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A Literature Review Supporting Trauma-informed Decision Making in Schools

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A LITERATURE REVIEW SUPPORTING TRAUMA-INFORMED DECISION MAKING IN SCHOOLS

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Thank you to God for opportunity to find my passion. I love what I do and am grateful every day that he has put me in this place to help students. I would not be where I am today without the loving support of my family. Thank you to my husband and daughter who have loved me throughout this process. Lastly, I know my Mom would be very proud of the woman I have become. Not a day goes by where I don't think about you, Love you Mom – Psalm 121.

Abstract

A growing awareness shows that repeated exposure to childhood trauma is widespread and affects children's emotional, physical, and cognitive development. The damage can be life-long. It is necessary for school systems to advocate for students through understanding trauma-informed strategies and interventions. A review of available literature investigated the impact of trauma on children's physical and mental health, behavior, and academic outcomes in school settings. Research found that trauma largely impacts children's cognitive functioning, increases likelihood of mental health diagnoses, and reduces student engagement. The synthesis of current research indicates that when trauma-informed programs are implemented in school settings student engagement and success increases.

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CHAPTER I: INTRODUCTION

Imagine you are the teacher. You come home exhausted every night from focusing all day on student needs. One student in particular, Jordan, is on your mind. You are at your wits end with him. Just yesterday he started yelling and throwing classroom supplies at you and the other students during reading. You had to evacuate the other children, while he continued to tear apart the classroom. His behavior disrupts not only his learning, but his classmates learning as well. You have no idea why, but every day you seem to confront the same challenges. He refuses to complete his work, yells, swears, hits; the list goes on. It seems he often spends more time out of your classroom receiving behavior support than in. You cherish the small moments of connection and engagement with him. One day you come to work and Jordan is absent. You get called into a meeting with the principal who lets you know that Jordan was taken out of his home by Child Protective Services and will be gone for a few days. You had no idea the trauma he was experiencing in his home life. He must have been feeling out of control and unsafe and was communicating the only way he knew how. Immediately your mind races to what you could have been doing differently to better support his needs. Jordan is one of millions of students who are victims of trauma.

Trauma due to maltreatment is a global problem that affects children and adolescents. It encompasses all areas of race, socioeconomic status, age and location. In 2018 approximately 3,534,000 children in the United States were reported to Child Protective Services (CPS), with 19% identified as victims of maltreatment. The US Department of Human Services reported that 60.8% of victims had been neglected, 10.7% physically abused and 7% sexually abused. Victims of two or more maltreatment types totaled 15% (US department of Human Services, 2020). These statistics include the maltreatment that is reported. Many more cases are unreported. The

National Council of State Education Associations (NCSEA) (2019) reported that there is little consistent data that measures how trauma manifests in the school setting. The NCSEA (2019) noted that, “there is a prevailing sense among educators, communicated through their associations, that trauma and trauma-related behavior issues are reaching crisis levels in classrooms across the country (p. 2).” Children express trauma symptoms in a wide variety of ways. Some children demonstrate externalized behaviors such as aggression and others internalize, withdrawing from those around them. The NCSEA (2019) stressed the importance of transforming schools into “trauma-informed” or “trauma sensitive” environments to create a safe haven for students and teachers of all backgrounds.

The term trauma covers a broad range of experiences, but one-way researchers are able to quantify it is by defining and measuring adverse childhood experiences (ACEs). Both the ACE score and associated risks can aid in understanding of the development of trauma-related problems, in turn helping us understand the impact on student success in school. Research has indicated that childhood trauma experiences largely impact students’ ability to function and find success in school (Porche, Costello, & Rosen-Reynoso, 2016; Blodgett & Lanigan, 2018; Burke et al., 2011; Porche et al., 2011). These correlations indicate the need to create classrooms for students that are trauma sensitive. Many teachers lack the resources and trauma training including its impact. Their classrooms reflect that. The use of evidence-based strategies is imperative to enable teachers to create safe environments where students can push towards success even through the instability in their environment outside of school.

For the past couple of years, I have been working as a special education teacher; first at an elementary school as a social, emotional and behavioral teacher and then at a middle school as a developmental disabilities teacher. More than half of my students have experienced or are

currently experiencing trauma in their lives. These experiences range from neglect, verbal, emotional, physical and sexual abuse, to a lack of basic needs, etc. I am able to see first-hand how often these students are removed from the classroom due to behavior or emotional needs. There is a need to create trauma sensitive classrooms to increase the amount of time students participate in instruction and to make sure children and adolescents receive the support they need both inside and outside the classroom.

My personal experiences and current knowledge related to trauma and how it affects children led me to the topic for this literature review. It is important to me to find research on ways trauma affects children and discover evidence-based strategies to create classrooms that foster growth for students experiencing trauma. This study will explore the essential questions: What are the signs of trauma? How does trauma affect children's mental and physical health, behavior, emotions, and academic performance? What strategies can teachers implement to create trauma sensitive classrooms?

Special Education Labels and Trauma

Researchers have found that children are four times more likely to receive special education services if they have experienced trauma (Miller & Santos, 2019). Interestingly, the Individuals with Disabilities in Education Act (IDEA) (2004) only mentions trauma in Part C Section 1435 which notes that "there will be a referral for evaluation for early intervention services of a child who experiences a substantiated case of trauma due to exposure to family violence (2004)." There are 14 different special education categories in which a student can qualify for services. There is no specific special education category that represent a trauma classification. If a student is diagnosed with or demonstrates symptoms consistent with PTSD, they could meet criteria for special education under categorical labels such as Emotional

Behavioral Disorder, Other Health Impaired, Learning Disabilities, or Autism Spectrum Disorder but there is no guarantee as research shows that a student's expression of trauma symptoms can vary greatly (Kretschmar et al.,2018; Martinez, Polo, & Zelic, 2014; Bartels et al., 2019; Lam et al., 2015).

Types of Trauma

Felitti et. al (1998) originally created and researched what is known as Adverse Childhood Experiences (ACEs). The 1995-1998 study defined and classified an adverse childhood experience and the impact on individuals. Study results and questionnaires have been replicated over the last twenty years to collect comprehensive data to illustrate how ACEs affect children and adults. Trauma and adverse childhood experience categories are divided into three areas. The first is abuse; defined as emotional, physical, and sexual abuse. Emotional abuse is noted when a guardian displays swearing, insulting, or acting in a way that causes fear of physical harm. Physical abuse refers to a guardian pushing, grabbing, slapping, throwing objects, or hitting hard enough to cause marks and injury. Sexual abuse refers to an adult, family/friend or stranger at least five years older touching, fondling or forcing to be touched in a sexual way or any attempt of forced sexual intercourse. The second category is household challenges; defined as a parent treated violently, substance abuse or mental illness in the household, parental separation or divorce, and incarcerated household member. Substance abuse refers to a misuse of alcohol or street drugs. Mental illness is defined as a household member having depression, a diagnosed mental illness or attempting suicide. The last category is neglect; defined as emotional and/or physical. Emotional neglect includes no support, no feelings of importance and love, no one looking out for each other, no source of strength and support. Physical neglect refers to basic needs not met (i.e. dirty clothing, no food, no doctors, lack of proper shelter, etc.) (Felitti et al,

1998). Felitti et. al (1998) used this information on questionnaires created to assess ACEs and connected the results to show how ACEs affected people in current and later life events, including death.

CHAPTER II: LITERATURE REVIEW

To locate the literature for this thesis, searches of Academic Search Premier, EBSCO Megafile, ERIC, PsycINFO, and Sage Journals were conducted for publications from 2009 to 2020. This list was narrowed by only reviewing published empirical studies articles from peer-reviewed journals. The key words that were used in these searches were "childhood trauma," "affects of trauma," and "trauma-informed classrooms." The structure of this chapter is to review the literature on childhood trauma in three sections in this order: Signs and Symptoms of Trauma; How Trauma Affects Students; and Evidence-Based Interventions and Strategies.

Signs and Symptoms of Trauma

John Briere created the Trauma Symptoms Checklist for Children and Young Children (TSCC) in 1996 and updated in 2005. The checklists include a 54-/90-item self/parent-report. The TSCC assesses post-traumatic stress (PTS) and other symptomatology in children who have experienced trauma. Symptom domains used in this assessment include: anger, anxiety, depression, disassociation, PTS, and sexual concerns. There are two validity scales; under response and hyper response. Items are scored from a 0 (never) to 3 (always) range. Items added up at the end highlight areas where a child may experience increased symptoms and note specific behavior types that may be exhibited (Briere, 2005).

