6-2017

Mindfulness Strategies and Childhood Trauma

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by

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A Starred Paper

Submitted to the Graduate Faculty of

St. Cloud State University

in Partial Fulfillment of the Requirements

for the Degree

Master of Science in

Special Education

June, 2017

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Chapter 1: Introduction

Trauma is any event that harms the body, self, or spirit and it covers a broad range of hurtful experiences that affect a person's physical, sexual, mental, or emotional health (Whitfield, 1998). There are many kinds of traumas occurring toward children, and various researchers have called these traumas "Adverse Childhood Experiences" or ACEs (Anda et al., 1998). Adverse childhood experiences are linked to poor physical and poor mental health in the general adult population (Lu, Mueser, Rosenberg, & Jankowski, 2008).

Youth who have experienced childhood trauma are at risk of developing emotional or behavioral dysfunction and mental illness as a result (Beltran et al., 2016). Furthermore, it is estimated that about 30% of adolescents with Emotional/Behavioral Disorders (EBD) in school have experienced trauma or have shown signs of post-traumatic stress disorder (Cavanaugh, 2016). Teachers of students with EBD need to be aware of the impact of trauma on children and the most effective ways to address their educational and social/emotional needs.

Although many interventions and treatment options are available to aid youth who display patterns of emotional or behavioral dysfunction as a result of trauma, researchers are discovering the effectiveness of "mindfulness" techniques to help young people cope with these symptoms. Mindfulness is the ability to experience the present moment without judgement and the techniques involve training in attending to present-moment experiences such as breath, sounds, and movements (Berceli & Napoli, 2007). Mindfulness is a useful tool for regulating emotions by increasing awareness and developing flexibility and adaptability in responding to one's emotional experiences (Berceli & Napoli, 2007). The purpose of this starred paper was to

review the literature that discusses childhood trauma and its effects, and also to evaluate the effectiveness of mindfulness strategies for youth with childhood trauma.

Research Question

Three questions guide this literature review:

1. What is the prevalence of childhood trauma?
2. How does childhood trauma affect youth in school?
3. In what ways are mindfulness strategies an effective intervention for youth who have experienced childhood trauma?

Focus of Paper

I identified 12 studies for inclusion in the review of literature in Chapter 2. The research is broken down to briefly understand childhood trauma and its effect on youth in school, and the bulk of the research is to show evidence for the use of mindfulness strategies as an intervention for the negative outcomes. Research includes studies ranging in dates from 1998-2016. Studies were included for review if the participants experienced trauma, or were school-aged and identified with experiencing trauma, having high ACEs, or were identified with EBD. Studies were also included if the participants received a mindfulness-based treatment intervention in order to cope with long-term effects of early trauma or emotional or behavioral dysfunction.

Academic Search Premier, EBSCO Host, and Google Scholar were used as a starting point for my literature review. Several keywords were used in searching, including: mindfulness and trauma, mindfulness and adverse childhood experiences, adverse childhood experiences, yoga and Emotional/Behavioral Disorders, and adverse childhood experiences and Emotional/ Behavioral Disorders. I also looked at references of several articles in order to search for more

information. Many of the journals were journals in psychology, pediatric medicine, and education.

Importance of Topic

Students with a high number of adverse childhood experiences (ACEs) are at greater risk of developing emotional or behavioral problems as they get older (Clarkson & Freeman, 2014). In Minnesota alone, 22% of children with a recorded finding of substantiated maltreatment are labeled in administrative records as having a disability, and by far the most common disability indicated with substantiated maltreatment is emotional disturbance (Lightfoot, Hill, & LaLiberte, 2011). As a special education teacher of students with EBD, I work closely with students with a high level of emotional or behavioral dysfunction. In my studies and career, mindfulness strategies are appearing more often as an intervention to cope with the trauma for not just students with EBD, but also for students who have experienced some form of trauma. Internalizing and externalizing behaviors can manifest as a result of adverse childhood experiences (Beltran et al., 2016) and often interfere with students' success in school. The use of mindfulness strategies has been shown to improve students overall internalizing and externalizing behaviors (Chopki & Schwartz, 2009). It is important to begin these interventions early so that mental health does not become a barrier to students' success.

Definition of Key Terms

Adverse Childhood Experience (ACE). An ACE score is a tally of different types of abuse, neglect, and other hallmarks of a rough childhood. According to the Adverse Childhood Experiences study, the more adverse childhood experiences a person has, the higher their ACE

score is likely to be, which is an indicator of developing a risk for later health problems (Anda et al., 1998).

Trauma. Trauma is any event that harms the body, self, or spirit and it covers a broad range of hurtful experiences that affect a person's physical, sexual, mental, or emotional health (Whitfield, 1998).

Early Childhood Trauma. According to the National Child Traumatic Stress Network, early childhood trauma generally refers to the traumatic experiences that occur to children aged 0-6. These traumas can be the result of intentional violence—such as child physical or sexual abuse, or domestic violence. In this paper, "childhood trauma" and "adverse childhood experiences" are used interchangeably.

Complex Trauma. According to the National Child Traumatic Stress Network, the term complex trauma describes both children's exposure to multiple traumatic events, often of an invasive, interpersonal nature, and the wide-ranging, long-term impact of this exposure. These events are severe and pervasive, such as abuse or profound neglect.

Mindfulness. Mindfulness is the ability to experience the present moment without judgement. Mindfulness techniques involve training in attending to the present-moment experiences such as breath, sounds, and movements (Berceli & Napoli, 2007).

Mindfulness Based Stress Reduction (MBSR): techniques that teach how to use meditation and yoga to develop awareness and reduce stress (Sibinga, Webb, Ghazanan, & Ellen, 2016).

Mindfulness Based Cognitive Therapy (MBCT): a treatment that integrates mindfulness techniques and elements of cognitive-behavioral therapy (Lee, Semple, Rosa, & Miller, 2008).

Meditation. Meditation is a practice characterized by decreased activation or arousal of the autonomic nervous system, as reflected in decreased breath rate and lower sympathetic nervous system activity (Nidich et al., 2011).

Internalizing Behaviors. Internalizing behaviors are negative behaviors that are focused inward; examples include fearfulness, social withdrawal, and somatic complaints (Beltran et al., 2016).

Externalizing Behaviors. Externalizing behaviors are directed outward toward others; examples include bullying, vandalism, and acting out (Beltran et al., 2016).

Emotional Behavioral Disorders (EBD): a disability category in educational settings.

Chapter 2: Review of the Literature

Exposure to traumatic events have been shown to have serious impacts on health and development. A 1998 study from the Centers for Disease Control and Prevention (CDC) and Kaiser Permanente involved more than 17,000 middle-class Americans and documented that adverse childhood experiences (ACEs) can contribute significantly to negative adult physical and mental health outcomes and affect more than 60% of adults (Anda et al., 2006). ACEs can include: emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect, mother treated violently, household substance abuse, household mental illness, parental separation or divorce, and an incarcerated household member. According to a 2012 study from the National Survey for Children's Health, 25.3% of children ages 0-17 had experienced one adverse childhood experience, and 22.6 % had experienced two or more adverse childhood experiences, totaling an estimated 16,430,694 children nationwide having an exposure to at least two adverse experiences during childhood.

Studies have shown the detrimental effects that adverse childhood experiences and early childhood trauma can have on the brain. Forty percent of children with any trauma history have at least one other mood, anxiety, or disruptive behavior disorder diagnosis, and this relationship becomes stronger with exposure to increasing numbers of traumatic stressors (Copeland, Keller, Angold, & Costello, 2007). It is well documented that children who are exposed to trauma are at risk for developing emotional or behavioral problems, including dysregulation, posttraumatic stress, depression, low self-esteem, and aggression (Beltran et al., 2016).

Table 1

Definition and Prevalence of Each Category of Adverse Childhood Experience and the ACE Score

Childhood Abuse	Total N= 17,337
Emotional Abuse (Did a parent or other adult in the household…) 1) Often or very often swear at you, insult you, or put you down? 2) Sometimes, often, or very often act in a way that made you fear that you might be physically hurt?	10.6
Physical Abuse (Did a parent or other adult in the household…) 1) Often, or very often push, grab, slap, or throw something at you? 2) Often, or very often hit you so hard that you had marks or were injured?	28.3
Sexual Abuse (Did an adult or person at least 5 years older ever…) 1) Touch or fondle you in a sexual way? 2) Have you touch their body in a sexual way? 3) Attempt oral, anal, or vaginal intercourse with you? 4) Actually have oral, anal, or vaginal intercourse with you?	20.7
Household Dysfunction Substance Abuse 1) Live with anyone who was a problem drinker or alcoholic? 2) Live with anyone who used street drugs?	26.9
Mental Illness 1) Was a household member depressed or mentally ill? 2) Did a household member attempt suicide?	19.4
Mother Treated Violently (Was your mother or step-mother…) 1) Sometimes, often, or very often pushed, grabbed, slapped, or had something thrown at her? 2) Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? 3) Ever repeatedly hit over at least a few minutes? 4) Ever threatened with or hurt by a knife or gun?	12.7
Incarcerated Household Member 1) Did a household member go to prison?	4.7
Parental Separation or Divorce 1) Were your parents ever separated or divorced?	23.3

(Anda et al., 2006)

Table 2

Number of Adverse Childhood Experiences (ACE Score)

Number	Percentage
0	36.1
1	26.0
2	15.9
3	9.5
>4	12.5

(Anda et al., 2006)

Though 'trauma' itself is not a recognized category of disability under the Individuals with Disabilities Education Act, for some students, the symptoms may be co-occurring with the symptoms qualifying students for services under a different category of disability, such as Emotional Behavioral Disorders (EBD) or Other Health Disabilities (OHD) (van der Kolk & Pynoos, 2009). It had been proposed that Developmental Trauma Disorder be created as a new diagnosis in the DSM-V because children who have developed in settings with traumatic experiences sometimes have no diagnosis, multiple unrelated diagnoses, and there is an emphasis on behavioral control without recognition of where the underlying symptoms come from (van der Kolk & Pynoos, 2009). A survey of 1,699 children receiving trauma-focused treatment across 25 sites of the National Child Traumatic Stress Network showed that 78% had been exposed to prolonged interpersonal trauma and at least 50% had significant disturbances in affect regulation, attention and concentration, negative self-image, impulse control, aggression, and risk-taking (van der Kolk & Pynoos, 2009). Also, an analysis from the Chicago Childhood Trauma Center found that children who experienced ongoing traumatic stress in combination

with inadequate caregiving were 1.5 times more likely than other non-trauma exposed children to meet criteria for non-trauma related diagnosis (van der Kolk & Pynoos, 2009). Children with complex trauma-related symptoms frequently receive other diagnoses, which is likely to lead to ineffective treatment. Stress and trauma exposure also impair emotion regulation and executive functioning, negatively affecting students' ability to behave in class, pay attention, and retain material. These issues likely contribute to a more academic problems and school dropout among adolescents (Mendelson, Tandon, O'Brennan, Leaf, & Ialongo, 2015). Many children served by the Chicago Child Trauma Center receive services for prior diagnoses of Bipolar Disorder, Attention Deficit Hyperactivity Disorder (ADHD), or both, and many have not received any therapeutic intervention, let alone intervention focused on their histories of trauma (van der Kolk & Pynoos, 2009).

