADHD), oppositional-defiant disorder (ODD), conduct disorder, and other diagnoses that can inhibit effective interventions (Walkley & Cox, 2013). Emotional, physical, and sexual adversities in children is common. Sixty-eight percent of children have experienced at least some form of a traumatic event. These children range in post-traumatic effects. The most common factor presented in children with maltreatment was being diagnosed with an emotional and behavioral disorder (EBD) (Cavanaugh, 2016). Thirty percent of children with EBD have experienced trauma and exhibit PTSD symptoms. (Cavanaugh, 2016). According to 2001 federal child count data students who qualify for emotional and behavioral disorder (EBD) account for eight percent (472,932 children ranging from 6-21) of students receiving special education services (Billingsley, Fall, & Williams, 2006).

However, with the high prevalence of traumatized students receiving special education serviced under the categorical label of EBD there are still students who have experienced trauma and may not be receiving support. Trauma-informed practices must be a multitiered

schoolwide system of support (MTSS) (Cavanaugh, 2016). Traumatized students exhibit a number of challenging behaviors which allow access to specialized individual behavior support (Cavanaugh, 2016). It is critical that teachers of EBD students be aware of the impact trauma has and effective interventions to address their academic and social/emotional needs.

Trauma-informed Practices

Children walk into classrooms every day with a range of educational, physical, and social/emotional needs that today's educators require supports, awareness, and knowledge of applicable trauma informed practices (TIPs) (RB-Banks & Meyer, 2017). Trauma Informed Practices are specific interventions that help individuals cope with traumatic and adverse events they have experienced (RB-Banks & Meyer, 2017). Being able to address the unseen scars behind behaviors within children who have faced trauma is an undertaking without specific practices (RB-Banks & Meyer, 2017).

Early Identification and Screening

Harris (2018) believes that raising awareness and public education on childhood adversity can prevent maladaptive outcomes. There are a lot of "folks day-to-day who don't understand, how dramatically early adversity affects health and wellbeing across a lifetime" (Loudenback, 2016). We need to support the infrastructure for early identification and intervention, and we need to put resources and manpower into advancing the research on ACEs (Loudenback, 2016) and childhood trauma.

Life experiences, negative and positive, shape children and their future ("Children and trauma", 2008). With early screening and identification, ACEs do not need to be written into your DNA for the rest of your life (Harris, 2018). Early and universally screening children leaves

less up to chance, the chance that the doctor will ask the right questions or know about ACE scores or that the child would exhibit behaviors in school to even warrant a diagnosis (if even the correct diagnosis) (Harris, 2018). Traumatized children often have reactions of distress or behavioral changes (new fears, anxiety, nightmares, sadness, reduced concentration, decline in school, anger, somatic symptoms, and irritability) (“Children and trauma,” 2008). Children exposed to chronic or multiple traumas are at higher risk of posttraumatic stress symptoms which often interfere with daily functioning and require clinical support. However, children who do seek or are referred for mental health or clinical support their trauma exposure may never be known or addressed (“Children and trauma,” 2008). Behavior problems are typically noticed by adults and schools which initiate clinical support. This leaves many PTSD symptoms, diagnosis, and interventions to fall short and go untreated. Large scale, routine screenings for children and their exposure to adversity is recommended to ensure appropriate identification and supports are addressed (“Children and trauma,” 2008).

Multi-layered Interventions

Harris (2018) recommends six key interventions to combat toxic stress and ACEs; sleep, exercise, nutrition, mindfulness, mental health, and healthy relationships. These strategies specifically target a dysregulated stress response system.

Sleep, exercise, and nutrition.

In 2018 a cross-sectional study on toddlers enrolled in a Head Start program living in socioeconomic adversity a negative correlation to sleep duration and poor sleep to that of cortisol or toxic stress levels was found (Ordway et al., 2018). Since lingering stress responses in children prove to determine a decrease in adult health outcome, future studies should explore

quality sleep practices as one component in a multi-tiered intervention process in children (Ordway et al., 2018).

An analysis of sleep and its important relationship between stress, across multiple populations, found that our body requires sufficient amounts of sleep and healthy sleep habits in order to effectively cope with stressful events (Mullan, 2014). Individuals who experienced poor sleep habits had an increase of well over seventeen percent of predictable physical symptoms (Mullan, 2014). Although, this analysis was not targeted specifically towards children under the age of 18, it highlights the importance of interventions to improve sleep and the relationship between sleep and childhood adversity.

Regular exercise releases BDNF (brain-derived neurotrophic factor) proteins that help boost brain and nerve cell growth. Exercise also helps regulate the stress response and reduce inflammatory cytokines which are chemical alarms that tell your body to fight (Harris, 2018).

Mindfulness.

Within a 2015 comprehensive review of school-based trauma-informed models researchers determined two key components to supporting students affected by trauma; healing the dysregulated stress response system and healthy relationships (Brunzell et al., 2015). Self- regulation strategies play off of the body's natural regulatory strengths through rhythm, repetition, and somatosensory interventions such as; mindfulness, meditation, breathing, visualization, yoga, musical activities like drumming (Brunzell et al., 2015). These practices can be implemented when children are experiencing difficulty regulating their body as well as proactive strategies to support their strengths (Brunzell et al., 2015).