Kretschmar, Butcher, Tossone, and Beale (2018) investigated the "concurrent validity of the TSCC using associated behavioral health issues (Kretschmar et al., 2018, p. 882)." Researchers noted it should never be used alone to diagnose a disorder, but to facilitate and provide further understanding of a child's symptoms. There were 2,544 youth participants recruited across 11 counties in Ohio from the Behavioral Health Juvenile Justice initiative. The participants were between the ages of 10 and 18 and had at least one diagnosis from the

Diagnostic and Statistical Manual of Mental Health Disorders (DSM- V). Behavioral health providers completed full diagnostic assessments along with the TSCC. They measured the relationship of the DSM diagnosis and TSCC through analysis of variance tests.

The researchers found that the TSCC exhibited concurrent validity with both classes and specific behavioral health diagnoses in the DSM. For example, participants with general anxiety disorder (GAD) scored significantly on the anxiety subscale on the TSCC. Similarly, depression scale scores were significantly higher when participants were diagnosed with a disorder in the depressive disorders class, but ranged between specific depression diagnoses. The mean scores on the anger scale varied depending on the diagnosis (i.e. oppositional defiance disorder, conduct disorder, etc.). Overall research indicated youth with this class of diagnosis had significant higher scores on the anger scale than youths without a diagnosis in this particular class (Kretschmar et al., 2018). Kretschmar et al. (2018) concluded that generally the TSCC subscales could differentiate between the youths with and without DSM diagnoses within different classes. The TSCC is a widely used trauma symptomatology screening tool, and research confirmed the validity and utility of this tool across many different settings. The TSCC can provide those who work with children an idea of what types of behavior a child who has experienced trauma may exhibit (Kretschmar et al., 2018).

The Trauma Symptoms Checklist for Children and Young Children (TSCC) is a reliable assessment used across domains to measure trauma symptomatology. Researchers Martinez, Polo, and Zelic (2014) completed a quantitative meta-analytic review that examined trauma symptoms variants based on different factors. The study compared average scores across the different subscales, U.S youth versus youth from other countries, type of trauma exposure, sex and age, and ethnic minority and low socioeconomic backgrounds. Studies were collected from

the databases Social Sciences Citations Index, PsycInfo, PubMed, and the Published International Literature on Traumatic Stress. They were included in the meta-analysis if they provided scores for at least one TSCC subscale, participants exposed to trauma, children aged eight-16, peer-reviewed, and a sample size of 15 or greater. They narrowed it down to 74 studies that included 14,867 participants who completed the TSCC (Martinez, Polo, & Zelic, 2014).

Results indicated a lack of socioeconomic status information, therefore analysis could not be completed. International samples reported higher levels of post-traumatic stress, anxiety, and depressive symptoms than U.S samples. No differences were found in the anger and dissociation subscales. Sexual abuse was associated with higher post-traumatic stress symptoms, anxiety, and depressive symptoms. Dissociation and anger symptoms varied little between the types of trauma. Contrary to research done by Bartlett and colleagues (2018), Martinez, Polo, and Zelic found that youth who experienced complex trauma did not have higher levels of symptoms than other groups. A significant positive relationship was found between females and the post-traumatic stress, depression, and dissociation subscales. There was not a significant relationship found between gender and anger symptoms. Researchers also found older youth had higher levels of post-traumatic stress, anxiety, depression, and dissociation. Ethnic minorities were associated with lower depression, but had no other significant relationship with any other subscale of the TSCC (Martinez, Polo, & Zelic, 2014). Researchers noted that among all comparisons overall youth were "reporting lower symptoms than the clinically significant thresholds established on the TSCC (Martinez, Polo, & Zelic, 2014, p. 658)." They concluded that this suggested youth may express distress in ways other than what was included on the TSCC. The major study limitation was the sole focus on the TSCC, disregarding other methods of measuring trauma symptoms potentially resulting in bias. The study included a wide variety of

youth from all over the world and included many different factors. This aided in understanding some of the determinants of symptom expression caused by trauma. This study benefits childcare systems in the assessment of post-traumatic symptoms and the implications for interventions and treatments (Martinez, Polo, & Zelic, 2014).

Research has indicated that post-traumatic stress symptoms are very prevalent in both children and adolescents who have experienced trauma. Bartels, Berliner, Hold, Jensen, Jungbluth, Plener, Risch, Rojas, Rosner, and Sachser (2019) examined the central symptoms of post-traumatic stress disorder in children and adolescents from the perspective of both the child and their caregiver. Children and their caregivers were recruited from mental health clinics in the USA, Germany, and Norway. There were 475 children participants, aged 7-17, and 424 caregivers. Data was collected on the type of traumatic event children experienced including sexual abuse, witnessing and/or experiencing physical abuse, accidental trauma (i.e. natural disaster), traumatic loss, war, and other not specified stressful or scary event. Children and their caregivers were administered the Child and Adolescent Trauma Screen to assess both the event and post-traumatic stress symptoms (Bartels et al., 2019).

An analysis of the responses revealed that on the children's self-report, the symptoms with the highest scores were psychological distress, avoidance of thoughts or memories, negative trauma-related cognitions, persistent negative emotional state, detachment from others, and restricted affect. On the caregiver report the symptoms with the highest scores were intrusive thoughts or memories, psychological distress, negative trauma-related cognitions, persistent negative emotional state, detachment from others, and exaggerated startle response. Their reports differed significantly. Researchers also compared all of the PTSS the assessment measured and analyzed the association between them in both the self and caregiver reports. They found that the

self-reports had stronger associations than the caregiver reports. Sample size was a limitation of this study, researchers were not able check for age or gender specific trauma or changes during different developmental phases. A strength of the study was the network framework and the collection of data from both children and caregivers. The range of trauma severity also allowed researchers to analyze the changes in symptom severity and variability (Bartels et al., 2019). They concluded that their findings would "add relevant information to the symptomatology, development, persistence, and treatment of PTSS in children and adolescents from a network perspective (Bartels, 2019, p. 552)." These findings underscore the importance of understanding the symptoms that occur in children who have experienced trauma to best be able to support them across all environments.

Bartels et al. (2019) research analyzed the central PTSS that children who had experienced trauma exhibited, but expressed a limitation of the study was a lack of understanding of the symptomatology of trauma over different developmental phases. Researchers Lam, Lyons, Griffin, and Kisiel examined the presentation of trauma stress symptoms over the course of development from childhood to adolescence, who experienced multiple interpersonal traumatic experiences. They hypothesized that the manifestation of trauma stress symptoms would increase as the developmental stage moved up into adolescence and the symptoms would be consistent with the diagnosis of PTSD. Researchers collected the data from observations of 11,988 children and adolescents, aged 0-18, through the Illinois Department of Children and Family Services. This study pulled out 3,732 cases of children and adolescents who had experienced complex trauma and had them separated by age groups as follows: 0-2 years, 2-4 years, 5-6 years, 7-11 years, 12-15 years, and 16-18 years. The data researchers collected was quantitative in nature and they used the Child and Adolescent Needs and Strengths (CANS) to

assess all children. This assessment included areas on trauma experiences, traumatic stress symptoms, child strengths, life domain functioning, acculturation, child behavioral/emotional needs, child risk behaviors, and caregiver needs and strengths. Analysis of Variance was then used to assess relationships and associations between level of trauma and symptoms and age group (Lam et al., 2015).

Results from the data collected confirmed the researcher's hypotheses. The children and adolescents who had experienced complex trauma exhibited higher levels of trauma stress symptoms and as they aged so did the expression of the symptoms. Each age groups were significantly different from each other, except ages 12-15 and 16-18 years. The impact of complex trauma was much greater for adolescents compared to children. A limitation of this study was the lack of data regarding the age the trauma started as is may be a variable that changes the severity or type of symptoms a child or adolescent might be experiencing. The large sample size was a strength of this study as they were able to look at and compare a large number of children in each age group providing more generalizability and validity in the results. The researchers concluded that traumatic stress symptoms increase in expression and severity as a child moves to adolescence and this has important implications when it comes to early intervention and offering more services to adolescents. Early intervention has the potential to prevent the increase in the severity of symptom and change life trajectories (Lam et al., 2015).

Impact of Trauma

Impact of Trauma on Physical and Mental Health

De Bellis, Hooper, Spratt and Woolley (2009) researched neurocognitive functions in neglected children. They hypothesized that, "neurocognitive problems may be seen in neglected children resulting from the traumatic experience of neglect (e.g. failure to provide or supervise)

and traumatic experiences (e.g. physical abuse, emotional abuse, and witnessing violence), resulting in PTSD symptoms (De Bellis et. Al, 2009, p. 869)."

They recruited participants through advertisements at the Department of Social Services and the community surrounding Duke University Medical Center Institutional Review Board. They included three groups in the study; Neglect with PTSD – 22, Neglect without PTSD – 39, and Control – 45. There were a total of 106 participants. The participant group consisted of similar gender, race, age, and socioeconomic status. The research completed was quantitative in nature as they used multiple different neuropsychological test results. These tests included NEPSY, Connors' Continuous Performance Test – II, The Peabody Picture Vocabulary Test – III, Wechsler Intelligence Scale for Children – III, Woodcock-Johnson Tests of Academic Achievement, and Wechsler Abbreviated Scales of Intelligence. They also completed an interview using The Kiddie Schedule for Affective Disorders and Schizophrenia – Present and Lifetime Version with caregivers and subjects. This included questions about traumatic events, disorders, and symptoms (De Bellis et. Al, 2009).