Research and studies on various interventions for trauma show that mindfulness has been a useful tool for regulating emotions by increasing awareness and developing skills to cope with emotional experiences. Mindfulness encourages acceptance rather than avoidance of one's experiences and decreases rumination about past and future events that can exhaust energy (Berceli & Napoli, 2007). When trauma is internalized and not dealt with, people can become controlled by behaviors that cause more physical and emotional stress. However, when one processes traumatic memories mindfully by focusing on the present moment, one can increase psychological flexibility and reduce emotional avoidance and suppression (Follette, Briere, Rozelle, Hopper, & Rome, 2015). Mindfulness rebalances emotions and thoughtfulness as a nonjudgmental focus on thoughts, feelings, and other aspects of the immediate environment. Mindfulness also detaches unpleasant thoughts and feelings, which reduces their power and

impact (Swart & Apsche, 2014). People with trauma are often unable to fully engage in the present and mindfulness is associated with positive social/emotional experiences that trauma victims often lack.

The following is a literature review discussing what defines childhood trauma and the prevalence of adverse childhood experiences, how childhood trauma affects youth in school, and the ways in which mindfulness strategies, such as yoga, Mindfulness Based Stress Reduction (MBSR), Transcendental Meditation, and other mindfulness cognitive therapies are an effective intervention for childhood trauma and behaviors that manifest as a result.

Literature Review—Childhood Trauma

Finkelhor, Turner, Shattuck, and Hamby (2013) looked at the estimates and trends for childhood exposure to a broad range of violence, crime, and abuse victimization. Child maltreatment, peer victimization, and exposure to family and community violence have been shown to be connected to developmental difficulties, problem behavior, and physical and mental health effects throughout the lifespan. The National Survey of Children's Exposure to Violence II (NatSCEV II) was conducted to improve the epidemiology of this issue and make it more comprehensive. The study was designed to gain up-to-date incidence and prevalence estimates of a wide range of childhood victimizations.

Participants consisted of a national sample of 4,503 children aged 1 month to 17 years old. The study design was a nationwide sampling frame of residential telephone numbers drawn by random digit dialing. Other samples were obtained by an address-based sample; if there were youth 17 years or younger in the household, these addresses were mailed a 1-page questionnaire. A short interview was conducted with an adult caregiver (typically the parent) to obtain

demographic information, and one child was then randomly selected. The child was between 10 to 17 years old, the main telephone interview was conducted with the child, and if the selected child was younger than 10 years old, the interview was conducted with the caregiver. Across all collection methods, the cooperation rate was 60% and the response rate was 40.4%.

The survey used an enhanced version of the Juvenile Victimization Questionnaire, which obtains an inventory of childhood victimization. The Juvenile Victimization Questionnaire obtained reports on five forms of offenses against youth that cover the following six general areas of concern: sexual assault, child maltreatment, conventional crime, internet victimization, peer and sibling victimization, and witnessing and indirect victimization. Follow-up questions gathered additional information including the use of weapons and perpetrator characteristics. Because different kinds of victimization can occur together and can overlap (e.g., physical abuse by a caretaker can also be an assault with or without an injury), rates reported for victimizations in this article reflect rescoring of the data by screening the items and follow-up questions.

The results of the study indicated that 41.2% of the children and youth experienced a physical assault in the last year, and 10.1% experienced an assault related injury. Physical intimidation (13.7%) and relational aggression (36.5%) were also high. Compared to girls, boys had disproportionate levels of assault overall (45.2% vs. 37.1%). Compared with boys, girls were targets for more dating violence (9.3% vs. 1.0%). Of the total sample, 5.6% experienced sexual victimization within the year, and 2.2% experienced a sexual assault; rates were higher for girls ages 14-17 years old, with 22.8% experiencing sexual victimization and 10.7% experiencing sexual assault within the year. Any child maltreatment included neglect, physical abuse, emotional abuse, custodial interference, and sexual abuse by a known adult; over 18.8%

of the sample experienced this type of maltreatment within the year and the lifetime rate for the oldest subgroup was 41.2%. Emotional abuse by a caregiver was the most frequent with 8.0% of the sample and the lifetime rate being 25.7% for ages 14-17 years. Over their lifetime, with the 14-17-year-old group, 18.2% reported physical abuse by a caregiver and 22.3% reported neglect. Also 22.4% of the sample had witnessed violence in the family or in the community in the last year. Of the participants, 8.2% reported witnessed a family assault and 6.1% had witnessed a parent or parental partner assault. Also 16.9% of participants reported witnessing community assault within the year, 58.9% reported witnessing a community assault in their lifetime, and lifetime exposure to a shooting was 16.8%.

In total, 48.4% of the participants had more than 1 of 10 possible victimization types in involving direct or witnessed victimization; 15.1% had six or more, and 4.9% has 10 or more. Also, exposure to one type of victimization increased the likelihood that youth had exposures to other types as well; in most cases risk for an additional type of exposure was increased by a factor of two or three for last-year exposure and more for life-time exposure. This study reinforces previous studies showing that children and youth are exposed to a significant amount of violence, crime, and abuse over the course of their childhoods.

Anda et al. (2006) studied the neurobiology of childhood trauma and then used the original Adverse Childhood Experiences (ACE) study as a case example linking the neurobiological evidence to the effects of childhood trauma. The original ACE study included 17,337 adult Health Maintenance Organization Members and assessed eight adverse childhood experiences including abuse, witnessing domestic violence, and serious household dysfunction. The study used the number of ACEs (ACE score) as a measure of cumulative stress and

hypothesized a “dose-response” relationship of the ACE score to 18 selected outcomes and to the total number of these outcomes to see the comorbidity.

The study reviewed the neurobiological effects of stress on the brain. The capacity of the human brain depends on a sequence of the developmental and environmental experiences to express genetic material. This process is sensitive to extreme, repetitive stress especially during childhood when the brain is continuing to develop. Extreme stress can impair, often permanently, the neuroregulatory systems, causing neurobehavioral consequences. Early stress in life, like abuse and trauma, can cause enduring brain dysfunction that affects the quality of life. Studies in clinical population of abuse survivors show a smaller hippocampal volume in adults with early abuse-related posttraumatic stress disorder (PTSD), but not in children with PTSD suggesting that early abuse and stress can cause long-term effects, and deficits in verbal memory and memory tasks. Being deprived of developmentally appropriate experiences may also reduce brain activity, resulting in abnormalities in brain organization and structure, affecting many brain functions and behaviors.

The definitions used for the outcomes that provided evidence of disordered functions from childhood trauma were selected using a general framework of health and social problems that were likely to show dysfunction of specific brain systems. To define the health-related behaviors, information was used from the medical review of systems, the physical examination, and the ACE study questionnaire. There were 95% confidence intervals using logistic regression between the ACE score and each of the 18 health related outcomes. The outcomes were as follows: panic reactions, depressed affect, anxiety, hallucinations, sleep disturbances, severe obesity, multiple somatic symptoms current smoking-nicotine, self-reported alcoholic, ever used

illicit drugs, injected drug use, impaired memory of childhood, number of age periods affected, early intercourse, promiscuity, sexual dissatisfactions, high levels of perceived stress, difficulty controlling anger, and risk of perpetrating intimate partner violence.

At least one ACE was reported by 64% of the respondents. The ACE score had a strong relationship to the prevalence and risk of affected disturbances ($p < 0.001$). For people with more than four ACEs, the risk of panic reactions, depressed affect, anxiety, and hallucinations were increased 2.5-, 3.6-, 2.4-, and 2.7-fold. The ACE score also had a relationship to the prevalence and risk to each of the somatic disturbances and the risk of sleep disturbances and multiple somatic symptoms increased 2.1-, 1.9- and 2.7- fold. The risk of early intercourse, promiscuity, and sexual dissatisfaction were increased 6.6-, 3.6, and 2-fold for people with over four ACEs as well. The risk of impaired memory of childhood was increased 4.4-fold, and the number of age periods affected increased as well. High perceived stress, difficulty controlling anger, and the risk of perpetrating intimate partner violence were increased 2.2-, 4.0-, and 5.5-fold.

This study showed that as the ACE score increased, the mean number of comorbid outcomes increased, sometimes tripling between an ACE score of 0 and ACE scores of 7-8. The authors of the study indicate that evidence from such childhood traumas may be "silent" until much later in life, and therefore overlooked by clinicians who treat symptoms without a full understanding of their origin.

Childhood Trauma and School Outcomes

Jimenez, Wade, Jr., Yong, Morrow, and Reichman (2016) examined associations between adverse childhood experiences in early childhood and teacher-reported academic and

behavioral problems in kindergarten. This study was a secondary analysis of data from the Fragile Families and Child Wellbeing Study. Primary caregivers reported information on subjects' ACE exposures at 5 years old and teacher-reported outcomes at the end of the subjects' kindergarten year were included.