Stress can induce your flight- fright-freeze response (sympathetic nervous system) while meditation or mental health can activate your rest and digest response (parasympathetic nervous system) (Harris, 2018). A 2013 preliminary study of urban boys, between the ages of 8-12, who have experienced trauma a positive correlation was found when using a mixed method approach of psychotherapy and Yoga as an effective intervention (Beltran et al., 2016). Yoga promotes body-brain regulation and can counter the effects of exposure to chronic stress and trauma (Beltran et al., 2016).

A 2015 pilot program (ML2) launch in Altadena, California's high population of extreme behavior students in Five Acres School (a district co-op with contracts with 22 school districts in Los Angeles County) revealed a positive correlation between mindfulness practices and behavior reduction. Maladaptive behavior outbursts decreased by forty-five percent within the first semester of implementation (Loudenback, 2016). When students employ mindfulness techniques they ameliorate and cope with psychological issues from past adverse experiences. Student's at Five Acres School use meditation to become more aware of their emotions, thoughts and reactions (Loudenback, 2016). Although this pilot program has found success in its infancy further research and data needs to be completed to ensure validity across multiple settings.

Mental health. A vast majority of research focuses on prevention, awareness or reduction of adversity in children. However, many individuals lack the supports and strategies until much later in life (Korotana et al., 2016). There are three common themes which can be developed into any theoretical model and the impact of trauma; Individual, Family, and Community. Cognitive-behavior therapy (CBT) techniques have been proven most successful in

treating children exposed to chronic trauma. A systematic review of 99 peer-reviewed studies related to psychosocial interventions in adults with high ACE scores revealed cognitive-behavior therapies (CBT) to have the strongest positive correlation to overall health and mental improvement (Korotana et al., 2016). CBT analyzes traumatic events, emotions, behaviors, and thoughts and alters the individual's perspective (Korotana et al., 2016). CBT reduces trauma reactions, PTSD symptoms, and behavioral problems through building secure, consistent relationships between therapist, family and individual. Providing a safe, secure, and trusting support system builds resilience and coping skills necessary for dealing with the exposure and returning to normalcy ("Children and trauma," 2008).

Therapeutic trauma interventions should take an integrative approach, neuropsychological functions or biological mechanisms as well as the behaviors we characterize as trauma defense mechanisms or functions of a trauma (Vasile, 2014). Although Vasile (2013) meta-analysis on psychological interventions in trauma, particularly PTSD, does not explicitly entail students with a special education label, the research does focus on effective strategies for children who have experienced trauma and this may have transferable information for special education students and classroom applications. Vasile (2013) discovered three interventions psychologist employed most often; trauma focused cognitive-behavior therapy (CBT), eye movement desensitization and reprocessing (EMDR), and stress management strategies.

A combination of trauma-focused psychological treatment and CBT (TF-CBT) is the first-line intervention (Korotana et al., 2016). Trauma focused cognitive-behavior therapy (CBT) combines exposure, cognitive restructuring, and teaching specific coping skills. Exposure

therapy places the individual in a safe mental imagery of the traumatic event over time decreasing the fear and stress initially experienced (Vasile, 2014). Cognitive restructuring increases personal awareness of the trauma then replace maladaptive characteristics and thoughts with adaptive ones (Vasile, 2014).

A 2017 meta-analysis concluded eye Movement Desensitization and Reprocessing (EMDR) showed similar successful results as TF-CBT interventions (Korotana et al., 2016). Solomon and Heide (2005) and Vasile (2013) suggest EMDR as a successful biological informed therapy to help process traumatic experiences and best support. EMDR is a combination of body-focused and cognitive-behavioral treatment developed by Francine Shapiro in the 1990's. EMDR is a visual, tactile, or auditory stimuli shifting from left to right sides of the brain and forcing attention across midline (Solomon & Heide, 2005) while simultaneously being asked to recall a traumatic event or memory (Korotana et al., 2016). This rhythmic eye movement reprograms the brain function and lessens the impact of the emotional impact of the traumatic event (Velise,2013). Little research is done on the neurophysiological basis of EMDR and further studies would benefit this brain-based application.

Healthy relationships. A consistent caregiver acts as a buffer between the child and their stress response system (Harris, 2018). According to a cross-sectional survey review of the Maternal and Child Health Bureau (between the years of 2011 and 2012) of 1,856 children under the age of eighteen who have experienced an adverse event, children who established a healthy relationship were more likely to possess resilience and recover from trauma (Kasehagen et al., 2018). Children are not born with resilience, it is fostered through supportive relationships, skill building, and positive experiences (Kasehagen et al., 2018).