De Bellis, Hooper, Spratt and Woolley's research showed the neglected groups had "significantly lower IQ, language, visual-spatial, learning/memory, and attention/executive functioning and academic achievement than Controls (De Bellis et al., 2009, p. 874)." Both groups, neglect with PTSD and the neglect without PTSD, had similar scores. They did not see any significant differences in fine motor skills among any of the groups. This research showed that neurodevelopmental challenges were prevalent for neglected children resulting in ongoing struggle with attention/executive functioning and memory. Researchers said this could be linked to school failure and poor quality of life. The sample size was the largest limitation of this study, with only around 100 participants, making it difficult to generalize the results. The study had an

extremely comprehensive testing method, that covered many neuropsychological domains. This helped the researchers understand what specific areas affected neglected children the most and how that related to their life and schooling (De Bellis et. Al, 2009).

Barrera, Calderon, and Bell (2013) examined the neuropsychological functioning in children who experienced trauma, specifically sexual abuse. They compared three different groups; children who were sexually abused and exhibited PTSD symptoms, children who were sexually abused and did not have PTSD, and children who had not experienced sexual abuse. Researchers hypothesized that of the groups, children who experienced abuse and PTSD would show poorer neuropsychological functioning (Barrera, Calderon, & Bell, 2013). The sample included 76 children; 13 who were sexually abused and diagnosed with PTSD, 26 who were sexually abused without a PTSD diagnosis, and 37 unaffected by abuse. Participants were administered a variety of tests to measure neuropsychological functioning in the areas of attention, sequencing, mental flexibility, visual motor skill, visual search, memory and perceptual skills (Barrera, Calderon, & Bell, 2013).

The results showed such little difference between the sexual abuse groups that the researchers combined the groups and compared children who had experienced sexual abuse and those who had not. Their findings showed an association between sexual abuse and cognitive inhibition. Those in the sexual abuse group completed tasks more slowly and with more errors. Overall researchers found the group who experienced sexual abuse demonstrated more difficulties in the use of attentional inhibition and cognitive function. They concluded that this increased the risks of behavior problems and psychopathology. The small sample size limited representation of all sexual abuse types. The participants were recruited from a program where they received interventions that may have affected their functioning. This variable was not

considered in the research. A strength of this study was the narrow focus it had on sexual abuse, reducing the variables. This study provided data that suggested that trauma negatively impacts neuropsychological functioning. This research needs to be replicated and extended to offer more data comparing trauma and the child's brain, to better understand how to intervene and support children.

Enlow, Egeland, Blood, R.O. Wright, and R.J. Wright (2012) completed a longitudinal study of children birth to eight years who had experienced interpersonal trauma (IPT). The purpose of this study was to examine the cognitive developmental impact of IPT. Researchers recruited 206 participants from the Minneapolis Department of Public Health and Hennepin County General Hospital. A variety of assessments, mother-reported questionnaires, and observations were completed throughout the child's first eight years of life. They completed IQ tests at two, five, and eight years old (Enlow et al., 2012).

Results from this study showed that IPT exposure in infancy, not including preschool, was significantly associated with cognitive outcomes. Average cognitive scores were 7.25 points lower than children with no exposure to trauma in infancy. Additional risk factors for lower cognitive scores included being male, low birth weight, low maternal IQ, low socioeconomic status, and reduced cognitive stimulation in the home. Research results supported previous studies noting, "vulnerability in the early years to fundamental changes in neural circuitry and brain structure related to social adversity and trauma (Enlow et al., 2012, p. 1008)." A strength of this study was that participants were recruited from the community rather than mental health clinics or domestic violence shelters therefore the data was able to be generalized. The small sample size and number of children exposed to trauma in only infancy greatly limited the study results. Therefore the timing effects were not reliable. Researchers concluded exposure to trauma

in the first year of life resulted in cognitive effects. These effects can have long term consequences including poor academic functioning and poor mental health and adjustment (Enlow et al., 2012).

Along with the brain being affected by childhood trauma, there also is a correlation with mental health disorders and childhood trauma. A study done by Hovens, Giltay, Wiersma, Spinhoven, Penninx, and Zitman (2012) looked at the impact of childhood life events and childhood trauma on depressive and anxiety disorders. Researchers collected data from the Netherlands Study of Depression and Anxiety (NESDA). They completed this study over eight years and included 2981 participants, aged 18-65 years. They recruited individuals for the study through health and mental care facilities and the general population. They looked for participants who were healthy, had prior history of disorders, and currently exhibited depressive and anxiety disorders. Specially trained clinical staff collected data by using Composite International Diagnostic Interviews (CIDI) and the Life Chart Interview (LCI). They assessed trauma using the childhood trauma NEMESIS questionnaire. After two years they completed a follow-up assessment to see whether subjects continued to have the presence of depressive and anxiety disorders (Hovens et al., 2012).

A strength of this study was the large sample size that represented a variety of participants of all ages, races, and gender. Data outcomes were measured using diagnostic and symptom trajectory approaches, while also considering the clinical characteristics as potential mediators. A limitation of this study was that researchers retrospectively assessed the trauma making it possible for reverse causation to occur for participants; recalling more childhood trauma than actually occurred. This could cause results to show the disorder was secondary to the childhood trauma, when really the trauma was secondary to the disorder. Another limitation was

the small number of participants who reported sexual abuse compared to the other types of trauma.

Hovens et al. (2012) found that an increased score in childhood trauma correlated with a larger chance of having been diagnosed with a depressive disorder or a comorbid depressive and anxiety disorder. Their research looked at five types of childhood trauma; separations or losses; emotional neglect, psychological, physical, and sexual abuse. Emotional neglect, psychological and physical abuse correlated with a higher probability of depressive and anxiety disorders. Researchers did not find a correlation between sexual abuse or separations or losses and an increased chance in depressive and anxiety disorders. Research also showed that a higher childhood trauma index correlated to a higher chance of the disorders having a chronic course and an earlier onset. This earlier onset could occur in early adulthood or childhood (Hovens et al., 2012).

Briggs-Gowan, Pollak, Grasso, Voss, Mian, Zobel, McCarthy, Wakschlag, and Pine (2015) researched the relationship between attention bias and anxiety in children who had been exposed to family violence. Attention bias is defined as the tendency to pay attention to some things while simultaneously ignoring others because of experiences. They hypothesized that exposure to family violence correlated to both attention bias and anxiety and that attention bias amplifies the relationship between anxiety and violence exposure. There were 497 participants, aged three to five, selected from a random sampling of 1,857 who were recruited through pediatric practices. They selected ethnically diverse children with disruptive behavior and/or whose mothers reported intimate partner violence. Participants were required to attend two three-hour laboratory visits. Researchers collected both quantitative and qualitative data. To measure attention bias computerized dot-probe tasks involving emotional pictures were administered to

the children. Mothers completed the Conflict Tactics Scale that provided data on the exposure of child-directed and intimate partner violence. Researchers administered the Preschool Age Psychiatric Assessment, Trauma Symptom Checklist, the Anxiety Dimensional Observation Scale, and the Differential Ability Scales. These assessments and observations analyzed the amount of violence exposure and presence of lack of attention and anxiety in the children (Briggs-Gowan et al., 2015).

The results showed that family violence was associated with child anxiety. Children exposed to *probable abuse*; defined as hitting, kicking, and threatening to send the child away was associated with children developing specific phobias, distress and trauma symptoms. Probable abuse in the home was positively associated with attention bias. Researchers data revealed that the relationship between family violence and child anxiety was stronger at higher levels of attention bias (Briggs-Gowan et al., 2015). Briggs-Gowan et al. noted that "family violence may alter children's patterns of attention and lead to increased vigilance towards threats in their environments (p.1199)." This increased awareness of threats and heightened responses to it may signify a vulnerability to developing anxiety. Researchers noted these findings show a need for early and innovative interventions for young children exposed to family and child-directed violence. A study limitation included lack of data around children's behavior and temperament and ways this could have affected their behavior patterns and results. The cross-sectional data collection design limited the researcher's ability to establish patterns. A strength of this study was that the community-based design increased the generalizability. This study contributed to the growing evidence base that children who experienced severe and repeated trauma early in life are emotionally affected and have increased tendency to develop anxiety and

other trauma symptoms. Communities need to find ways to prevent and intervene on behalf of these children (Briggs-Gowan et al., 2015).