Results included teacher-ratings of academic skills, emergent literacy skills, and behavior. Included were the eight ACE exposures from the original ACE study by the Center for Disease control and Kaiser Permanente. ACE exposures include recurrent physical/emotional abuse, sexual abuse, an alcoholic/drug abuser in the household, an incarcerated household member, a family member who is chronically depressed, mentally ill, institutionalized, or suicidal, mother is treated violently, one or no parents, and physical/emotional neglect. The study then examined the associations between teacher-reported academic and behavioral outcomes and ACE scores by using logistic regression.

There were 1,007 children included in the study; 55% of the children experienced one ACE, and 12% experienced three or more. Children experiencing three or more ACEs were associated with below-average language and literacy skills and lower math skills. Poor emergent literacy skills, attention problems, social problems, and aggression were also significant (95% confidence intervals) with children with three or more ACEs. The scores in the result of the study show that higher ACE scores are associated with below-average literacy skills and behavior problems starting as soon as kindergarten.

Lightfoot et al. (2011), with the University of Minnesota, examined the prevalence of children with disabilities within the welfare system using administrative data from the state of Minnesota. The authors discussed that over the past 20 years, studies have shown that children

and youth with disabilities experience a higher rate of maltreatment than children and youth without disabilities. The purpose of the study was as follows: To explore the prevalence and characteristics of children with disabilities with substantiated maltreatment in the child welfare system, to explore the relationship among demographic characteristics (age, race, location) and the likelihood that a child with substantiated maltreatment in the child welfare system is identified as having a disability, and to examine the likelihood that a child with a disability in the child welfare system has been placed in a formal, out-of-home placement.

The state of Minnesota uses a statewide electronic system to collect child welfare data called the Social Service Information System (SSIS). The SSIS includes demographic information about children including age, race, ethnic background, and disability. It also includes information about types of abuse or neglect and reason for removal. Once children are entered into the system, data stays with a child and updates as information emerges. If a child re-enters the system at the age of eight after a maltreatment report, and at this time the case worker entering the information recognizes that the child has a developmental disability because of his or her placement in a special education program, the child can then have a disability code added to their SSIS record. This study uses all SSIS child protection records included between January 1, 2005, and December 31, 2005. Children were only included if they had substantiated cases of maltreatment, meaning the caseworker had to determine that maltreatment occurred. The final sample included 6,270 children ages 0-18 who had active child welfare cases through a county child protection agency in Minnesota during 2005.

Children were classified as having a disability if they had at least one of 23 disability codes represented in the SSIS database. For the analysis in the study, several of the codes were

grouped into a single category. For example, the category in the study called Developmental Disabilities included four related codes: "developmentally disabled or mental retardation only," "developmentally disabled without mental retardation," "mental retardation with other developmental disabilities," and "developmentally disabled." Other categories included emotional disturbance, physical disability, adult mental illness, and chemically dependent. If children had more than one disability code, they were re-coded in a new code category of multiple disabilities.

This study also explored the relationship between the presence of a disability to a variety of other characteristics, including race/ethnicity, gender, rural/urban locations, and reason for removal. Race and ethnicity was measured by categories used in SSIS including Caucasians, African American, Indian/Alaskan Native, Asian, Pacific Islander, and Unable to Determine. The study merged the data to create two groups, Caucasian and non-Caucasian. Also, children were considered to live in a metro county if they lived in the seven county metro area of Minneapolis/St. Paul, and they were determined to live in a non-metro country anywhere outside of the seven county metro area.

The analysis of the SSIS data found that 22% of the 6,270 children ages 0-18 with substantiated maltreatment had reported a disability diagnosis code. Among 3,982 children over the age of 5 with substantiated maltreatment, 27.9% had a reported disability diagnosis code. A higher percentage of children with disabilities were male (55.8%), Caucasian (63.8%), and over the age of 5 (80.4%) than children without disabilities. Maltreatment was reported in metro-area counties in 45.8% of cases involving children with disabilities, compared to 50.6% of case involving children without disabilities. Children with disabilities were also placed in out-of-

home placement in 64.2% of cases of substantiated maltreatment, while children without disabilities were placed in out-of-home placement in 48.9% of cases. Of children with disabilities, the most common disability codes were emotional disturbance (37.5%), intellectual/developmental disabilities (10.7%), and multiple disabilities (9.5%). It was also found that females were 38% less likely to have a disability diagnosis than males. Also, non-Caucasians with maltreatment cases were 1.35 times more likely to not have a disability than Caucasians, and children living outside the metro area were 24% less likely to have no disability diagnosis than those living in the 7-county metro region.

Several limitations were mentioned in the study: the data were originally collected for child welfare reports, not disability reports and therefore did not include standard disability definitions used in federal education policy. The data set also did not indicate the severity of the disability, which could have expanded the understanding of the issue, nor did it include primary disability diagnosis, which limited the ability to determine a primary diagnosis in instances when a child has multiple disabilities codes. The findings of this data were interpreted with the knowledge that the administrative data was not constructed for the purposes of answering specific questions in this study. Despite the limitations, the study helps to show a baseline of information about children in the welfare system, and overall, the most glaring results of the study was that the most common disability indicated among children with substantiated maltreatment in Minnesota was emotional disturbance.

Mindfulness Strategies as an Intervention for Youth Exposed to Trauma

There are many interventions schools implement to help students cope with emotional and behavioral dysfunction and one mindfulness-based method that is becoming increasingly

popular is yoga. Yoga is a practice that uses a combination of mind-body techniques that include calm breathing, postures, and meditation. Calm breathing has been shown to focus the mind and regulate the autonomic nervous system to help in relaxation (Steiner, Sidhu, Pop, Frenette, & Perrin, 2013). Physical poses improve flexibility and strength, and along with relaxation and meditation, can help to calm the mind (Woodyard, 2011). Yoga has been shown to promote a greater sense of self-awareness, self-control, and concentration. Children with a range of disabilities can benefit from learning self-awareness techniques like yoga in order to increase self-awareness and awareness of their emotions. Steiner et al. (2013) examined the feasibility and effects of yoga sessions within an urban elementary school setting for children with Emotional and Behavioral Disorders (EBD). Students with EBD display internalizing and externalizing symptoms similar to many psychiatric disorders such as anxiety, depression, posttraumatic stress disorder, and other mood disorders. Students with EBD also display problematic disruptive behaviors in the classroom, which highly affects academic success.

The participants in the study were children in fourth and fifth grade at an urban elementary school who were receiving special education services for EBD. The intervention was over the span of 2 years and included a final analysis of 37 students. Children were included regardless of whether they were receiving other treatment or taking psychopharmacologic medications. The average age of the participants was 10.4 years old. Of the participants, 4.9% were Asian-American, 48.8% were African-American, 19.5% were Caucasian, 12.2% were Native American, and 24.4% of the participants had Hispanic Ethnicity. Of the students in the study, 58.5% had documented school problems, speech and language problems, and reading difficulties.

Pre-intervention assessments were given to the teachers 1 week before the intervention began and post-intervention assessments were given to the teachers 1 week after the intervention ended. Teachers took the Behavior Assessment Scale for Children, Second Edition Teacher Rating Scale-Child (BASC-2 TRS-C). The BASC-2 assesses children ages 6 to 11 and has 139 questions with a 4-point frequency scale. Subscales include anxiety aggression, attention problems, depression, hyperactivity, conduct problems, withdrawal, and social skills. The scores fall into the externalizing problems composite, internalizing problems composite, behavioral symptoms index, adaptive skills composite, and school problems composite. For all composites except adaptive skills, a higher score means a greater impairment. Another Assessment given was the Swanson, Agler, M-Flynn, and Pelham Rating Scale (SKAMP). The SKAMP is a teacher observation with 10 items divided into classroom deportment and attention scales. There are six attentions items: getting started, staying on task, attending to an activity, making activity transitions, completing assigned tasks, and performing work accurately and neatly. The four deportment items are: interacting with other children, interacting with adults, remaining quiet, and staying seated. The assessment uses to four-point frequency scale, and the higher the score, the more significant. Teachers also completed a Satisfaction with Intervention questionnaire, developed during a previous study. Teachers rated how helpful they thought the intervention was on a 5-point scale.

Parents were also given pre-intervention and post-intervention assessments to measure the children's adaptive skills and problem behaviors at home and in the community. The assessments were brought home to the parents by the children two weeks before the intervention started and were given 1½ months to return it. Parents were given the BASC-2 Parent Rating

Scale, a Background Information Questionnaire, and the Satisfaction with Intervention questionnaire.

Students completed pre-intervention assessments one week prior to the intervention and 1 week after the intervention ended. Students were given the State-Trait Anxiety Inventory for Children (STAIC), which is a self-report including two 20-item scales to measure anxiety. One scale measures state anxiety (S-anxiety), measuring how students feel "right now" and the other measures trait anxiety (T-anxiety) measures how the students usually feel. The higher the score, the greater anxiety symptoms. Students were also given the Kidscreen-27, which is a 27 question self-report of well-being. The scale measures physical well-being, psychological well-being, parent relations and autonomy, social support and peers, and school environment. A lower score on this assessment indicates greater significance. Students were also given the BarOn Emotional Quotient Inventory Youth Version (BARON-EQiv:YV), a 60-question self-report measuring emotional competence. A lower score indicates low emotional competence. The final assessment students were given was the Satisfaction with Intervention Questionnaire.

The yoga instructors were given the Session Attendance, Engagement, and Behavior Checklist which kept track of attendance and noted how much time was spent on each component of the Yoga Ed curriculum. Group dynamics were also measured, including engagement, medium engagement, or need for redirection.

Participants received two yoga sessions per week from a certified yoga instructor during the school day for 3½ months. The sessions were taught through the Yoga Ed Protocol, which is a nationally recognized organization that develops yoga protocols to foster social-emotional well-being for children. There were 7-10 students in each 1-hour session and session followed

the same routine: it would start with relaxation training and breathing exercises, then child-adapted beginners' poses are introduced. Then there is a social component where students would do exercises with a partner or in a group. Then imagery techniques and meditation were used to conclude the yoga session to learn to pay attention to their internal emotions as they occur. Average attendance for the yoga-sessions was 90%.