Children who experience inconsistent or unstable adult relationships require a sense of safety and belonging in order to heal. Classroom teachers who create an environment based on valuing students regardless of their actions, build a solid foundation of empathy, trust, validity, and grace (Brunzell et al., 2015). These healthy relationships develop safety, trusting bonds, and self-control in children who have been neglected and traumatized. These children have a boost in oxytocin levels, the feel-good hormone, and are more likely to have a decrease in aggressive behaviors (Brendtro, 2015) and are essential to recovery from trauma and emotional well-being (Mullan, 2014).

Visitacion Valley Therapeutic Nursery, in San Francisco, California, developed a successful relationship-based program for traumatized children across multi sites over the span of a decade. Each classroom had a small student to teacher ratio (ranging from 1:3- 1:6) to foster a consistent healthy adult relationship each day (Brinamen & Page, 2012). For children who lacked a buffering adult, someone who will help lead them through adversity, having a predictable, consistent and caring person there for them can foster growth in all aspects (Brinamen & Page, 2012).

Trauma- informed Lens

States across the US have increased their awareness to the correlation between a positive school environment that is welcoming, supportive, and responsive to individual children's needs and providing interventions to combat the effects of adverse childhood events and trauma (Kasehagen et al., 2018). With such high rates of students who experienced adverse life events teachers are on the *front-line* and need to be equipped with trauma-informed strategies to support every student's needs (Brunzell et al., 2015). Stevens (2012) describes a

necessity for a paradigm shift, one such success in a trauma-informed high school in Walla Walla Washington-Lincoln High School, in which the average ACE score is 4.5. Lincoln High School has reduced suspension rates by 85% over five years of implementing a school wide trauma-informed lens and focusing on the whole child's needs. Ninety percent of previous out of school suspensions were due to "disruptive behaviors" (Stevens, 2012). Lincoln High discovered that punishing these maladaptive behaviors is re-traumatizing students. "Severe and chronic trauma causes toxic stress in kids. Toxic stress damages kids' brains. When trauma launches kids into fight, flight, or fright mode, they cannot learn. It is physiologically impossible" (Stevens, 2012, p.3). Lincoln high staff embrace two key concepts; toxic stress inhibits children's ability to learn and moving from a punitive to a supportive approach changes lives and behavior (Stevens, 2012).

The way you view children will become your inner voice and guide your actions and reactions with them (Greene, 2008). When children experience adversities, they can no longer meet life's demands and respond appropriately. Traumatized children respond maladaptively at a much higher rate and more frequently than those who have not experienced trauma (Greene, 2008). Behind every challenging behavior is a functional adaptation to an unsolved challenge (Greene, 2008). Following these behaviors adult reactions or consequences typically impose peculiar or illogical punishments. Children are restricted from recess, placed in a time out or sent home (Greene, 2008). "Children who haven't responded to natural consequences do not need more consequences" (Greene, 2008, p.167). They need consistent adults who have knowledge of their skills and unsolved challenges. When supportive adults understand their needs, they can teach the skills to cope in a positive, adaptive way. (Greene, 2008).

Current school discipline procedures attempt to address the challenge of finding a balance between community safety and individual needs. Most policies are reactive and punitive resulting in students losing classroom time (Harris, 2018). Children's trauma induced maladaptive behaviors end up being suspended, expelled, or referred to special education. During the 2010-2011 school year 150,349 out of 3,042,670 California elementary school students were suspended or expelled (Stevens, 2014). El Dorado Elementary School, in the Visitacion Valley neighborhood of San Francisco, received a grant to pilot a trauma-informed, restorative practice into their school- HEARTS (Healthy Environments and Response to Trauma in Schools). El Dorado Elementary School is a kindergarten through fifth grade high-needs (one of the poorest and most violent neighborhoods in San Francisco) school composed of mostly African-American and Latino families (Stevens, 2014).

In 2008-2009 school year (the year before HEARTS was introduced), there were 674 referrals to the principal's. During 2012-2013 school year, there was a 74% drop (175 referrals) and 2013-2014 school year it continued to decrease to 50 (Stevens, 2014). There were 80 suspensions in 2008-2009 and over the course of four years there was a decrease of 96% (Stevens, 2014).

El Dorado's trauma-informed practices included the implementation of restorative practices; however, they are not as effective in isolation. Restorative practices utilize strategies that hold students accountable for their actions, teach empathy and cultivate healthy relationships (Stevens, 2014). Creating a safe and supportive environment for students allowed them to cope with the adversities they faced and gain control over some aspects of their life (Stevens, 2014).

Behavior De-escalation

Many educators in districts where there is high occurrence of chronic community adversities have limited access to supports until student behavior hits a severe level resulting in extreme disciplinary or special education determination (Keels, 2018). According to Keels (2018), the most highly requested support system schools are craving are de-escalation strategies and training. These strategies are preventative approaches to aid in students to control behavior and calm down prior to out of control outbursts (Keel, 2018).