Hovens et al. (2012) connected childhood trauma to anxiety and depressive disorders earlier and later in life and Briggs-Gowan et al (2015) connected childhood trauma to childhood anxiety and attention bias. Keeton, Kolos, and Walkup (2009) discussed the physical and emotional symptoms that pediatric generalized anxiety disorder (GAD) caused, the assessment and diagnosis of GAD, and treatment. Pediatric GAD most often co-occurs with other disorders including separation anxiety disorder, depression, and attention-deficit hyperactivity disorder. Co-occurrence of two out of three of these disorders happens in 60% of anxious children and 30% of anxious children meet the criteria for all three. The symptoms for these disorders overlap and research indicated that GAD affected pediatric individuals' sleeping, eating, attention, and concentration. GAD physical symptoms can include headaches, tension, restlessness, gastrointestinal distress, and heart palpitations. Symptoms interfered with social, emotional and educational functioning of the individual (Keeton, Kolos, & Walkup, 2009).

Beilharz, Peterson, Fatt, Wilson, Burton, Cvejic, Lloyd, Vollmer-Conna examined how childhood trauma may impact physical and psychological health, sleep quality and autonomic functioning in young adults. A subset of participants were recruited from a larger study the Sydney Infections Outcomes Study (SIOS) and included 22 with childhood trauma experiences and 89 without. The 111 chosen completed questionnaires, an in-laboratory autonomic assessment and overnight autonomic and sleep monitoring at home (Beilharz et al., 2019). The group who experienced childhood trauma demonstrated significantly higher psychological distress, perceived stress, somatic and psychological symptoms, poorer general health, emotional wellbeing, sleep quality, and lower energy. They were 6.8 times more likely to have sleep

difficulties and 5.5 times more likely to exhibit psychological and somatic symptoms. This study illustrated a wide variety of adverse outcomes for those who experienced childhood trauma. Many studies have shown the immediate impact trauma has on children, but this study highlighted that as children matured into adults the negative effects continued (Beilharz et al., 2019).

Impact of Trauma on Behavior, Emotions, and Academics

The National Survey of Children's Health (NSCH) 2011/12 results were used to investigate the correlation between family adversity and academic outcomes and associated mental health concerns. Researchers Porche, Costello, and Rosen-Reynoso (2016) hypothesized that children's mental health status would correlate with the results of parent-reported adversity and mental health and impact children's educational outcomes. They collected information from the NSCH for 65,680 children, ages six-17. This survey gathered mental and physical health information, adverse family experiences, school engagement, and neighborhood supports. Researchers analyzed and compared sociodemographic, child, caregiver, and neighborhood characteristics and how they related to the child's educational outcomes. Research findings supported the hypothesis. There was an association between adverse family experiences and educational outcomes, mediated by mental health diagnoses. Greater numbers of adverse experiences increased the likelihood of mental health diagnoses. The more mental health diagnoses the less likely children were to be engaged and they increased the likelihood of being retained in a grade or on an IEP. The same path was also true when the child's caregiver had poor mental health or when they lived in an unsafe neighborhood (Porche, Costello, & Rosen-Reynoso, 2016). Porche, Costello, & Rosen-Reynoso noted that it was important to consider ways children's mental health impact emotional and behavioral development. The data collected

solely from parents was a limitation in the study as it only considers information from one informant. The NSCH also did not specify the timing, frequency, or duration of the adverse experiences, which previous studies have shown make a large difference on symptoms and behaviors exhibited by children. The large sample size was a strength as it created reliability and allowed for a diversified group of participants. This study focused not only on the child but also the caregiver and neighborhood characteristics which suggested that another way to improve a child mental health and academic functioning was not only child intervention, but also for their caregivers and neighborhoods (Porche, Costello, & Rosen-Reynoso, 2016).

Blodgett and Lanigan (2018) looked even more specifically at how adverse childhood experiences (ACEs) affect school absence, behavior problems and academic performance. They had two different hypotheses:

> "a) A dose effect should be found, in which the total number of ACEs should be positively associated with each of the following—**school** absence, behavior problems, and failure to achieve grade-level standards in mathematics, reading, or writing; and (b) The prevalence of ACE exposure determined by local **school** professional report should underestimate the prevalence of ACE exposure when compared with the NSCH survey" (Blodgett & Lanigan, 2018, p. 139).

A sample size of 2,101 kindergarten through 6th grade students included 50% males and 50% females. Students were randomly selected from 10 different elementary schools across a medium-sized Northwestern metropolitan area. There were five Title I (an indicator of high poverty percentages) and five non-Title I schools who participated.

Blodgett and Lanigan (2018) collected quantitative research using an adapted version of the ACE questionnaire and rating checklists that were completed by school personnel. They

adapted the last four questions of the ACE questionnaire and created a checklist that covered academic failure, significant attendance concerns, and significant school behavior problems. The school staff completed a one-hour training prior to the data collection on the surveys and definitions of factual knowledge (not implications that students have made). Following the training the school staff completed the surveys for students, for two different time periods, in the previous twelve months and since birth (Blodgett & Lanigan, 2018).

Blodgett and Lanigan (2018) found ACE scores were not related to gender or grade level, but were significantly related to race, special education enrollment and free and reduced meal (FRM) enrollment. Overall, they found a positive correlation between ACE scores and student performance. Both students who had attendance concerns and students who had behavior concerns also had ACE scores that were significantly higher than students who did not. The research also indicated that "increased ACE exposure was associated in a linear fashion with greater rates of academic failure…" (Blodgett & Lanigan, 2018, p. 141). As the ACE level went up so did the percent of children with two or more areas of concern (i.e. behavior, attendance, academics, etc.). Blodgett and Lanigan (2018) reported that ACE exposure in elementary schools showed about half of children experienced one or more ACEs. The study also showed that as ACEs increased there was an increased risk in poor attendance, behavioral issues, academic struggles in math, reading, and writing. They concluded that both ACE scores and associated risks aid in understanding the development of trauma-related problems thus helping understand student success in the school.

Educator bias was one of the limitations of the research based on Teachers' subjective reports. To minimize this limitation, staff completed a one-hour training. Another limitation showed students who struggled in school were more likely to be students for whom risks were

better understood, this made it possible that teachers may over report high needs students and under report students with lower needs and who do not cause as many problems. This internalizing behavior more likely goes unnoticed in the educator surveys. A strength of this research was the inclusion of a good-sized sample of 2,101 students. This provided more validity to the study. The measuring tool used, the ACE survey, had previously been verified. Another strength in the study was its quantitative numbers for attendance, academics, etc. This supplied factual data about students and was not opinion-based (Blodgett & Lanigan, 2018).

Researchers Blodgett and Lanigan (2018) looked at the impact of adverse childhood experiences (ACEs) on elementary schooling success. They looked at three areas regarding success in an elementary school setting. These areas included school absence, behavior problems, and failure to achieve academic standards in reading, math, and writing. They completed this study by having educators complete reports. It is important to note that though educators completed a training on how to report factually, there was still the chance of bias and over reporting and under reporting students based on these biases. Research showed there was a positive correlation between ACE exposure and school performance. Increases in the number of ACEs directly increased the risk of behavior problems, failure to meet academic standards and student absence. One student may not struggle in all areas of performance but as the ACE number increases so does the number of areas in which a student struggle (Blodgett & Lanigan, 2018).

Burke, Hellman, Scott, Weems, and Carrion (2011) investigated ACEs in a low-income, urban area and the impact on children's learning and behavior. They hypothesized that most of the children in this area would have experienced at least one or more ACE and that an ACE score greater than four would be associated with greater learning problems, behavior problems and

obesity. The sample included 701 children and adolescents ranging from ages zero to 20. These participants were recruited from the Bayview Child Health Center in San Francisco, California. The ACE assessment identified the number of ACEs experienced. Researchers collected data on learning, behavior, and weight from the participants medical charts. To be classified as overweight/obese there had to be a BMI greater than 85%. Learning and behavior problems were defined as objective learning/behavioral data, for example low achievement or history of violent behavior (Burke et al., 2011).

Researchers found that 67.2% of the study sample had experienced at least one or more ACE and 12% had experienced four or more. Of the participants who had an ACE score of four or more 51.4% of them had learning and behavior problems compared to 3% of those who had an ACE score of zero. An ACE score of four or more was associated with increased odds of being overweight, but an ACE score of one or more was not associated with being overweight or obese. Researchers noted alarming differences of 51.4% between learning and behavior problem percentages for children who had an ACE score of four or more compared to zero ACEs at 3%. This suggests the need to target learning and behavior for these children. A limitation of this study was that information was completed by the caregiver and not self-reported. Caregivers may have hesitated in reporting abuse to mandated reporters. No formal testing for academics or behavior was collected but information was gathered from medical charts. A strength was that the same two pediatricians provided care creating consistency with patient interactions (Burke et al., 2011). This data was consistent with other research regarding children's learning and behavior and the impact of significant trauma. This research suggested that screening students for ACEs could help with understanding why a child has difficulty and how to better meet needs.