The Satisfaction with Intervention Questionnaire at the end of the project showed 100% satisfaction with teachers, 62% satisfaction with parents, and 100% satisfaction with students. Sixty-two percent of the teachers that responded requested to have students continue the program; however, scheduling in the school day was attributed with the negative responses from teachers. Seventy-two percent of parents that responded noted positive changes including increased calm and relaxation, increased happiness, and energy. Only 11% of the participant responses were negative.

For each participant, teachers completed the BASC-2, and SKAMP to assess classroom deportment and attention pre- and post-intervention. On the BASC-2 teachers reported significant improvement on the Internalizing Problems Composite ($p = 0.04$), Behavioral Symptoms Index ($p = 0.01$), and Adaptive Skills Composite ($p = 0.03$), and a trend ($p < 0.3$) toward significant improvement on the School Problems and Externalizing Problems Composite. SKAMP results showed improvement on the Classroom Attention Symptoms ($p = 0.009$) and the Total Score ($p = 0.02$). The low p-values represented suggesting that this sample provides enough evidence to support the feasibility of the study.

The self-reported assessments from the students, the KIDSCREEN-27 and BARON-EQI:YV, showed an increase in positive effects from the study, with a total emotional t-score on

the BARON-EQI:YV starting with 100.95 to 98.60, and KIDSCREEN Sum Total starting with 99.03 to 96.60 with higher scores for both assessments indicating lower impairment. On the STAIC, data showed that participants displayed an increase in state anxiety ($p = 0.005$). It is possible that the testing was confounded by events occurring in the school. The first year of the intervention, the school was quarantined due to an H1N1 outbreak and formally shut down by the school health committee for a week before post-intervention testing was administered. The second-year students were completing statewide mandatory standardized testing during the post-intervention assessment. Both of these circumstances could have led to higher state anxiety.

Overall, this study provided evidence for the effectiveness of yoga as an intervention for children with EBD in an urban school setting. There were a number of limitations in the study: Parents responses were lower compared to student and teacher responses; many parents did not speak/read English, there was poor communication between the school and parents, families tended to be highly mobile, and contact information for parents was outdated. In addition to parent limitations, the measures were developmentally complex for the students because their language level was lower than estimated. Many students struggled to read the questionnaire and had multiple questions. The authors indicated that in the future, the assessments would be reviewed in order to receive more consistent results.

Beltran et al. (2016) examined the changes in functioning of boys who had a history of interpersonal trauma exposure after being involved in the Yoga-based Psychotherapy Group for Boys (YBPG). Childhood trauma is known to have long-term negative effects on children, sometimes even lasting into adulthood. It is well documented that children who are exposed to trauma in childhood are at risk for developing emotional and behavioral problems. Other

research has indicated that children exposed to trauma have difficulties regulating thoughts and emotions. Research has indicated that urban youth tend to hide distress and use aggression to express themselves instead. Research has also shown that gender, age, and race affect how psychological distress is expressed, especially with regard to depression and anxiety. Boys have been shown to be at a higher risk for negative behavioral and mental health outcomes. Previous studies looking at the feasibility of yoga as an intervention for youth exposed to trauma have indicated positive outcomes with regard to an increased ability to cope with stress as compared to the control groups.

In this study, 10 boys participated with a mean age of 10.3 years old, who were already receiving 3 months of mental health treatment at a residential center. YBPG was used as an adjunct to their current trauma-informed mental health treatment. Seven out of 10 boys were African-American; nine were already taking medications; seven boys were taking a stimulant, three boys were taking antipsychotic/antidepressants, and two boys were taking asthma medication.

The history of each child's trauma exposure (called an Adverse Childhood Experience or ACE, from the Kaiser Permanente Study in 1998) was obtained in the initial diagnostic interview. The following trauma exposures were asked during the interview: emotional, physical and sexual abuse, neglect, grief or loss, community or school violence, domestic violence, and parental mental illness, substance abuse, and/or incarceration. Participants were also administered the Structured Clinical Interview for DSM Disorders, Childhood Version (Kid-SCID) prior to the intervention.

The YBPG integrated trauma-informed treatment, psychoeducation therapy, and yoga. The YBGP uses yoga movements, controlled breathing exercises, and awareness and was designed to show improvement in the following areas: safety and personal boundaries, self-awareness, self-soothing, self-regulation, emotional competence, and self-esteem. The protocol consisted of 14 90-minute weekly sessions. The beginning stage focused on creating a safe-environment and norms, the middle phase focused on increasing self-awareness using breath and yoga poses. The last phase focused on social interactions and teamwork.

The Behavioral and Emotional Rating Scale-2nd edition (BERS-2) was used to identify functioning pre-and post-intervention. The scale is comprised of a parent rating scale (PRS), a teacher/therapist rating scale (TRS), and a youth rating scale (YRS). There are five scales that measure Interpersonal Strength, Family Involvement, Intrapersonal Strength, School Functioning, and Affective Strength. Higher scores on the BERS-2 suggest higher functioning. And all dimensions together constitute the Strength Index. In this study, the YRS and PRS were used to compare baseline and post-intervention data.

The parents' mean BERS rating for their sons at baseline on the Interpersonal Strength scale was 7.2 (SD = 1.5), in the below-average range. Following the YBPG, a statistically significant improvement occurred to a mean of 8.6 (SD = 2.1). The parents' mean rating for their sons on the Intrapersonal Strength scale, with a mean of 7.5 (SD = 2.3) at baseline, was slightly higher than that for the Interpersonal Strength scale. The mean improvement in the parents' rating on that scale went to a 9.4 (SD = 1.4). The parents' rating on the Family Involvement scale was significantly improved, from 8.5 (SD = 1.9) to 9.9 (SD = 1.8). Parents' ratings on the Strength Index scale also demonstrated significant improvements, from 86.6 (SD =

8.9) to 95.3 (SD = 9.8). The changes in affective strength and school functioning were not significant.

The boys' average self-report on all scores was in the normal range at baseline for all measured areas of functioning. Their scores stayed within the normal range following the YBPG. Although remaining in the normal range, the mean Family Involvement score, with a mean of 10.3 (SD= 1.1), demonstrated a statistically significant decrease, from a baseline of 13.2 (2.9).

Attendance at the YBPG group was compared with that of other mental health interventions used at the treatment center. These are non-yoga-based group treatments attended by patients. Except for the socialization group, the data show that the YBPG had significantly higher rates of attendance compared with all other clinical mental health groups, including participants' and parents' responses to the YBPG were positive. Of a total of 5 possible points, participants' average responses ranged from a low of 4.58 (SD = 0.97) to 4.91 (SD = 0.28). Written responses suggested that participants and their parents had a positive experience with the YBPG. Multiple participants expressed that they wanted to do the group again.

The study acknowledges the small, and specific sample size and difference between the student and parents' rating scale pre-YBPG. Differences were shown in the parents' ratings, but the children's self-report ratings did not demonstrate statistically significant changes. The study suggested that differences between parents' and children's ratings has previously been documented in rating scales of child behavior. Overall, the results of this study indicate that YBPG could be a useful adjunct therapy to treat the emotional and behavioral consequences of childhood trauma in school-aged boys.

In a study conducted by Sibinga et al. (2015) a mindfulness-based stress reduction (MBSR) program was examined to help students cope with the negative effects of stress and trauma mainly among low-income, minority, public middle school students. In response to young people being exposed to stress and trauma, the researchers in this study developed a MBSR program for students based on Jon Kabat-Zinn's MBSR program for adults. The study was a 12-week randomized controlled trial of the MBSR with a group of middle school boys and control group (receiving health education).

Students were eligible to participate in the study if they attended fifth to eighth grades, including special education, in either two of the identified schools. MBSR were incorporated into the school curriculum and delivered to all students during the "resource" class time for a portion of the school year. Students were randomly assigned by school and grade into either the intervention program or the active control program, and each school had both programs.

Components of MSBR include: (1) material intended to teach to mindfulness, meditation, yoga, and the mind-body connections; (2) experiential practice of various mindfulness meditations, mindful yoga, and body awareness during group meetings and encouragement of home practice; and (3) group discussion focused on the application of mindfulness to everyday situations and problem-solving related to barriers of effective practice. The goal was to enhance nonjudgmental present-focused awareness, aimed to reduce an unhealthy focus on the past and worries about the future.

The school-based MBSR was taught by two experienced MBSR instructors, both with over 10 years of experience teaching mindfulness. Data were collected by program staff during class time over 2 consecutive days at baseline and after completion of the 12-week program.

Reliable and age-appropriate self-report surveys were used to measure outcomes of interest, including mindfulness, psychological functioning, and trauma symptoms. Mindfulness was measured using the 10-item Children's Acceptance and Mindfulness Measure. Two factors were also used from the Perceived Stress Scale: positive coping and stress. Psychological symptoms were measured using the Children's Depression Inventory-Short Form (CDI-S) and the Symptoms Checklist-90R (SCL-90-R). Symptoms were also measured using the Multidimensional Anxiety Scale for Children (MASC). Mood and emotion regulation were assessed by the following: Positive and Negative Affect Schedule (PANAS), the Differential Emotions Scale (DES), the Aggression Scale, and the State Trait Anger Expression Inventory (STAXI-2). Coping was measured using the Children's Response Style Questionnaire (CRSQ), the Brief COPE, and the Coping Self-Efficacy Scale (CSE). Posttraumatic symptoms were measured after the intervention (because of administration error) using the Children's Post-Traumatic Symptom Severity Checklist (CPSS).