Based on Walkley and Cox's (2013) research, a Neurosequential model of Therapeutics and a trauma-informed training initiative, Multiplying Connections, a helpful mnemonic was created to foster trauma-informed staff interactions- CAPPD:

- Calm; keeping children and adults in a relaxed, focused state of mind and environment.
- Attuned; creating awareness of individual children's nonverbal and sensory signals.
- Present; be in the moment, focus on the current children in front of you and their needs.
- Predictable; provide traumatized children with structure and a routine. This will help them feel safe and secure.
- Don't let children's emotions escalate your own; remain in control of your reactions/emotions and stay calm.

Keel (2018) has created the Trauma Responsive Educational Practices (TREP) Project to help educators develop strategies and practices to support students who are experiencing high levels of toxic stress. Students who experience trauma do not respond to punitive consequences and require a more trauma informed approach (Keel,2018). Acting out behaviors move through distinct phases; calm, trigger, agitation, acceleration, peak, acting out, de-escalation, and recovery (Keel, 2018). Being able to recognize, respond, and support students through the Acting Out Cycle early on can be focused on preventive rather than reactive.

Keel (2018) describe preventative and in-the-moment de-escalation strategies to consider. Preventive strategies help educators to recognize individual triggers and signs of agitation and be proactive to establish a safe environment and support minor behaviors before they escalate or even begin (Keel, 2018). Even the best preventative strategies can not eliminate every escalated behavior it is important to utilize in-the-moment de-escalation strategies. There are two objectives with these strategies, keep students safe and to help escalated student return to a calm state (Keel, 2018). Knowing the students you are working with and how their trauma affects them will create a more proactive, supportive relationship rather than a punitive relationship creating a safe, trauma informed approach for all students (Keel, 2018).

CHAPTER III

DISCUSSION AND CONCLUSION

Trauma has no limits or boundaries and effects nearly all individuals in some fashion. The United States has found success in supporting children with awareness of the neurological/biological effects of trauma, educational practices (special education and general education), and evidence-based strategies for trauma-informed practices. Every individual processes traumatic events differently and exhibit a wide variety of symptoms from developmental impediment to minimal transitional effects. Exposure to toxic stress in childhood is associated with physiologic dysregulation across multiple biological systems including the immune, metabolic, and nervous systems (Hornor, 2015). Interventions during childhood are the most effective way to reduce the impact of trauma (Turner et al., 2015). Dr. Harris calls for a revolutionary paradigm shift to create awareness, provide early interventions, create a better world for our future and address this public health epidemic (Harris, 2018). Children spend almost half of their waking day in a classroom, this is a crucial setting that puts educators on the front line for supporting childhood adversity. Being a trauma-informed classroom, school, or district is not a fixed set of procedures and policies to enact but rather a lens and a mindset educators embrace.

Summary

Chronic stress and trauma can induce and drain all bodily systems and is involved in all emotional and behavioral disorders (Brendtro, 2015). Neuroscience research provides evidence that neurochemical and physical brain structures are altered when trauma is experienced resulting in a significant impact on functioning and influence behavioral dysregulation

(Hudspeth, 2015; O'Neill et al., 2010). Trauma and adversity can literally alter brain and body functions and result in academic, behavior/coping, and executive functioning deficits.

Schools are the primary service provider for students with mental health needs (Sullivan & Sadeh, 2014). The most common federally recognized label given to these students with behavioral/mental health concerns is Emotional Behavior Disorder-EBD (or Emotional Disturbance-ED) (Sullivan & Sadeh, 2014; Buxton, 2018). With 1.03%, Minnesota has almost double the prevalence of ED than the national mean (Sullivan & Sadeh, 2014). Thirty percent of children with EBD have experienced trauma and exhibit PTSD symptoms (Cavanaugh, 2016). According to 2001 federal child count data, students who qualify for emotional and behavioral disorder (EBD) account for eight percent (472,932 children ranging from 6-21) of students receiving special education services (Billingsley et al., 2006).

Trauma Informed Practices and a trauma lens are specific interventions geared to supporting individuals in coping with traumatic and adverse events (RB-Banks & Meyer, 2017). Being able to address the unseen scars behind behaviors within children who have faced trauma is an undertaking without specific practices (RB-Banks & Meyer, 2017). Every behavior, regardless of maladaptivity, serves a purpose for that individual. Life experiences, negative and positive, shape children and their future ("Children and trauma", 2008). With early screening and identification, ACEs do not need to be written into your DNA for the rest of your life (Harris, 2018) and interventions can mitigate the maladaptive effects. Harris (2018) recommends six key interventions to combat toxic stress and ACEs; sleep, exercise, nutrition, mindfulness, mental health, and healthy relationships. Creating a trauma informed relationship and being able to recognize, respond, and support students through a behavior Acting Out Cycle early on

can be focused on preventive rather than reactive options. Knowing the students you are working with and how their trauma affects them will create a more proactive, supportive relationship rather than a punitive relationship creating a safe, trauma informed approach for all students (Keel, 2018). These strategies and awareness specifically target the dysregulated stress response system.