Hebert, Langevin, and Oussaid's research looked specifically at child victims of sexual abuse. They tested emotional regulation, dissociation, and internalized and externalized behaviors. Researchers also looked at the association between cumulative childhood trauma; defined as two or more adverse experiences, and childhood sexual abuse. They hypothesized that a person's cumulative childhood trauma caused deficits in emotional regulation which preceded symptoms of dissociation and noted that all these lead to behavior problems. The study included 309 sexually abused children, aged 6-12, and their non-offending parent. Researchers recruited participants from five different intervention centers. They collected data on the child's cumulative trauma from a variety of assessments including medical files, History of Victimization Form, Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children, and the Revised Conflict Tactics Scale. To assess the children's emotional regulation, dissociation, and behavior problems parents completed the Emotion Regulation Checklist, Child Dissociative Checklist, and the Child Behavior Checklist. Researchers collected all of the data in the intervention centers or at the participants' homes (Herbert, Langevin, & Oussaid, 2018).

Herbert, Langevin, and Oussaids' (2018) findings showed that childhood sexual assault rarely stood alone and therefore cumulative childhood trauma had an affect on both externalizing and internalizing behavior problems. Cumulative childhood trauma caused higher levels of emotional dysregulation, dissociation, and behavior problems. There were three avenues where they found this to be true; emotional regulation alone, dissociation alone, and a combination of both emotional regulation and dissociation. The researchers concluded that sexually abused children need to be assessed in the areas of emotional regulation and dissociation to assist with treatment and to better understand the behavior problems. The study results were predicted to increase awareness to better create targeted therapeutic strategies and interventions. A limitation

of the study was that both emotional regulation and dissociation were measured using parent questionnaires only. Ideally a multi-informant approach to research increases the accuracy. The cross-sectional nature of this study also limited the researcher's ability to conclude whether dissociation or emotional regulation correlate to each other (Herbert, Langevin, & Oussaids, 2018). This study used assessments that were already created and validated multiple times. This strength allowed data comparison with multiple studies.

The findings supported the belief that trauma affects a child's emotional and physical well-being and in turn influences their day-to-day behavior. It underscores the importance of early assessment and intervention both in the home and at school to ensure that children are given the tools and strategies they need to be successful.

A study completed by Fredland, Symes, Gilroy, Paulson, Nava, McFarlane, and Pennings (2015) looked at the relationship between partner violence and poor functioning in mothers and children. The purpose of the study was to consider the intergenerational impact of abuse on mothers and children. Multiple different hypotheses included (1) higher levels of childhood abuse led to higher levels of adult abuse (2) severity of abuse towards mothers caused increased levels of physical pain (3) chronic pain and children witnessing abuse related to mothers mental health including depression and PTSD (4) socio-economic factors defined as; social support, employment, and self-efficacy decreased mental health concerns, and lastly (5) higher levels of a child witnessing abuse and mother mental health concerns increased the number of child behavioral problems. The participants consisted of 300 women who had children between the ages of 18 months and 16 years. The women were recruited from five shelters for abused women in an urban area. The study started with a 60-minute interview that occurred at the shelters and continued every four months for seven years. To measure abuse, child witnessing, employment,

support, etc. researchers used a variety of already available assessments. The study was quantitative and qualitative in nature as it contained reports from the mothers (Fredland et al., 2015).

Out of the five hypotheses, the researchers found the data fully supported that higher levels of child abuse led to higher levels of adult abuse and partially supported the rest. Specifically, the researchers found that higher levels of children witnessing abuse and mother mental health concerns were associated with an increased level of child behavioral problems. Furthermore, researchers found that the relationship between the mother's mental health and a child's behavioral problems was stronger in girls versus boys. They also noted that the relationship to the child's behavioral problems was stronger for mothers who had been with their abuser for five years or less (Fredland et al., 2015). The investigation showed that a history of childhood abuse was a risk factor for intimate partner violence and was associated with the severity of violence. They found abuse was associated with mother's mental health disorders such as depression, anxiety, somatization, and post-traumatic stress disorder (PTSD). The symptoms of these disorders indirectly affected a child's behavior as they "interfere with the women's ability to bond with her child and parent affectively (Fredland et al., 2015, p. 563)." They concluded that another part of improving children's functioning was to intervene and improve the mother's mental health and functioning. Limitations of this study were that data was collected solely from mothers' reports and geographically bound to a single metropolitan area. One strength was the longitudinal nature of this study as it was investigated over a seven-year period. Similar to Herbert, Langevin, and Oussaid's study, the data collected connects childhood trauma to behavioral problems and offers more evidence of the urgent need to intervene early and in many different ways to improve a child's ability to function.

Greeson and colleagues (2011) researched post-traumatic stress, behavioral, and emotional problems. They collected data on youth in foster care regarding their trauma history and associated psychosocial consequences. Their research included five study questions; the most prevalent forms of trauma of children in foster care, rates of exposure to complex trauma, rates of mental health, behavioral, and emotional problems, demographic characteristics between children who are either exposed to trauma or not, and finally differences between mental health, behavioral, and emotional problems between children who experience complex trauma and children who experience other types of trauma. There were 2,251 participants, aged 0-21, in this study all who had been placed in foster care at one point. They found participants through the National Child Traumatic Stress Network (NCTSN). Data was collected through multiple informants including self-reports, caregivers, family members, relatives, and relevant collaterals. They collected demographics and foster care placement information. Post-traumatic Stress Disorder-Reaction Index (PTSD-RI), the Child behavior checklist (CBCL), and clinical evaluations were administered to collect information on trauma history, symptoms, behaviors, etc. The study was quantitative in nature as they collected statistics, frequencies, etc (Greeson et al., 2011).

The analysis indicated that 52.2% of participants were female, 38.6% were black, 49.1% were white, and 15.7% were Latino. The average number of types of trauma was 4.7 for the sample as a whole and 5.8 for those experiencing complex trauma. Children who experienced complex trauma had significantly more trauma types compared to those who did not. Complex trauma was also a significant predictor for CBCL internalizing scale and having at least one diagnosis. Children with complex trauma histories were 1.5x more likely to have post-traumatic stress symptoms, 1.2x more likely to have at least one clinical diagnosis, 1.6x more likely to have internalizing problems. Researchers noted that these findings provided important data in supporting the development of a trauma-informed perspective with the child welfare system including routine screenings using

evidence-based practices. It also provided evidence for the importance of continuity of care across a child's complete care system including treatment, schools, home life, etc. for intervention and provide preventative measures (Greeson et al., 2011). The study was not randomly sampled or nationally represented, making it difficult to generalize the data found. The large sample size, multiple informants, and multiple measures were strengths of this study. It allowed researchers to examine and understand the relationship between complex trauma, behavioral problems, as well as PTSD symptoms (Greeson et al., 2011). The literature provided several recurrent findings noting that trauma increases a child's likelihood of developing behavioral, emotional, and mental health concerns and supports the idea of trauma-informed practices across all environments.

Porche, Fortuna, Lin and Alegria (2011) looked at the relationship between adverse childhood experiences (ACEs) that resulted in psychiatric disorders (PTSD, anxiety, etc.) and school dropout rates. The second purpose of this study was to see whether providing mental health services served as protective factor to reduce the likelihood of school dropout. This study also considered risk factors such as race, immigration status, family factors, etc. Researchers had two hypotheses. The first was "that experiences of early trauma and early onset of psychiatric disorders will be positively correlated with school dropout, controlling for sociodemographic variables and other risk factors, and that psychiatric disorders will mediate the relation between early trauma and dropout" (Porche, Fortuna, Lin, & Alegria, 2011, p. 985). The second was "that mental health services use will be a protective factor against school dropout" (Porche et al., 2011, p. 985). There were 2,532 participants in the study, aged 21-29, selected through data from the Collaborative Psychiatric Epidemiology Surveys (CPES). The researchers collected quantitative data based on numbers of dropouts, psychiatric disorders, mental health services, etc.

Researchers analyzed data collected from CPES, national household surveys developed by the National Institute of Mental Health. These surveys were completed as in-person interviews, unless a phone interview was requested. They were two and a half hours and utilized a core protocol and screening questions. Translators were brought in when necessary. Data for Trauma/Psychiatric disorders was from World Health Organization Composite International Diagnostic Interview (Porche et al., 2011).

The researchers looked at the prevalence of high school dropouts for both U.S born and immigrant respondents. They conducted many analyses to look at whether the diagnosis of a childhood psychiatric disorder along with if mental health services were provided to see if there was a correlation between childhood trauma, mental health services provided and high school dropout status (Porche et al., 2011). Porche, Fortuna, Lin and Alegria (2011) compared this data using the following criteria,

> "(a) significant relation between childhood trauma and high school dropout status, (b) significant relation between the psychiatric diagnosis and services use variables and childhood trauma, (c) significant relation between the psychiatric diagnosis and services use variables and dropout adjusting for childhood trauma, and (d) the relation between childhood trauma and dropout weakens after adjusting for the psychiatric diagnosis and services use variables" (Porche et al., 2011, p. 988).