Three hundred students in the fifth through eighth grades participated and provided survey data from two urban elementary/middle schools. Study participants were 50.7% female and 99.7% African American. Approximately 99% of participants were eligible for free or reduced meals. When comparing the control and MBSR groups at baseline, tests revealed no significant differences in gender, ethnicity, age, or any study variables of interest. The lack of significant differences at baseline suggests that randomly selecting students resulted in balanced study measures. MBSR participants reported lower levels of depressive symptoms ($p = .02$), self-hostility ($p = .02$), somatization ($p = .03$), negative affect ($p = .003$), negative coping

($p = .04$), and rumination ($p = .03$). MBSR students also showed significantly lower levels of posttraumatic stress symptoms ($p = .02$), including in both subdomains of depressive ($p = .03$) and re-experiencing ($p = .008$).

Overall, this trial study supports the idea that mindfulness instruction improves students' psychological functioning and help them cope with the negative effects of stress and reduce trauma-associated symptoms. This study provides additional support for efforts to include high-quality mindfulness instruction to enhance students' capacity to manage any future stress and trauma they may face, as well as in trauma-informed approaches.

In a study conducted by Swart and Apsche (2014) at Walden University, the effectiveness of using Mode Deactivation Therapy (MDT) was examined as a treatment for adolescents with complex trauma and behavioral problems. Mode Deactivation Therapy was developed in the 1990s due to the lack of effective treatment available for adolescents with behavioral problems and multiple co-existing conditions, which were often related to childhood trauma. MDT was developed using Cognitive Theory and specific mindfulness and acceptance elements, along with Dialectical Behavior Therapy and Acceptance and Commitment Therapy. MDT was also developed because with standard Cognitive Behavioral Therapy, there was resistance to treatment, or it was not suited for adolescents with serious co-existing problems and improvements did not last long. MDT suggests that, "the way that thoughts and feelings relate to our core beliefs—our inherent view of ourselves, others, and the world that has helped us cope since childhood—and how they 'bubble up' as behavior, is the essence of understanding and treating behavioral problems." Principles of mindfulness and Family Systems Therapy were incorporated because mindfulness is present-focused, recognizing the importance of attaching to

thoughts and feelings, and stress and dysfunction are often developed in the family system. Since mindfulness "rebalances emotionality and thoughtfulness as a nonjudgmental focus on thoughts, feelings, and other aspects of the immediate environment, as they ebb and flow moment-by-moment, it detaches unpleasant thoughts and feelings from the self-identity, thereby reducing their power and impact." The study suggests that MDT is an effective approach to treating adolescents with complex trauma and behavioral problems. The acknowledgement and acceptance of unpleasant thoughts and feelings is an important part of the MDT method. MDT mindfulness is made up of simple and short breathing exercises to reduce preoccupation with past and future worries and improve engagement with the present.

The study was a randomized controlled treatment comparing MDT and Cognitive Behavioral Therapy (CBT) in a residential treatment facility for six to eight months. CBT was considered the treatment as usual (TAU). There were 84 participants in the study, all males ages 14-17 years old. Forty-four participants were African American, 38 participants were European American, and two participants were Latin American. Data were collected pre-treatment and post-treatment. Participants were randomly assigned to the MDT treatment group or the TAU that received a standard CBT. On average, all participants were diagnosed with anxiety and mood disorders. Almost all experienced some form of childhood abuse, while nearly one-half developed significant symptoms of Posttraumatic Stress Disorder. Participants in the study also experienced at least one form of maltreatment during childhood, most commonly two or three combined, with neglect and physical abuse the highest. Of the participants, 41.7% also experienced sexual abuse during childhood.

The pre-treatment assessments (MDT-based Client Typology Survey, Fear Assessment Survey, and Compound Conglomerate of Beliefs Questionnaire (CCBQ), and the Child Behavior Checklist (CBCL) and State-Trait Expression Inventory (STAXI-2) were completed within the first 4 weeks. Behavior Rating Scale (BRS) worksheets were also completed that monitored and logged all incidents of aggression. There were three scales used in the STAXI-2: Anger-In, Anger Out, and Anger Expression. The Anger Control scales rated the controlling of angry feelings by preventing the expression of anger toward other persons or objects in the environment (Anger Control-Out), and controlling suppressed angry feelings by calming down or cooling off (Anger Control-In). The Anger Expression Index is a measure of total anger expression. Pre-treatment scores for the control group and the experimental group were not significantly different. For the CBT group, the post-treatment results showed only a slight improvement. However, the STAXI-2 results of the MDT experimental group showed a significant improvement between pre- and post-treatment scores. Improvements of between 36.6% and 41.7% were achieved at post-treatment for the MDT group across all three STAXI-2 scales that were used.

The Child Behavior Checklist (CBCL), which is a parent or caregiver reported form, was also used as a pretreatment and posttreatment measurement. The total score, as well as the Internalizing and Externalizing scales were measured. The treatment for the MDT experimental group was around 37% for all three scales. The next two assessment tests that were conducted pre- and post-treatment for the experimental and control group were the Compound Core Beliefs Questionnaire (CCBQ) and Fear Assessment. Both assessments are unique to MDT. It should be noted that these tests are not standardized, but they were used in this study for comparison.

For the MDT group, CCBQ scores improved by 24% and the Fear Assessment score by more than 28%.

Another assessment was the Behavior Rating Scale (BRS). The BRS measured the number of aggressive incidents that were observed for a month, before and after treatment. There was only a 5% decrease in aggressive incidents were reported for the CBT participants, while the aggressive incidents were almost eliminated for the MDT group (92.5% decrease in the number of reported incidents).

The study showed MDT is effective in addressing behavioral problems in adolescents with complex trauma and behavioral problems, and is also more effective than the CBT-based treatment for this specific population. Under implications, the study suggests that there is no reason why this method would not be effective for a similar female population or a similar adult population, with behavioral, trauma-related problems.

Mendelson et al. (2015) examined a 12-session school-based trauma-informed group intervention co-facilitated by a mental health counselor and young adult community member utilizing evidence-based cognitive behavioral and mindfulness strategies for seventh and eighth graders at two urban public schools. Stress and trauma exposure have been shown to impair emotion regulation and executive functioning, negatively affecting students' ability to behave in class, pay attention, and retain material. These issues can contribute to a variety of academic problems and school dropout among adolescents. In this study, RAP club is a trauma-focused treatment for adolescents who have been exposed to chronic stress and trauma.

Participants were 49 seventh- and eighth-grade students attending two Baltimore City Public Schools serving disadvantaged neighborhoods. Students were not initially screened for

trauma exposure or mental health issues prior to the intervention. Research staff randomly selected participants to be in the intervention or control groups, with slightly more students assigned to the intervention than the control condition to support effectiveness. There were 29 students in the intervention group and 20 students in the control group. Students assigned to the intervention attended 45-min RAP Club sessions twice per week over 6 weeks during their "resource period" at school. Control group students attended their standard resource period activities. Participants and their homeroom teachers completed measures at baseline and post-intervention.

RAP club incorporated Dialectical Behavioral Therapy for Adolescents, Trauma Adaptive Recovery Group Education and Therapy, and School-Based Trauma/Grief Group Psychotherapy. Students were taught mindfulness strategies to encourage a present-focused awareness, through practices like observing the breath, identifying emotions, responding thoughtfully, and tolerating distress. Psychoeducation addressed the nature of the effects of stress and problem-solving and communication skills were taught using Cognitive Behavioral Therapy. The sample included 23 seventh- and 26 eighth-grade students (range 12-15 years). More females than males participated (31 versus 18). Most students identified as African American (94%); the remainder identified as "other."

Five of 29 intervention students had elevated baseline depression; all displayed a pattern of reduced posttest symptoms. Twenty-four intervention participants (83%) reported low baseline depression; compared with control participants with low baseline depression, these students showed improved teacher-rated dysregulation, social competence, academic competence, authority acceptance, and disciplinary sanctions. Compared with controls,

intervention students improved on teacher-rated dysregulation, social competence, academic competence, and authority acceptance. RAP Club improved teacher-reported outcomes important for school success and several outcomes were enhanced with higher program dose.

The study discusses limitations such as lack of comprehension or willingness with student measures and focus groups or interviews should be conducted in future studies. Also, future research should also assess implications of baseline trauma and anxiety symptoms. Despite the limitations, the study suggests RAP Club is an effective intervention that has the potential to provide upper middle school students with tools and supports to cope with negative impact of stress and trauma.

Viafora, Mathiesen, and Unsworth (2015) conducted a study to evaluate the effectiveness of an 8-week mindfulness course with students in a traditional middle school and with students attending a school specifically for youth facing homelessness. The mindfulness-based intervention in this study served as a universal prevention program, not specifically designed for youth facing homelessness. Mindfulness is a protective factor for youth in any population because of its potential to alleviate emotional distress that youth may face. Other studies have consistently found that any conditions of homelessness for youth have a wide range of social-emotional effects such as low-esteem, more aggressive behaviors and noncompliance, as well as shorter attention spans, and sleep disturbances. Also, homeless children are at greater risk for poor educational outcomes, which may have long-term consequences into adulthood.

The sample consisted of 63 students from four middle school classrooms (grades six-eight; ages 11–13) at two schools. At a traditional charter middle school, 48 students from three

separate classrooms agreed to participate in the study. Treatment Group 1 (TG1, n = 28) included students from two seventh-grade classrooms. The nonequivalent comparison group (n = 20) was comprised of students in a sixth-grade classroom at the same school, who were waitlisted to participate in a mindfulness training after the study was completed. At a different charter school that serves youth who are currently living or have recently lived in a homeless shelter with their families, students (n = 15) from one seventh–eighth grade classroom agreed to participate in the study and were included as Treatment Group 2 (TG2). There was no comparison group for TG2. Student participants identified as Hispanic (86 %), African-American (10%), White (8%), and Native American (5%). Just over half of the participants (52%) were female. All student participants were able to read, write, and speak fluent English.