Professional Application

Each year as many as ten million children witness or experience domestic violence in the United States (Winder, 2015) and have shown to experience greater struggles in school. The effects of trauma and childhood adversity is a public health epidemic that is growing in awareness. Educators are in a unique position to support children and alleviate the maladaptive outcomes through awareness, early interventions, trauma informed mindset as buffering adults. This is an emerging paradigm shift in education and all levels of educators (general ed, special ed, administration) require access to and professional development in how to provide these interventions. When trauma-informed practices are brought into everyday classrooms all children benefit. Every educator should begin with the awareness ACEs and trauma have on individuals. Every child can benefit from a teacher who is trauma- informed.

With September on the horizon and a new school year beginning I am rejuvenated and eager to spread my trauma-informed lens, knowledge, and strategies with colleagues and most importantly children. I am going to start with every individual in my school and creating awareness of trauma, how prevalent it is, that it literally changes our brains and how we respond to the environment around us. If every child has an adult that is aware of trauma we can begin to make that shift towards educating the whole child. As educators we are placed in

front of these children and the awareness of our critical role does not need fancy, expensive training or trendy theories. It can start with just one person and blossom into a school wide culture and practice. I will take this knowledge and spread it to all who will listen and create a change in our current education system into a trauma-informed culture.

On a smaller, personal level my classroom will incorporate the time and space to build relationships with students and families. Understanding each individual and their story can help set the scene for understanding their trauma and how to be proactive in supporting their needs. Creating this awareness within the classroom can foster the trauma-informed mindset. A major step in applying the results of this research is awareness, every educator must be trauma- aware.

Limitations in Research

I limited my research to three main criteria; trauma in the classroom, ACEs, and childhood trauma's effect on the brain. I did not include any studies that were about TBI (traumatic brain injuries), which often were mixed into the trauma results. I included only peer-reviewed studies and practical applications between the years 2000-present, except for the original ACEs study by Felitti and Anda's in 1998. I found limited studies specifically on the relationship between special education and trauma so broadened my research base to include all classroom experiences for children under the age of 18.

Since Felitti and Anda's 1998 original ACE study and the links between childhood adversity and adult health outcomes there has been several studies attempting to duplicate results. Most of the studies and data reported was based on self-reports and there is still more research to be done on how social, emotional, and medical problems are linked throughout

one's life (Felitti et al., 1998). Another area of limitation was practices that teachers can develop to create a safe and positive environment for children who have experienced trauma. Few studies were found to include practicing teachers and the trauma informed practices at the teacher level should be explored deeper (Cummings et al., 2013).

Implications for Future Research

Building trauma-informed classrooms and supports for children not only in special education has a promising outlook. However, more research on practical classroom interventions and how including them in teacher preparation courses can affect success is needed. Initially the focus of this thesis was how special education and trauma are related. Research revealed that special education has been a source to support these children who have experienced adversity in the school system but there is so much room left up for interpretation in special education qualifications that America needs to dive deeper into trauma research to best support these children.

Conclusion

Trauma affects millions of children each year (Winder, 2015) at a neurological/biological level. This can lead to maladaptive behaviors, coping skills, and academic failure. The united states are in the infancy of this wonderful paradigm shift into evidence-based strategies of a trauma-informed classroom. Over the last several years schools across America have begun this revolutionary transformation with tremendous success. For example, El Dorado Elementary school in San Francisco, CA and Lincoln High School in Walla Walla, WA have had a reduction of suspensions by 85-96% after implementation of a trauma-informed practices. In order to

continue, this awareness and celebration of successful schools needs to spread. Trauma-informed schools are the future and benefit all students.

Appendix

MN Emotional/Behavioral Disorder Criteria

(Emotional or Behavioral Disorders, 2007)

Definition

"Emotional or behavioral disorders" means an established pattern of one or more of the following emotional or behavioral responses:

- A. withdrawal or anxiety, depression, problems with mood, or feelings of self-worth;
- B. disordered thought processes with unusual behavior patterns and atypical communication styles; or
- C. aggression, hyperactivity, or impulsivity.

The established pattern of emotional or behavioral responses must adversely affect educational or developmental performance, including intrapersonal, academic, vocational, or social skills; be significantly different from appropriate age, cultural, or ethnic norms; and be more than temporary, expected responses to stressful events in the environment. The emotional or behavioral responses must be consistently exhibited in at least three different settings, two of which must be educational settings, and one other setting in either the home, child care, or community. The responses must not be primarily the result of intellectual, sensory, or acute or chronic physical health conditions.

Criteria

A pupil is eligible and in need of special education and related services for an emotional or behavioral disorder when the pupil meets the criteria in items A to C.