They did not distribute the surveys themselves but pulled data from multiple national surveys and compared and analyzed them. Their research indicated that race and immigration affected the percentage of students who dropped out. They also found that gender was not a differentiating dropout factor as percentages for each gender were similar. Those of Asian descent had the lowest dropout rate and Latinos had the highest. For participants who

experienced trauma 38 percent of those sampled reported experiencing a major childhood trauma before the age of 16. Of the 38 percent 19.79 percent dropped out of school. This was a significantly higher dropout rate than respondents who did not report trauma (Porche et al., 2011). Porche, Fortuna, Lin and Alegria (2011) categorized specific traumas (i.e. domestic violence, sexual assault, etc.) and found that childhood trauma was significantly associated with dropping out and with psychiatric diagnosis across the different types of trauma. Furthermore, the data showed a significant relationship between early childhood trauma experiences and dropout rates later in schooling. The numbers changed according to different risk factors such as race, immigration, etc. An analysis of the data revealed that mental health services were not a protective factor, possibly due to the lack of systems and adequate integration of mental health services in the schools.

A study limitation was that other important risk factors were not included in the research such as family socioeconomic status or educational degrees reached, which can have an impact on an individual's educational attainment. Another limitation was that the researchers categorized trauma, but they did not consider neglect as a source of trauma, nor did they look at the frequency, duration, etc. of the trauma experienced. A strength of this study was the large sample size, which increased the validity. Data was collected from surveys developed nationally by the National Institute of Mental Health and other well-renowned organizations which also increased the reliability of the study. The increased reliability and validity created unbiased factual data (Porche et al., 2011).

After analyzing the data collected from the survey's, researchers concluded that there was a significant correlation between childhood trauma and high school dropout status along with the relationship between trauma and a psychiatric diagnosis. In this study they did not find that

mental health services provided a significant protective factor in reducing high school dropouts. There was limited information about which services individuals received and they concluded this might be indicative of the struggle to integrate mental health services into the schools (Porche et al., 2011).

Evidenced-Based Interventions and Strategies

Thomas, Crosby and Vanderhaar (2019) analyzed interventions used across many years and schools to determine which dominant frameworks supported trauma-informed practices in schools and the efficacy of these practices. Their research sought to answer these questions; "What is the dominant framework used for promoting and practicing trauma-informed care in schools? How effective are school-based supports for trauma-affected youth at the school level and the student level?" (Thomas, Crosby, & Vanderhaar, 2019, p. 429). Researchers in this study completed a literature review of 33 empirical articles published between 2001 and 2018 that referenced trauma-informed care and practices for school-aged children. They began with 4,056 articles and screened them using specific criteria; must be peer-reviewed empirical work between 1998 and 2018, in English, and based on school-aged children. After the criteria were applied, 33 articles were reviewed for the research. Articles were compared to identify which interventions were used and what were the implications.

Thomas, Crosby and Vanderhaar (2019) found various interventions throughout the studies based on similar foundations and theoretical approaches but, did not find an overall dominant framework used to integrate trauma-informed practices and strategies in schools. Within these 33 articles they found 30 different interventions that were implemented in schools. Of these 33 articles, 32 of them reported that the interventions used were effective to some degree. Thomas, Crosby and Vanderhaar (2019) found practices and strategies that were shown

to be effective across many articles. These approaches such as positive behavioral interventions and supports (PBIS), social emotional learning, restorative practices and mindfulness were effective in working towards creating safe and healing environments for students who had experienced trauma. Advocating for students in a strengths approach was found to have a positive effect on the relationships built between teachers and students. Several articles spoke to the importance of student perspectives of the school climate in helping inform supportive and nurturing school practices. Researchers also noted the importance of looking at re-traumatization and how a school's policies of punishment could incur this (Thomas et al., 2019).

A limitation of this study was that only 13 of the articles defined the effectiveness of the interventions using school and student-based measures. Effectiveness was defined and measured in many different ways and therefore consistency was difficult to find. The studies reviewed also did not provide enough detail on contexts and demographics, so researchers suggested "more research is needed on the utility of trauma-informed practice, as well as the relationship between those and school disciplinary policies and practices" (Thomas et al., 2019, p. 443). Another limitation was the inclusion of many pilots and preliminary studies and therefore less detailed and extensive. A trauma-informed approach in education is a relatively new concept reflected by the lack of research. The range and variety of articles screened and collected to analyze was a strength of this study. Researchers found both trends and gaps in the research around trauma-informed approaches.

Thomas, Crosby and Vanderhaar's (2019) study looked broadly at trauma-informed practices and what could be found in research related to best practices. They found a need for more research in this area. Little consistency was noted throughout school systems regarding programming. Though there was little consistency, researchers noted trends and similarities that

supported the crucial importance of creating trauma-informed practices throughout all educational levels. Trauma is not a new fad. As the number of students facing adversity and trauma increases so does the need to create safe and empowering school environments. This study could be used as a springboard to more in-depth and focused research surrounding this topic (Thomas et al., 2019).

Morina, Koerssen, and Pollet (2016) looked specifically at children and adolescents with post-traumatic stress disorder (PTSD) and compared interventions used. Their goal was to use a quantitative meta-analytic review to discover the effectiveness of psychological interventions. Researchers hypothesized that psychological and psychopharmacological interventions would reduce symptoms of PTSD and comorbid depression. They used peer-reviewed journals found on the databases Medline, PychINFO, and PILOTS. To be included in the review the journals had to be random, included participants under age 18, had a minimum of ten participants, and provided treatment that targeted PTSD symptoms. The researchers located 39 trials with psychological interventions. Within these trials 4184 participants were examined in the meta-analysis. Once the articles were collected treatments were either placed in the category of active treatment or the control group. The treatments were divided into groups as follows; trauma-focused cognitive-behavior therapy (TF-CBT), multidisciplinary treatment (MDT), classroom-based interventions (CBI), child centered therapy (CCT), eye movement desensitization and reprocessing (EMDR), psychodynamic therapy (PDP), meditation, or psychopharmacological treatment (Morina, Koerssen, & Pollet, 2016).

Through their metanalysis Morina, Koerssen, and Pollet (2016) concluded that psychological interventions could effectively reduce PTSD symptoms in children and adolescents. TF-CBT had the best evidence of effectiveness. There was very little research to

support psychopharmacological interventions. Researchers also found limited support show that interventions decreased comorbid depression. They noted that their "findings support the notion that trauma-focused interventions applied as sole treatment can produce large therapeutic effects. The other forms of experimental conditions were too small in number to allow any empirical conclusions about their sole efficacy in treating PTSD and depression in children and adolescents (Morina, Koerssen, & Pollet, 2016, p. 50)." As a group the studies showed a large effect, but individual interventions showed relatively small effects. A limitation of this analysis was the large variety of interventions, which resulted in some being under-represented. A strength of this study was the large participant size and randomized controlled trials, that provided generalizability. Researchers concluded that using psychological interventions across many environments demonstrated positive effects and noted there continues to be a need to research psychopharmacological interventions (Morina, Koerssen, & Pollet, 2016).

Bartlett, Griffin, Spinazzola, Fraser, Noroña, Bodian, Todd, Montagna, Barto (2018) investigated the effectiveness of three trauma treatments including attachment, self-regulation, and competency (ARC), child-parent psychotherapy (CPP), and trauma-focused cognitive behavioral therapy (TF-CBT). ARC is "grounded in attachment theory, the effects of childhood traumatic stress on development, and resilience building. ARC is guided by three integrative strategies, eight primary clinical targets or building blocks, and one overarching goal of trauma experience integration (Bartlett et al., 2018, p. 111)." CPP aimed at birth to five-years includes parents and focuses on positively fostering their relationship and in turn restoring and protecting the child's mental health. TF-CBT is based around the acronym PRACTICE, defined as; Psychoeducation and Parenting skills, Relaxation, Affective regulation, Cognitive coping skills, Trauma Narration, In vivo mastery, Conjoint child-parent sessions, and Enhancing Safety and

Future Development. Researchers hypothesized that children receiving treatment would have increased positive functioning and decreased PTSD symptoms, behavioral problems, and needs. The participants included 842 children aged birth to 18 years, each of whom was a part of one of the three treatments; 378 children received ARC, 303 received TF-CBT, and 158 received CPP. Researchers did not include a comparison group, which limited the validity of this study. Clinicians in mental health agencies across the state of Massachusetts recruited participants who were trained in one or more of the treatments. Clinicians measured progress at baseline and every six months over a four-year period (Bartlett et al., 2018).