The mindfulness course was delivered in eight weeks, with 45-minute weekly sessions, taught by a graduate student in social work who has had a decade of experience in mindfulness practice, worked with youth in mental health settings and in school classrooms, and has taught mindfulness to youth for a few years in various settings, beginning with a mindful listening exercise, followed by mindful eating, and then a short class discussion of the previous week's home practice exercises. Each week the instructor led the class in a guided breathing exercise lasting several minutes. New mindfulness practices were also introduced weekly to explore different themes in depth, such as mindfulness while taking exams, mindfulness of pleasant experiences, managing difficult emotions, or attention to kindness toward self and others. The class always included an instructor led discussion of the students' experiences and questions

The study used three scales linked to the processes of mindfulness and psychological acceptance, and psychological inflexibility. The Child Acceptance and Mindfulness Measure

(CAMM) assesses two categories of child cognitive and behavioral functioning: acting with mindful awareness and accepting internal experiences without judging them. The CAMM is a 10-item measure and has been tested with youth in grades 5-10, with no significant differences between age groups. The Avoidance and Fusion Questionnaire for Youth (AFQ-Y) is a 17-item self-report measure which assesses psychological inflexibility in children and adolescents. This is characterized by three domains of cognition and behavior: (a) experiential avoidance, (b) cognitive fusion, and (c) low performance when experiencing difficult emotions. The Self-Compassion Scale for Children (SCS-C) is a child-modified version of Neff's Self-Compassion Scale for adults, and was developed for use in mindfulness-based stress reduction programs for school-age children and their parents.

The study reviewed student reported changes from pre- to posttest and post-course evaluations, which included open-ended writing about mindfulness practice. Students in traditional classrooms improved significantly in mindful awareness and acceptance, and students facing homelessness reported significantly higher evaluations of the course, greater emotional well-being from mindfulness practice, and were more likely to use mindfulness practice at school, in interpersonal situations, for dealing with anger and other difficult emotions, and to recommend it to friends. There were no significant findings in some outcome measures.

The results of the study revealed that participants in TG1 improved significantly on the CAMM from pre- to post-intervention (M = 24.59 and 28.02). There was no significant difference between pre- and post-intervention for either T2 (M = 26.27 and 28.07) or for the control group, (M = 24.68 and 19.67). AFQ-Y scores did not vary significantly between pre- and post-intervention for TG1 (M = 26.73 and 23.39), TG2 (M = 25.36 and 25.14), or for the

comparison group (M = 28.22 and 31.11). SCS-C scores did not vary significantly between pre- and post-intervention for TG1 (M = 61.40 and 61.88), TG2 (M = 63.00 and 62.23), or for the comparison group (M = 55.35 and 52.55).

Students also responded to an evaluation of the course using a 10 Likert-scale questionnaire. TG2 reported the most positive feedback about the program and applications of mindfulness practice in daily life. Mean scores for each question ranged between 3.38 and 4.21 for TG2 versus 2.76 and 3.52 for TG1. In TG2, 86% of the students either liked or loved the mindfulness class, and the same percentage agreed or strongly agreed that they would recommend the program to their friends. When asked whether they would continue to use mindfulness skills after the class was over, 79% indicated they would and said that mindfulness has helped them at school and helped control their anger. Lastly, 71% agreed that mindfulness helped them to be more patient as well as changed the way they interact with others, 29% were neutral, and no students disagreed with this statement. Feedback from both treatment groups was primarily positive. A strong majority of participants in both TG1 (91%) and TG2 (73%) expressed feeling ‘‘less stressed,’’ ‘‘calm,’’ ‘‘peaceful,’’ or ‘‘relaxed’’ when practicing mindfulness, whether in or outside of class.

The findings support the hypothesis that the mindfulness course was an acceptable intervention for both groups of students. The hypothesis that students would demonstrate improvements across the three domains was only partially upheld. TG1 showed significant improvements from baseline to post-intervention on the CAMM, and significant differences versus the comparison group. However, students facing homelessness did not show significant improvements in this category.

Nidich et al. (2011) conducted a study to evaluate the change in academic achievement in public middle school students practicing the Transcendental Meditation program compared to a control group by using California Standard Tests. The objective of this study was to determine the feasibility of implementing a meditation program with at-risk urban public middle school students and to assess whether practice of such a program can help improve literacy and math achievement scores for students who were below grade level proficiency.

Participants in the study included 189 students (125 meditating and 64 non-meditating control students) who were below proficiency in either math or English at baseline on the California Standardized Test. All students were included who had academic achievement scores for both the baseline and the post-test. A matched-control subgroup of 100 students (50 meditating and 50 non-meditating control students), matched on both math and English performance level scores was used for further analysis. All the students included in this study were below proficiency level at baseline (either basic, below basic, or far below basic in terms of their performance level for math and English). Overall 60% of the students were male, 97% were racial or ethnic minority students, 76% were classified as Title 1, and 59% reported English as the primary home language.

Meditating students attended the sixth- and seventh-grades and practiced the Transcendental Meditation program at school for 12 minutes at the start and end of the school day for 3 months prior to the administration of the CST post-test. All of the students in the school's sixth and seventh grades learned the Transcendental Meditation program as part of the school's "Quiet Time" program. Non-meditating control students attended the eighth grade, which did not participate in the school's Quiet Time/meditation program.

Students were taught the Transcendental Meditation strategy by certified instructors in a standard seven-step course and then practiced this program twice a day morning and afternoon, as part of their daily Quiet Time program. The 7-step instruction included: an introductory lecture that discussed the benefits of the program, a preparatory lecture that presented the mechanics of how to practice the technique, a brief personal interview with the teacher, a personal instruction session, and 1 hour group meetings to verify the correctness of practice and to provide additional knowledge about the practice over the following three consecutive days. Students then practiced their meditation program in school at the beginning and end of the school day, supervised by a classroom teacher or Transcendental Meditation instructor. Students were also encouraged to practice at home over the weekend.

Transcendental Meditation practice is characterized by decreased activation or arousal of the autonomie nervous system, as reflected in decreased breath rate and lower sympathetic nervous system activity. The Transcendental Meditation program has been shown to increase electroencephalographic (EEG) brain integration and coherence, especially in the frontal area of the brain which is responsible for higher-order processing.

Student scores are shown as both scale scores and performance level scores with the first two levels indicating grade-level proficiency. Baseline scale scores for the meditating students were 274.03 for math and 289.06 for English. Baseline scale scores for the non-meditating students were 284.60 for math and 301.67 for English. Baseline scale scores for English were significantly different between groups. The results also indicated significant improvement in composite scale scores for Transcendental Meditation students compared to controls. For math, a significant difference in scale scores was found for meditating students compared to controls.

Change in English scale scores indicated significant improvement for Transcendental Meditation students compared to controls. There was also a difference between groups in the percentage of students who showed a gain of at least one performance level in math and English. For the meditating students, 40.7% of the students gained at least one performance level in math compared to 15% of the non-meditating control students. For English, 36.8% of the meditating students exhibited a gain of at least one performance level compared to 17.2% of the non-meditating students.

Within the group, there was an increase in composite academic achievement scores in both sixth and seventh grade meditating groups. Eighth grade non-meditating students showed a decrease in composite scale scores. Results on composite scale scores indicated significant improvement for Transcendental Meditation students compared to controls. A significant difference in math and English scale scores were observed in meditating students compared to controls. For math, 42% of the meditating students showed a gain of at least one performance level compared to 18% of the non-meditating control students. For English, 26% of the meditating students exhibited a gain of at least one performance level compared to 14% of the non-meditating students.

As part of the project evaluation, 55 of the meditating students were administered a standardized measure of anxiety prior to beginning the Transcendental Meditation program and again 3 months later. A reduction in trait anxiety was observed in both sixth-grade and seventh-grade students.

Observations by school administrators and teachers also helped support the feasibility of using this program and having students practice it twice a day at the beginning and end of each

school day. Ninety-two percent of the faculty surveyed reported that they felt the Quiet Time/Transcendental Meditation program was valuable for the school. They generally felt that the students were calmer, happier, less hyperactive, friendlier, and had an increased ability to focus on schoolwork. Observed changes in the classroom environment included students being more quiet and attentive, including a greater ability to work silently in academic activities. In terms of the school environment, faculty reported less student fights, less abusive language, and an overall more relaxed and calm atmosphere.

Results from this study indicate significant improvement in both math and English academic achievement in at-risk middle school students below proficiency practicing the Transcendental Meditation program compared to controls. For the entire sample, there was a significant increase for the meditating students in math and English scale scores and performance level scores. Similar results were also found for the matched-control subgroup. The largest improvement was observed in math achievement. Results further show that both sixth-grade and seventh-grade meditating students exhibited a significant improvement in academic achievement. Research indicates that practice of the Transcendental Meditation reduces psychological distress, including anxiety, which may provide a possible reason for how the practice of the Transcendental Meditation program helped improve academic achievement in the current study.

Lee et al. (2008) examined the feasibility of Mindfulness-Based Cognitive Therapy for Children (MBCT-C), a treatment intervention for internalizing and externalizing symptoms. Mindfulness-based therapeutic interventions promote the use of meditative practices to increase present-moment awareness of conscious thoughts, feelings, and body sensations in an effort to manage negative experiences more effectively. MBCT is a treatment that uses mindfulness

techniques and elements from cognitive behavioral therapy. MBCT was used in this study due to numerous studies suggesting how mindfulness techniques can be useful in treating school-aged children with anxiety and other internalizing/externalizing difficulties.

Participants in the study were children who were between the ages of 9-12, or in grades four to six, and enrolled in a remedial reading program in a community-based clinic. Eligibility was determined by the age, grade, and enrollment criteria. The remediation program for below-grade readers was chosen as the recruitment sample. As a result, the children were not selected as a clinical sample, but rather as an ecologically representative sample of inner-city children with academic problems. The research study utilized an open trial design, conducted in two phases. All participants (N = 25) were matched according to age and gender, and then randomly assigned to one of two groups. Thirteen children participated in the MBCT-C program beginning November, 2002, and 12 children participated in the program beginning March, 2003. For purposes of administering the intervention, groups were further divided in half based on age, in order to keep the groups at a manageably small number of participants. Children between the ages of 9 and 10 years attended the morning sessions, while children between the ages of 11 and 12 years attended the afternoon sessions. Two instructors co-led the treatment sessions, and ran a total of four groups, with six or seven children in each group.