- A. A pupil must demonstrate an established pattern of emotional or behavioral responses that is described in at least one of the following subitems and which represents a significant difference from peers:
- (1) withdrawn or anxious behaviors, pervasive unhappiness, depression, or severe problems with mood or feelings of self-worth defined by behaviors, for example: isolating self from peers; displaying intense fears or school refusal; overly perfectionistic; failing to express emotion; displaying a pervasive sad disposition; developing physical symptoms related to worry or stress; or changes in eating or sleeping patterns;
 - (2) disordered thought processes manifested by unusual behavior patterns, atypical communication styles, or distorted interpersonal relationships, for example: reality distortion beyond normal developmental fantasy and play or talk; inappropriate laughter, crying, sounds, or language; self-mutilation, developmentally inappropriate sexual acting out, or developmentally inappropriate self-stimulation; rigid, ritualistic patterning; perseveration or

obsession with specific objects; overly affectionate behavior towards unfamiliar persons; or hallucinating or delusions of grandeur; or

(3) aggressive, hyperactive, or impulsive behaviors that are developmentally inappropriate, for example: physically or verbally abusive behaviors; impulsive or violent, destructive, or intimidating behaviors; or behaviors that are threatening to others or excessively antagonistic.

The pattern must not be the result of cultural factors, and must be based on evaluation data which may include a diagnosis of mental disorder by a licensed mental health professional.

B. The pupil's pattern of emotional or behavioral responses adversely affects educational performance and results in:

- (1) an inability to demonstrate satisfactory social competence that is significantly different from appropriate age, cultural, or ethnic norms; or
- (2) a pattern of unsatisfactory educational progress that is not primarily a result of intellectual, sensory, physical health, cultural, or linguistic factors; illegal chemical use; autism spectrum disorders under part 3525.1325; or inconsistent educational programming.

C. The combined results of prior documented interventions and the evaluation data for the pupil must establish significant impairments in one or more of the following areas: intrapersonal, academic, vocational, or social skills. The data must document that the impairment:

- (1) severely interferes with the pupil's or other students' educational performance;
- (2) is consistently exhibited by occurrences in at least three different settings: two educational settings, one of which is the classroom, and one other setting in either the home, child care, or community; or for children not yet enrolled in kindergarten, the emotional or behavioral responses must be consistently exhibited in at least one setting in the home, child care, or community; and
- (3) has been occurring throughout a minimum of six months, or results from the well-documented, sudden onset of a serious mental health disorder diagnosed by a licensed mental health professional.

References

- About Behavioral Risk Factor Surveillance System ACE Data(BRFSS). (2016, April 01). Retrieved July 30, 2018, from https://www.cdc.gov/violenceprevention/acestudy/ace_brfss.html
- Beltran, M., Brown-Elhillali, A. N., Held, A. R., Ryce, P. C., Ofonedu, M. E., Hoover, D. W., Esnor, K.M., Belcher, H. M. E. (2016). Yoga-based psychotherapy groups for boys exposed to trauma in urban settings. *Alternative Therapies in Health and Medicine*, 22(1), 39. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/26773320>
- Billingsley, B. S., Fall, A., & Williams, T. O. (2006). Who is teaching students with emotional and behavioral disorders?: A profile and comparison to other special educators. *Behavioral Disorders*, 31(3), 252-264. 10.1177/019874290603100301 Retrieved from <https://doi.org/10.1177/019874290603100301>
- Blodgett, C. (2015). *No school alone: How community risks and assets contribute to school and youth success* Washington State University. Retrieved from <https://s3.wp.wsu.edu/uploads/sites/2101/2015/02/No-School-Alone-Final-3-15.pdf>
- Blodgett, C., & Lanigan, J. D. (2018). The association between adverse childhood experience (ACE) and school success in elementary school children. *School Psychology Quarterly*, 33(1), 137-146. 10.1037/spq0000256 Retrieved from <https://search.proquest.com/docview/2023044352>
- Brendtro, L. K. (2015). Our resilient brain: Nature's most complex creation. *Reclaiming Children and Youth*, 24(2), 41. Retrieved from <https://search.proquest.com/docview/1705355303>

- Brinamen, C., & Page, F. (2012). Using Relationships to Heal Trauma: Reflective Practice Creates a Therapeutic Preschool. *YC Young Children*, 67(5), 40-48. Retrieved from <http://www.jstor.org.ezproxy.bethel.edu/stable/42730894>
- Brunzell, T., Waters, L. & Stokes, H. (2015). Teaching with strengths in trauma-affected students: A new approach to healing and growth in the classroom. *American Journal of Orthopsychiatry*, 85(1), 3-9. 10.1037/ort0000048 Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/25642652>
- Buxton, P. S. (2018). Viewing the behavioral responses of ED children from a trauma-informed perspective. *Educational Research Quarterly*, 41(4), 30-49. Retrieved from <https://search.proquest.com/docview/2044334861>
- Calem, M., Bromis, K., McGuire, P., Morgan, C., & Kempton, M. J. (2017). *Meta-analysis of associations between childhood adversity and hippocampus and amygdala volume in non-clinical and general population samples*//doi.org/10.1016/j.nicl.2017.02.016 Retrieved from <http://www.sciencedirect.com/science/article/pii/S2213158217300505>
- Cavanaugh, B. (2016). The Effect of Trauma Exposure on Children. *Communique*, 39(5), 16. Retrieved from <https://search.proquest.com/docview/859022777>
- Child abuse news headlines. (n.d.). Retrieved July 30, 2018, from <https://www.9news.com.au/child-abuse>
- Children and trauma; update for mental health professionals*. (2008). American Psychological Association. Retrieved from <http://www.apa.org/pi/families/resources/children-trauma-update.aspx>