Bartlett's et al. research revealed that after treatment for six months children had symptom reductions in reported PTSD and behavior problems with improvements noted in strengths and needs. ARC and TF-CBT showed significant symptom reduction related to multiple child outcomes. CPP noted some positive outcomes but lacked significant findings. Following 12 months of treatment findings were less consistent between trauma treatment and symptoms. Authors noted that this may have been due to high clinician turnover, but it was also possible that the positive effect of treatment diminished over time. The analysis indicated that treatment for trauma was an effective way to improve the developmental trajectory of a child who had been exposed to trauma. Researchers also suggested that their findings on ARC and TF-CBT provided evidence of economical investment for federal, state and local organizations. They noted that more research was needed on CPP and other treatment for young children. A strength of this study was the wide variety of traumatic events, symptoms, functioning, behaviors, and the use of multiple informants (Bartlett et. Al, 2018). This study provided evidence that trauma-informed care and treatment improved the welfare of children. Both ARC and TF-CBT was

positively associated with improved trauma symptoms. More research is needed to determine how aspects of these treatments can be brought into the school system.

McConnico, Boynton-Jarrett, Bailey, and Nandi (2016) examined the Supportive Trauma Interventions for Educators (STRIVE) Project. This project focused on implementing different social-emotional learning supports and strategies to help students regulate their emotions while remaining in their classroom. This study looked at early education classrooms and teacher's knowledge both pre- and post-intervention to evaluate whether the intervention was successful in creating trauma-informed teachers who implemented these strategies. There was not a specific research question or hypothesis in this study. The authors analyzed the results from a pilot intervention referred to as STRIVE. McConnico, Boynton-Jarrett, Bailey, and Nandi (2016) state,

> "in this article we discuss a pilot intervention, Supportive Trauma Interventions for Educators (STRIVE), aimed at helping schools and early education systems of care increase their capacity to identify, respond to, and optimally support the unique needs of young children who have been impacted by trauma exposure. Uniquely, this is a universal intervention, delivered at the class level to all classroom students. We review the theoretical framework and collaborative process of developing the STRIVE model. We discuss preliminary findings about the impact of the STRIVE intervention on classroom climate and student-teacher interactions (p. 37)."

The intervention was implemented in Orchard Gardens School and included 12 teachers and approximately 250 students. Students ages ranged from kindergarten to second grade. This study was both qualitative and quantitative. For quantitative data researchers produced mean scores based on the Wilcoxan Rank Test. Quality of relationships and differences data was collected

during a classroom observation and teacher questionnaires about how prepared they felt implementing the intervention including their level of trauma knowledge pre and post intervention. Students were also asked to reflect on their ability to identify their feelings. McConnico, Boynton-Jarrett, Bailey, and Nandi (2016) collected data with the classroom Assessment Scoring System (CLASS) with trained observers, for the pre- and post- intervention assessments. CLASS assessed the classroom environment not individual students, as not all students in the classrooms have experienced trauma. It looked at emotional support, classroom organization and instructional support. The pilot intervention STRIVE had two distinct parts. The first part consisted of a ten-hour training and coaching for teachers involved in the area of trauma, its effect on students, how to implement the STRIVE toolkit into the classroom. The second part of the intervention included implementing the STRIVE toolkit and collecting classroom observations pre- and post- intervention (McConnico, Boynton-Jarrett, Bailey, & Nandi, 2016).

The McConnico, Boynton-Jarrett, Bailey, and Nandi (2016) research results showed an overall increase in teachers' knowledge of how trauma affected children both developmentally and behaviorally. No significant increase was found in teachers' knowledge of available resources. Post intervention, 60% of the teachers agreed/strongly agreed that the trauma-informed tools helped their students manage emotions. Through the classroom observations, researchers found statistically significant differences in the CLASS scores for the areas of educational support and classroom organization. They found the most significant differences in the sub areas of respect for student perspective, positive and negative classroom climate, and productivity. There was not a significant difference noted in the area of Instructional Support, as the intervention did not address academic, but emotional and behavioral concerns. Teachers also

felt that they had a better understanding of students who were experiencing trauma and they believed the intervention benefited the students in regulating their emotions. The researchers found that their "preliminary findings support the impact of the STRIVE program on classroom climate and student-teacher interactions, as well as teacher knowledge and efficacy" (McConnico et al., 2016, p. 42). They also believed that this study highlighted the importance of supporting schools with training and resources around childhood trauma. The results reduced the stigma surrounding these students and their behavior and other challenges at school and allowed classrooms to create environments that supported all students.

The small sample size was a major limitation of this study that included only one school, 12 teachers and about 250 students. This small size limited the generalization of the specific findings. A strength of this study was it was very thorough and offered a large number of resources, trainings and consultation for the teachers involved. They focused and supported the implementation of this intervention because of the small size. They maintained consistency among classrooms because of their collaboration. The study results offered preliminary evidence that this intervention positively supports children experiencing trauma (McConnico et al., 2016).

Another pilot intervention called Trauma-Informed Elementary Schools (TIES) was investigated by researchers Rishel, Tabone, Hartnett, and Szafram (2019). The purpose of this study was to examine the effectiveness of the TIES intervention. TIES was created around adverse childhood experiences (ACE) research and the attachment, self-regulation, and competency (ARC) framework. Within the ARC framework 10 building blocks provide organization to implement intervention targets. These are defined as; caregiver affect management, attunement, consistent response, routines and rituals, affect expression, modulation, affect identification, self-development and identity, executive functions, and trauma

experience integration. Three components are included in the TIES intervention; school and teacher training, classroom consultation, and family engagement and intervention. The training included,

> "an overview of the ACE study and ACE data as relevant to the state; discussion of the structural, biological, and functional impacts of impaired neurocognitive development resulting from chronic trauma; an explanation of the ARC framework; examples of symptomatology, trauma indicators, and intervention techniques that address traumatic triggering in children; and resiliency building (Rishel et al., 2019)."

Each school had a TIES resource liaison available at least two days per week. Liaisons observed classrooms, consulted with teachers, helped with student intervention, classroom management, implemented strategies such as therapeutic sensory boxes, running preventative groups (i.e. social/emotional), etc. Ties Liaisons coordinated with families and supported engagement and intervention. The two-year study included 51 pre-K, kindergarten and first grade classrooms across 11 schools. Twelve classrooms served as the control group. To reduce selection bias the nonparticipating classrooms were selected from the same schools and grade levels as the participating classrooms. They used the Classroom Assessment Scoring System (CLASS) to assess the TIES program. Three domains were assessed; emotional support, classroom organization, and instructional support (Rishel et al., 2019).

The research revealed that the classrooms who implemented the TIES program showed significant improvement compared to the controls. From beginning to end of the year the TIES classrooms significantly improved in the areas of emotional support and classroom organization, where the nonparticipating classrooms declined in these two areas. No significant difference was found in the area of instructional support. Researchers noted that the data collected needed to be

interpreted with caution because of the small sample size, but concluded that this program and others like it will positively influence the lives of children who have experienced trauma (Rishel et al., 2019).

These results are consistent with other research supporting the importance of emotional and relational intervention in improving the success and functioning of children who have experienced trauma. Creating positive verbal and nonverbal environment, sensory boxes, preventative social/emotional groups, outside classroom support, getting families involved, etc. are critical early intervention and prevention strategies that should be utilized in classrooms.

Sabinga, Webb, Ghazarian, and Ellen evaluated a mindfulness-based stress reduction (MBSR) program in two Baltimore City Public Schools. The MSBR program they implemented was a 12-week program that consisted of three parts; (1) instructional material including mindfulness, meditation, yoga, and body connection (2) practice of mindfulness, meditation, yoga, body awareness (3) and lastly group discussion based around using mindfulness in everyday problem solving. The purpose of this study was to understand if mindfulness instruction improved psychological functioning in students. Researchers hypothesized the MSBR program would improve psychological functioning compared to the control group. Three hundred fifth through eighth grade students participated and were divided into a control group completing the Healthy Topics (HT) program (nutrition, exercise, body systems, etc.) and the treatment group that completed the MBSR program. A variety of measures were completed both at the beginning and the end of programming including self-report, and program staff surveys (Sabinga et al., 2016).

Research findings showed that students who participated in the MSBR program exhibited improved psychological coping and functioning. They reported lower levels of depressive

symptoms, self-hostility, somatization, negative affect, negative coping, rumination, and post-traumatic stress symptoms compared to the HT program participants. Limitations of this study included a small sample size and variability in student attendance, classroom teacher, and administration support. The comparison group showed that improvements made over the course of the program were in fact due to the mindfulness piece as opposed to baseline difference. This study provided preliminary support for the inclusion of mindfulness in the daily routine for all students to increase psychological functioning and decrease trauma symptoms (Sabinga et al., 2016).