The assessments were four standardized measures administered at baseline and post-treatment. The Child Behavior Checklist: Parent Report Form (CBCL), a 113-item problem-behavior checklist was given with the following scales: Specific Problem Scales, three Competence Scales, a Total Problems Scale, an Internalizing Problems Scale, and an Externalizing Problems Scale. Raw scores for each scale are converted to T-scores (M = 50).

The Multidimensional Anxiety Scale for Children (MASC) was also administered. The ASC is a self-report that assesses a variety of anxiety dimensions in children and adolescents between the ages of 8-19. The measure consists of 39 items, rated on a 4-point Likert scale. The State-Trait Anxiety Inventory for Children (STAIC) was also administered; the STAIC is a self-report questionnaire for children in the fourth through sixth grades which measures two separate anxiety constructs: State Anxiety (S-Anxiety) and Trait Anxiety (T-Anxiety). The S-Anxiety scale consists of 20 statements that assess how children feel at a particular moment in time. This scale measures transitory anxiety states that may fluctuate over time, rated on a 3-point intensity scale (i.e., Not nervous, Nervous, Very nervous). The T-Anxiety scale consists of 20 statements that assess how children generally feel. This scale measures relatively stable individual differences in anxiety states, rated on a three-point frequency scale. The last standardized assessment given was the Reynolds Child Depression Scale (RCDS). The RCDS is a self-report that screens for depressed mood in third- through sixth-grade children. The scale consists of 30 items that participants rate on a four-point scale from 1 to 4, except for the last item, which is scored on a 5-point scale. Total scores range from 30 to 121, with a clinically significant cutoff score of 74. Participants were also given the qualitative Participant Evaluation and Questionnaire and parents were given the Parent Evaluation Questionnaire.

Initial sessions of the 12-week intervention focused on orienting the children to mindfulness and developing a community in the service of creating a safe therapeutic environment. Subsequent sessions aimed to teach the core goals of MBCT-C using a multisensory approach. One core goal was to help children become more aware of their thoughts, feelings, and body sensations as separate but interrelated phenomena that interact to

influence their perceptions of day-to-day experiences. Another goal of the MBCT-C program was to help children differentiate between judging and describing, in order to develop the ability to describe internal and external events without falling into the automatic tendency to judge the experience as either good or bad. The MBCT-C program also emphasized awareness of the present moment and aimed to help children identify past, present, and future thinking. Through awareness of the present moment, children who tended toward depressive or anxious thinking learned to make a conscious choice to redirect their attention from past- or future-oriented thinking back to the present moment. Final sessions focused on integrating mindfulness and acceptance into everyday life.

Results from the Child Behavior Checklist showed a significant reduction in the CBCL Total score and was found among the Intent-to-Treat participants from pretest (M = 53.16) to post-test (M = 50.28). A significant reduction in the CBCL Total score was also found among the Completers from pretest (M = 56.06) to posttest (M = 52.35). There was a significant reduction in the CBCL Internalizing Problems score among the Intent-to-Treat participants from pretest (M = 53.12) to posttest (M = 49.96). However, there was no statistically significant reduction in the CBCL Internalizing Problems score among the completers from the pretest (M = 55.71) to posttest (M = 52.82). There was no significant reduction in the CBCL Externalizing Problems score among the Intent-to-Treat participants from pretest (M = 49.88) to posttest (M = 48.04). However, there was a significant reduction among the Completers from pretest (M = 53.12) to posttest (M = 50.41). For anxiety, there was no significant reduction in the MASC Total score among the Intent-to-Treat participants (M = 49.72) to posttest (M = 45.28). There was also no significant reduction among the Completers, from pretest (M = 49.24)

to posttest (M = 45.06). For State Anxiety as measured by the STAIC, there was no significant reduction among the Intent-to-Treat participants from pretest (M = 47.80) to posttest (M = 44.76). There was also no significant reduction among the Completers from pretest (M = 48.59) to posttest (M = 44.65). In the area of depression, there was no significant reduction in the RCDS Total score among the Intent-to-Treat participants from pretest (M = 49.80) to posttest (M = 48.56). There was also no significant reduction among the Completers from pretest (M = 49.12) to posttest (M = 47.29).

The results of the qualitative data showed that 94% of children either "Liked" or "Loved" the MBCT-C program, while 88% of parents rated the MBCT-C program as either "High" or "Very High." Eighty-eight percent of children and 82% of parents supported the statement that mindfulness was helpful in the school environment. Fifty-nine percent of children and 71% of parents supported the statement that mindfulness was helpful in the home environment. Also, 59% of children indicated that they would recommend the program to their friends, while 100% of parents indicated that they would recommend the program to the parents of other children. Overall this study supports the feasibility and acceptability of using MBCT-C as a treatment for internalizing and externalizing symptoms in children.

Summary

The studies in this section examined the number of youth exposed to trauma, the enduring effects of adverse experiences in childhood, outcomes in school, and the overall effectiveness of mindfulness strategies for youth exposed to adverse childhood experiences.

Table 3

Summary of Chapter 2 Findings

AUTHORS	STUDY DESIGN	PARTICIPANTS	PROCEDURE	FINDINGS
Finkelhor et al. (2013)	Quantitative	4,503 children ages 0-17 years old.	Nationwide sampling frame of random residential telephone numbers. Interview with caregiver and used enhanced Juvenile Victimization Questionnaire.	48.4% of the participants had more than 1 of 10 possible victimization types in involving direct or witnessed victimization; 15.1% had six or more, and 4.9% has 10 or more. Exposure to one type of victimization increased the likelihood that youth had exposures to other types.
Anda et al. (2006)	Quantitative	Used original 17,337 adult HMO members from original ACE study.	The study used the number of ACEs as a measure of cumulative stress and hypothesized a "dose-response" relationship of the ACE score to 18 selected outcomes and to the total number of these outcomes to see the comorbidity.	As the ACE score increased, the mean number of comorbid outcomes increased, sometimes tripling between an ACE score of 0 and ACE scores of 7-8.

Table 3 (continued)

AUTHORS	STUDY DESIGN	PARTICIPANTS	PROCEDURE	FINDINGS
Jimenez et al. (2016)	Quantitative	1007 children were included. Fifty-five percent had experienced 1 ACE and 12% had experienced ≥ 3.	Subjects with primary caregiver-reported information on ACE exposures acquired at 5 years and teacher-reported outcomes at the end of the child's kindergarten year were included. Outcomes included teacher ratings of academic skills, emergent literacy skills, and behavior	Participants experiencing ≥ 3 ACEs was associated with below-average language and literacy skills and math skills, poor emergent literacy skills, attention problems and, social problems, and aggression. In this study of urban children, experiencing ACEs in early childhood was associated with below-average, teacher-reported academic and literacy skills and behavior problems in kindergarten.
Lightfoot et al. (2011)	Quantitative	6,270 children age 0-18 who had active child welfare cases in MN during 2005.	Analysis of welfare cases in relation to documented disability.	22% of the 6,270 children ages 0-18 with substantiated maltreatment had reported a disability diagnosis code. Among 3,982 children over the age of five with substantiated maltreatment, 27.9% had a reported disability diagnosis code.

Table 3 (continued)

AUTHORS	STUDY DESIGN	PARTICIPANTS	PROCEDURE	FINDINGS
Steiner et al. (2013)	Quantitative	4th- and 5th-grade students identified EBD, urban setting.	Students received two yoga sessions per week for 3.5 months through Yoga Ed program.	Parents/teachers took the BASC-2 (behavior rating scale) before and after and saw improvements in students' attendance, adaptive skills, and reduced depressive, behavioral, and internalizing symptoms.
Beltran et al. (2016)	Quantitative	10 boys ages 8-12, primarily African American with history of early childhood trauma.	12-week Yoga Based Psychotherapy Group.	Parents/participants given the Behavior and Emotional Rating Scale2 (BERS2). Participants showed significant improvements in interpersonal strength, intrapersonal strength, and family involvement.

Table 3 (continued)

AUTHORS	STUDY DESIGN	PARTICIPANTS	PROCEDURE	FINDINGS
Sibinga et al. (2016)	Quantitative	Students at two Baltimore City Public Schools who were randomly assigned by grade. 50.7% female, 99.7% African American, and 99% eligible for free lunch.	Receive adapted MBSR or health education (Healthy Topics [HT]) programs. Self-report survey data were collected at baseline and post program.	Post-program, MBSR students had significantly lower levels of somatization, depression, negative affect, negative coping, rumination, self-hostility, and posttraumatic symptom severity than HT. These findings support the hypothesis that mindfulness instruction improves psychological functioning and may reduce the negative effects of stress and reduce trauma-associated symptoms among vulnerable urban middle school students.
Swart & Apsche (2014)	Quantitative	Eighty-four (84) male adolescents between 14 and 17 years-old.	Assigned either a CBT (cognitive behavioral therapy) control group or a MDT (mode deactivation therapy) experimental group and received structured treatment for 6 to 8 months.	Pre- and post-treatment test results reconfirmed the effectiveness of MDT as a superior treatment for this population. Target behavioral outcome effects improved consistently.

Table 3 (continued)

AUTHORS	STUDY DESIGN	PARTICIPANTS	PROCEDURE	FINDINGS
Mendelson et al. (2015)	Quantitative	Seventh- and eighth-graders at two Urban public schools serving low-income communities were assigned to receive RAP Club (29) or regular school programming (20).	12-session school-based trauma-informed group intervention co-facilitated by a mental health counselor and young adult community member that utilizes cognitive-behavioral and mindfulness strategies.	Improved teacher-rated emotion regulation, social and academic competence, classroom behavior, and discipline. improvements in several teacher-rated outcomes. Students with low baseline depression showed improvement in teacher-rated outcomes following program participation.
Viafora et al. (2014)	Quantitative	(1) students in traditional classrooms (n = 28), (2) those attending a school serving homeless youth (n = 15), and (3) waitlisted students (n = 20).	Reviewed student reported changes from pre- to post-test and post-course evaluations, which included open-ended writing about mindfulness practice.	Students in traditional classrooms improved significantly in mindful awareness and acceptance, whereas students facing homelessness reported significantly higher evaluations of the course, greater emotional well-being from mindfulness practice, and were more likely to use mindfulness practice at school, in interpersonal situations, for dealing with anger and other difficult emotions, and to recommend it to friends.