- Cummings, K., Addante, S., Swindell, J., & Meadan, H. (2017). Creating supportive environments for children who have had exposure to traumatic events. *Journal of Child and Family Studies*, 26(10), 2728-2741. 10.1007/s10826-017-0774-9 Retrieved from <https://search.proquest.com/docview/1938393039>
- Emotional or Behavioral Disorders 3525, 1329 Minnesota Administrative Rules § Subpart 1, (2007).
- Every Student Succeeds Act (ESSA). (2010). Retrieved July 31, 2018, from <https://www.ed.gov/essa>
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M., Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. *American Journal of Preventive Medicine*, 14(4), 245-258. 10.1016/S0749-3797(98)00017-8 Retrieved from <https://www.sciencedirect.com/science/article/pii/S0749379798000178>
- Forness, S. R., Kavale, K. A., & Lopez, M. (1993). Conduct disorders in school. *Journal of Emotional and Behavioral Disorders*, 1(2), 101-108. 10.1177/106342669300100203 Retrieved from <http://journals.sagepub.com/doi/full/10.1177/106342669300100203>
- Frazier, N. "Childhood Trauma." *Encyclopedia of Human Services and Diversity*, edited by Linwood H. Cousins, vol. 1, SAGE Reference, 2014, pp. 204-205. *Gale Virtual Reference Library*, Retrieved from http://link.galegroup.com.ezproxy.bethel.edu/apps/doc/CX6500600100/GVRL?u=clic_bethel&sid=GVRL&xid=f77161c0.

- Greene, R. (2008). Kids do well if they can. *Phi Delta Kappan*, 90(03), 160-167. Retrieved from <http://www.pdkintl.org>
- Gonzalez, R. (2017, March 03). A system of care for traumatized children. Retrieved June 02, 2018, from <https://acestoohigh.com/2017/03/14/a-system-of-care-for-traumatized-children/>
- Got Your ACE Score?* (2018, July 10). Retrieved July 26, 2018, from <https://acestoohigh.com/got-your-ace-score/>
- Harris, N. B. (2018). *The Deepest Well: Healing the Long-term Effects of Childhood Adversity*. New York, NY: Houghton Mifflin Harcourt.
- Hornor, G. (2015). *Childhood trauma exposure and toxic stress: What the PNP needs to know*//doi-org.ezproxy.bethel.edu/10.1016/j.pedhc.2014.09.006 Retrieved from <http://www.sciencedirect.com.ezproxy.bethel.edu/science/article/pii/S0891524514003447>
- Hudspeth, E. (2015). Children with special needs and circumstances: Conceptualization through a complex trauma lens. *The Professional Counselor*, 5(2), 195-199. 10.15241/efh.5.2.195 Retrieved from <https://search.proquest.com/docview/1677876530>
- Kasehagen, L., Omland, L., Bailey, M., Biss, C., Holmes, B., & Kelso, P. (2018). Relationship of adverse family experiences to resilience and school engagement among vermont youth. *Maternal and Child Health Journal*, 22(3), 298-307.
- Keels, M. (2018). *Supporting students with chronic trauma* Retrieved from www.edutopia.org

- Korotana, L. M., Dobson, K. S., Pusch, D., & Josephson, T. (2016). A review of primary care interventions to improve health outcomes in adult survivors of adverse childhood experiences. *Clinical Psychology Review, 46*, 59-90. 10.1016/j.cpr.2016.04.007
- La Paro, K., Olsen, K., & Pianta, R. (2002). *Special education eligibility developmental precursors over the first three years of life* Council for Exceptional Children.69(1), 55-66.
- Loudenback, J. (2016, January 19). *Mind powers: Meditation matters for special education students*. Retrieved from www.cronicleforsocialchange.org
- Loudenback, J. (2016, December 06). "Dr. Nadine Burke Harris carries message about child trauma to white house and back." Retrieved from <https://acestoohigh.com/2016/11/27/nadine-burke-harris-carries-message-about-child-trauma-to-white-house-and-back/>
- Mullan, B. A. (2014). Sleep, stress and health: A hommentary. *Stress & Health: Journal Of The International Society For The Investigation Of Stress, 30*(5), 433-435.
doi:10.1002/smi.2605
- Nakazawa, D. J. (2016). *7 ways childhood adversity changes a child's brain* Retrieved from <https://www.psychologytoday.com/us/blog/the-last-best-cure/201508/7-ways-childhood-adversity-can-change-your-brain>
- O'Neill, L., Guenette, F., & Kitchenham, A. (2010). 'Am I safe here and do you like me?' Understanding complex trauma and attachment disruption in the classroom. *British Journal of Special Education, 37*(4), 190-197. 10.1111/j.1467-8578.2010.00477.x
Retrieved from <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-8578.2010.00477.x>

Ordway, M., Jeon, S., Sadler, L., Canapari, C., & Redeker, N. (2018). 0830 sleep and toxic stress among toddlers: Associations between sleep and hair cortisol. *Sleep, 41*, A308.