Dix, Slee, Lawson, and Keeves (2012) examined the implementation quality of mental health promotion in the schools and how it affected academic performance. They hypothesized that implementing higher quality mental health intervention would positively affect academic performance. Researchers chose 96 elementary schools in Australia in different locations, size, and sectors to take part in KidsMatter, a social-emotional, mental health intervention, over two years. Within these schools there were 4980 students participating whose parents and teachers completed questionnaires about students' school engagement, social-emotional and mental health wellbeing, program impact and implementation (Dix et al., 2012).

Significant differences were noted on standardized achievement scores between low and high program implementation. Researchers found that students were 2.6 months ahead at high-implementation schools compared to low-implementation schools in year three, 4.4 months at year five, and 6.2 months in year seven. This suggested a progressive difference over the years. Positive academic outcomes were noted for children who participated in KidsMatter, a mental health initiative. Researchers concluded that students who were happy interacted better with others and were better learners. One study limitation was that academic scores were not collected

as part of the KidsMatter evaluation so students may also have been enrolled in other programs or mental health services. The wide representation of types and locations of elementary schools and the large sample size was a strength of this study. This study looked at not only mental health promotion, but also the quality of mental health promotion and how that affected students. The data indicated that mental health promotion alone was not enough, but showed that implementation needs to be provided consistently, thoroughly, and with high quality (Dix et al., 2012).

CHAPTER III: DISCUSSION AND CONCLUSION

Summary of Literature

This literature review sought to answer these questions; what are the signs of trauma? How does trauma affect children's mental and physical health, behavior, emotions, and academic performance? What strategies can teachers implement to create trauma sensitive classrooms? By answering these questions teachers can build knowledge and collect resources to support every unique student and their backgrounds within their classroom. A thorough literature review revealed that adverse childhood experiences have a large impact on children in all developmental stages and that trauma-sensitive classrooms and programs, reduce trauma symptoms and increase school engagement (Enlow et al., 2012; Barrera, Calderon, & Bell, 2013; Hovens et al., 2012; Porche, Fortuna, Lin & Alegria, 2011; Dix et al., 2012; Sabinga et al., 2016; Rishel et al., 2019; McConnico et al., 2016; Thomas et al., 2019).

Individuals express trauma in a variety of ways. Trauma signs and symptoms fall into the categories; anger, anxiety, depression, disassociation, post-traumatic stress, and sexual concerns (Kretschmar et al.,2018; Martinez, Polo, & Zelic, 2014; Bartels et al., 2019; Lam et al., 2015). Childhood trauma largely impacts a child's mental and physical health, behavior, emotions, and academic performance. Trauma in the early years cause brain changes in both neural circuitry and brain structure which can lead to cognitive inhibition and a variety of mental disorders including anxiety, depressive, and attention deficit disorders (Enlow et al., 2012; Barrera, Calderon, & Bell, 2013; Hovens et al., 2012). Trauma also significantly increases the likelihood of psychological stress and symptoms, obesity, poorer general health, poorer emotional wellbeing, poorer sleep quality, and lower energy (Beilharz et al., 2019; Burke et al., 2011).

Multiple studies found that children with higher adverse childhood experience scores were at an increased risk for poor attendance, disengagement, behavioral issues, and academic difficulties in reading, writing, and math. Students who experience trauma are also more likely to qualify for special education services and have an individualized education plan (IEP) (Porche, Costello, & Rosen-Reynoso, 2016; Blodgett & Lanigan, 2018). Childhood trauma is significantly associated with dropping out of school before graduation (Porche, Fortuna, Lin & Alegria, 2011).

Trauma significantly impacts a child's ability to function in any aspect of life including the school setting. Trauma-informed school systems are extremely important because children between the ages of four and 18 spend 1/3 of their time in classrooms. The literature suggests there is not one dominant framework used to address trauma in the school setting. A wide variety of programs, strategies, and interventions are implemented including social emotional learning and mindfulness. The majority of the research suggests that social emotional learning to be a key part of improving a child's success in school, no matter how it is presented or executed (Dix et al., 2012; Sabinga et al., 2016; Rishel et al., 2019; McConnico et al., 2016; Thomas et al., 2019). Research indicates that mindfulness, restorative practices and social emotional groups are beneficial for students experiencing trauma. Building positive relationships is imperative and focusing on student strengths positively affects the teacher student relationship. Research also showed that it is important to consider student's perspectives when creating a safe environment. Classrooms with safe and healing environments that used nonverbal cues, sensory boxes, and mindfulness practices such as yoga increased student engagement and success (Thomas et al., 2019; Rishel et al., 2019; Sabinga et al., 2016). Attachment, self- regulation, and competency (ARC) and trauma-focused cognitive behavioral therapy (TF-CBT) were supported as effective interventions. Schools that use strategies from these therapies successfully support their students

(Bartlett et al., 2018; Morina, Koerssen & Pollet, 2016). Overall research supports the need for school systems to implement practices to support students who experience trauma, helping to reduce trauma symptoms and change both the academic and life trajectories.

Professional Application

Trauma does not discriminate, it is found in people of every race, socioeconomic status, age, and gender. Teachers all around the world will have students each year who bring these experiences into their classrooms. Nationally, there are over 600,000 cases of reported maltreatment. This does not include the cases that are not reported (US Department of Human Services, 2020). To create classrooms that help students find success it is imperative that teachers understand how trauma affects and manifests in children's behavior. Because trauma symptoms are expressed in many different ways the more teachers know, the better they will be able to meet the unique needs of students in their classrooms. Research supports instruction for all students in social emotional learning. This instruction helps create a safe space. It is important for special education teachers to consider that students who have experienced trauma are four times more likely to be placed in special education classrooms. Therefore, many special education teachers will work with a population of students who experience high levels of trauma. Teachers need to be informed so their classrooms can reflect all student's needs.

Limitations of Research

The research studies were limited to how trauma affects children through young adults. Though it is also very important, the research did not contain data describing the long-term effects of trauma for older adults. The vast amount of research available on the topic of trauma was narrowed to looking specifically at the consequences of trauma regarding school aged individuals for the purpose of this literature review. This literature review focused specifically on

maltreatment as a form of trauma and less on other traumas such as immigration, natural disasters, sickness, etc. This was also due to the large amount of trauma research focusing on children and trauma; therefore research was limited to school-aged children. The studies had small sample sizes which limited the generalization of results across populations. This was especially true in the section examining strategies and interventions for childhood trauma. Trauma interventions used in schools was studied in only a couple schools or classrooms, but not nationally or globally and very few even statewide. The general trend in this literature review was that the interventions were beneficial, but varied greatly and were not consistent reporting or describing ways they implemented trauma-informed ideas into their schools.

Implications for Future Research

It is clear that trauma-informed practices need to be implemented into all school settings. This is evident in research comparing classrooms and schools who implement trauma interventions and classrooms and schools who do not. There needs to be more research that compares different intervention outcomes to help synthesize best practices and high quality intervention programs. Teachers need to understand and address trauma in order to help those students find success. Many teachers I have worked with, and working as a social, emotional, behavioral teacher myself, it is clear there is a lack of curriculum and support in schools in the area of social-emotional learning and sensory supports. What is the effect on students who are provided with long-term programs and interventions? There was a lack of longitudinal research for trauma interventions. Most studies only lasted a year or two. It would be interesting to compare individuals who received interventions throughout their whole, part of, or none of their schooling career.

Conclusion

The guiding questions of this literature review were; what are the signs of trauma? How does trauma affect children's mental and physical health, behavior, emotions, and academic performance? What strategies can teachers implement to create trauma sensitive classrooms? There was an overwhelming amount of research, which speaks to the importance of this topic. A trauma-informed school is not passing fad, but an ever-evolving teaching practice that increases student success. Trauma-informed schools are needed because of the high number of students who are experiencing chronic trauma in their home lives and the large impact it has on their educational outcomes. The goal of this literature review was to research the impact of trauma and evidence-based interventions that can be brought into the classroom setting. The reviewed literature suggests that trauma largely effects children's cognitive functioning, increases the likelihood of mental health diagnosis, behavioral problems, and has a negative impact on academic outcomes. The research also indicated that when evidence-based trauma interventions are implemented into classrooms student engagement increases. The impact of trauma on children and evidence-based interventions have been widely documented through the literature (Enlow et al., 2012; Barrera, Calderon, & Bell, 2013; Hovens et al., 2012; Porche, Fortuna, Lin & Alegria, 2011; Dix et al., 2012; Sabinga et al., 2016; Rishel et al., 2019; McConnico et al., 2016; Thomas et al., 2019). Current research supports the importance of implementing trauma-based interventions, however a continuation of current research on a larger scale will help justify the cost of programming and application in the school setting. As research increases support for trauma-sensitive classrooms and programs, so will widespread implementation.

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