10.1093/sleep/zsy061.829

RB-Banks, Y., & Meyer, J. (2017). Childhood trauma in today's urban classroom: Moving beyond the therapist's office. *The Journal of Educational Foundations, 30*(1-4), 63-75. Retrieved from <https://search-proquest-com.ezproxy.bethel.edu/docview/2043655307?accountid=8593>

Rinne-Albers, M. A. W., van der Wee, N., Lamers-Winkelmann, F., & Vermeiren, R R J M. (2013).

Neuroimaging in children, adolescents and young adults with psychological trauma.

European Child and Adolescent Psychiatry, 22(12), 745-755. 10.1007/s00787-013-0410-1

Retrieved from

<http://www.narcis.nl/publication/RecordID/oai:research.vu.nl:publications%2F187ef3b8-90bb-42c1-bcc5-fdc57916b267>

Stevens, J. E. (2014, May 16). San Francisco's El Dorado Elementary uses trauma-informed and restorative practices. Retrieved July 26, 2018, from

<https://acestoohigh.com/2014/01/28/hearts-el-dorado-elementary/>

Santiago DeCarlo, C., Ros, A. M., Brewer, S. K., Distel, L. M. L., Torres, S. A., Fuller, A. K.,...

Langley, A. K. (2018). Implementing the bounce back trauma intervention in urban

elementary schools: A real-world replication trial. *School Psychology Quarterly, 33*(1), 1-

9. 10.1037/spq0000229 Retrieved from

<https://search.proquest.com/docview/2023044357>

- Shern, D. L., Blanch, A. K., & Steverman, S. M. (2016). Toxic stress, behavioral health, and the next major era in public health. *American Journal of Orthopsychiatry*, *86*(2), 109-123. 10.1037/ort0000120 Retrieved from <http://ezproxy.bethel.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=pdh&AN=2016-11924-002&site=ehost-live&scope=site>
- Sinek, S. (2018). *Leaders Eat Last*. Place of publication not identified: Portfolio Penguin.
- Solomon, E. P., & Heide, K. M. (2005). The biology of trauma. *Journal of Interpersonal Violence*, *20*(1), 51-60. 10.1177/0886260504268119 Retrieved from <http://journals.sagepub.com/doi/full/10.1177/0886260504268119>
- Stevens, J. E. (2012). *Lincoln high school in walla walla, WA, tries new approach to school discipline — suspensions drop 85%* Retrieved from <https://acestoohigh.com/2012/04/23/lincoln-high-school-in-walla-walla-wa-tries-new-approach-to-school-discipline-expulsions-drop-85/>
- Strelzyk, F., Hermes, M., Naumann, E., Oitzl, M., Walter, C., Busch, H., Richter, S., Schächinger, H. (2012). Tune it down to live it up? Rapid, nongenomic effects of cortisol on the human brain. *The Journal of Neuroscience : The Official Journal of the Society for Neuroscience*, *32*(2), 616. 10.1523/JNEUROSCI.2384-11.2012
- Sullivan, A. L., & Sadeh, S. S. (2014). Differentiating social maladjustment from emotional disturbance: An analysis of case law. *School Psychology Review*, *43*(4)
- Trauma. (n.d.). Retrieved July 30, 2018, from <https://www.merriam-webster.com/dictionary/trauma#medicalDictionary>

U.S. Department of Health and Human Services, 2013

U.S. Department of Health and Human Services. (2013). *Child maltreatment 2012*.

Retrieved from <http://www.acf.hhs.gov/sites/default/files/cb/cm2012.pdf>

Walkley, M., & Cox, T. L. (2013). Building trauma-informed schools and communities. *Children & Schools, 35*(2), 123-126. 10.1093/cs/cdt007

White, C. C. (2017, October 24). *How facing ACEs makes us happier, healthier and more hopeful*.

Retrieved June 11, 2018, from <https://acestoohigh.com/2017/03/16/how-facing-aces-makes-us-happier-healthier-and-more-hopeful/>

Winder, F. (2015). Childhood trauma and special education: Why the "IDEA" is failing today's impacted youth. *Hofstra Law Review, 44*(2), 601.

Wolfe, P. (2010). Brain matters: Translating research into classroom practice. *Association for Supervision and Curriculum Development, 2010*.

van Wesel, F., Boeije, H., Alisic, E., & Drost, S. (2011, October 24). I'll be working my way back: A qualitative synthesis on the trauma experience of children. *Psychological Trauma: Theory, Research, Practice, and Policy*. Advance online publication. doi: 10.1037/a0025766

Vasile, C. (2014). An analysis of psychological trauma interventions. *Procedia - Social and Behavioral Sciences, 127*, 781-785. 10.1016/j.sbspro.2014.03.354