Table 3 (continued)

AUTHORS	STUDY DESIGN	PARTICIPANTS	PROCEDURE	FINDINGS
Nidich et al. (2011)	Quantitative	189 students who were below proficiency level at baseline in English and math, were evaluated for change in academic achievement. 97% were racial and ethnic minority students.	The Transcendental Meditation program was practiced at school twice a day as part of the school's Quiet Time program for three months prior to post-testing. Results indicated improvement for meditating students compared to controls on English and math scores.	A greater percentage of meditating students improved at least one performance level in math and English compared to controls. A matched-control subgroup yielded similar results. Results of this project indicate that it is feasible to have at-risk students regularly practice meditation at school and that meditation may help at-risk students improve academically, thereby helping to close the achievement gap.
Lee et al. (2008)	Quantitative	25 non-referred children ages 9-12.	12-week Mindfulness Based Cognitive Therapy intervention.	Open trial analyses found preliminary support for MBCT as helpful in reducing internalizing and externalizing symptoms within subjects on the parent report measure. The high attendance rate, high retention rate, and positive ratings on program evaluations supported treatment feasibility and acceptability.

Chapter 3: Conclusions and Recommendations

Chapter 1of this starred paper focused on introducing adverse childhood experiences and the negative impacts it has relating to behavior and school success, as well as how mindfulness strategies can be used in schools as an intervention for students with negative emotional and behavioral outcomes as a result of exposure to trauma. Chapter 2 discussed the literature on childhood trauma more in depth and links the effects of childhood trauma to the developing brain and how it affects youth in school. Chapter 2 also reviewed literature to support the effectiveness of mindfulness strategies as an intervention for youth who have been exposed to trauma or display the same behavioral outcomes as youth exposed to trauma. Chapter 3 includes a discussion of Chapter 2 findings and also discusses limitations and recommendations for future research, implications for future practice, and a final summary highlighting the major concepts covered throughout this starred paper.

The purpose of this starred paper was to support the use of mindfulness strategies as a way for youth to cope with the negative outcomes of trauma exposure. As a special education teacher of students with EBD, the students I work with display internalizing and externalizing behaviors that result in poor academic outcomes in school. In my studies and career, mindfulness strategies are appearing more often as interventions for students displaying difficulties with emotional regulation resulting in poor academic outcomes in school. The use of mindfulness strategies has been shown to improve students overall internalizing and externalizing behaviors (Chopki & Schwartz, 2009). In Minnesota alone, 22% of children with a recorded finding of substantiated maltreatment are labeled in administrative records as having a

disability, and by far the most common disability indicated with substantiated maltreatment is emotional disturbance (Lightfoot et al., 2011).

Conclusions

This section discusses Chapter 2 findings as they relate to the research questions: What is the prevalence of childhood trauma? How does childhood trauma affect youth in school? In what ways are mindfulness strategies an effective intervention for youth who have experienced childhood trauma? The studies are organized to show the links between the effects of childhood trauma to the developing brain and how it affects youth in school, and reviews the literature to support the effectiveness of mindfulness strategies as an intervention for youth exposed to trauma.

Prevalence

Finkelhor et al. (2013) looked at the estimates and trends for childhood exposure to a broad range of violence, crime, and abuse victimization. Child maltreatment, peer victimization, and exposure to family and community violence have been shown to be connected to developmental difficulties, problem behavior, and physical and mental health effects throughout the lifespan. In their study, 48.4% of the participants had more than one of 10 possible victimization types involving direct or witnessed victimization; 15.1% had six or more, and 4.9% has 10 or more. Also, exposure to one type of victimization increased the likelihood that youth had exposures to other types as well; in most cases risk for an additional type of exposure was increased by a factor of 2-3 for last-year exposure and more for life-time exposure. This study is reinforced by Anda et al. (2006) which showed that at least one Adverse Childhood Experience, or ACE, was reported by 64% of the respondents of their study. The ACE score had a strong

relationship to the prevalence and risk of affected disturbances. The research shows the prevalence of youth exposed to trauma, and also helps to reinforce the outcomes adverse childhood experiences can have on youth.

Childhood Trauma and the Impact in School

In the studies that were reviewed, one theme was apparent about the outcomes of youth exposed to trauma, as the ACE score or number of exposures to trauma increased, so did the risk for more exposure and higher comorbid outcomes. Jimenez et al. (2016) examined associations between ACEs in early childhood and teacher-reported academic and behavioral problems in kindergarten showed that children experiencing three or more ACEs were associated with below-average language and literacy skills and lower math skills. Poor emergent literacy skills, attention problems, social problems, and aggression were also significant. In the study from Lightfoot et al. (2011), data from Minnesota showed 22% of the 6,270 children in the study ages 0-18 with substantiated maltreatment had a reported disability diagnosis code. Among 3,982 children over the age of 5 with substantiated maltreatment, 27.9% had a reported disability diagnosis code. The research shows the potential outcomes that youth exposed to trauma could face.

Evaluating Mindfulness Effectiveness

In the studies that looked at the effectiveness of mindfulness techniques for youth exposed to trauma, several themes emerged. The first theme is the decrease in negative internalizing/externalizing behaviors. Using mindfulness techniques as an intervention for behavioral issues and trauma, Steiner et al. (2013), Beltran et al. (2016), Swart and Apsche (2014), Mendelson et al. (2015), Sibinga et al. (2016), Viafora et al. (2015), and Lee et al. (2008)

all showed a decrease in behavioral symptoms in youth using standardized behavior rating scales. In Steiner and Sidhu's study, after the yoga intervention, there were improvements in students' attendance, adaptive skills, and reduced depressive, behavioral, and internalizing symptoms. In the study conducted by Beltran et al. students who participated in a yoga-based intervention showed significant improvements in interpersonal strength, intrapersonal strength, and family involvement. In the Swart and Apsche study, Mode Deactivation Therapy was practiced, which used specific mindfulness and acceptance elements and showed that target behavioral outcomes improved consistently. In the Mendelson et al. study, participants engaged in trauma-informed mindfulness strategies and the results showed improved teacher-rated emotion regulation, classroom behavior, and discipline. Also, students with low baseline depression showed improvement in teacher-rated outcomes following program participation. In the Sibinga et al.'s study, using Mindfulness Based Stress Reduction (MSBR), participants showed significantly lower levels of somatization, depression, negative affect, negative coping, rumination, self-hostility, and posttraumatic symptom severity. With Viafora et al., participants who were involved in the mindfulness practice displayed greater emotional well-being from mindfulness practice and were more likely to use mindfulness practice at school, in interpersonal situations, for dealing with anger and other difficult emotions, and to recommend it to friends. In the Lee et al. study, the high attendance rate, high retention rate, and positive ratings on program evaluations supported treatment effectiveness. The study offered feasibility and acceptability data for Mindfulness Based Cognitive Therapy (MBCT) as a potential treatment for internalizing and externalizing symptoms in children.

The second theme that emerged in reviewing the effectiveness of mindfulness is the rise in academic achievement. Mendelson et al. (2015) and Nidich et al. (2011) showed an increase in academic achievement after mindfulness-based interventions were implemented. Mendelson et al. showed that after cognitive-behavioral and mindfulness strategies were implemented, teacher-rated students showed an improvement in social and academic competence. Nidich et al. showed that after the Transcendental Meditation program was practiced at school twice a day, a greater percentage of meditating students improved at least one performance level in math and English compared to controls. Results of these studies indicated that mindfulness strategies can be used to improve academic skills as well as reducing internalizing and externalizing behaviors.

Limitations

The most glaring limitation in this literature review is the need for more studies discussing the prevalence of trauma exposure for students receiving special education services and whether or not the trauma can be an inferred causality of the need for special education. It should be noted that not all youth exposed to trauma display externalizing/externalizing behaviors, nor do the outcomes of experiencing trauma indicate the need to specialized services. What is available is the literature that describes internalizing and externalizing behaviors of youth exposed to trauma, which often mirrors the behavior of students receiving special education services for EBD and how these behaviors interfere with educational experiences.

Limitations in the studies included communication and generalizations. Several studies that include communication with parents reported that is that respondents could have had difficulty recalling certain childhood events, or they may not have wanted to disclose certain experiences and behaviors. In Finkelhor et al. (2013), some families could not be contacted, or

refused to answer. It was also noted that children can fail to disclose all of their exposures and parents may want to cover up certain exposures. Also, poor communication with parents was noted in Steiner et al. (2013). Another limitation is that the findings in the studies are not generalized across all settings. For example, Swart and Apsche (2014) showed how Mode Deactivation Therapy was superior over standard treatment options for a male adolescent population with behavior problems and severe trauma-related comorbid conditions. Many of the participants in the studies reviewed were male; however, in the limitations the authors note no reasons why the methods would not be feasible for a female population. Another limitation is the broad range of mindfulness techniques that were used, as well as methods used in combination with other therapies such as in Swart and Apsche and Lee et al. (2008).

Recommendations for Future Research

In my research, there was limited information available about the prevalence of students receiving special education services as a result of childhood trauma. Many studies and articles indicated that childhood trauma can have negative outcomes in emotional, behavioral, social, and cognitive areas; however, it was difficult to find studies to support the idea that students who experience childhood trauma often end up receiving special education services.

Implications for Future Practice

It is estimated that about 30% of adolescents with emotional/behavioral disorders (EBD) have experienced trauma or show signs of post-traumatic stress disorder (Cavanaugh, 2016). Teachers of students with EBD need to be aware of the impact of trauma on children and the most effective ways to address their educational and social needs. As a special education teacher of students with EBD, I have seen that behavioral tendencies of those students seem to mimic

those of youth exposed to trauma, especially with regard to internalizing and externalizing behaviors. Youth presenting with these challenges can often be resistant to traditional interventions. In my own journey with implementing mindfulness in my teaching, I have seen that mindfulness allows people to fully engage in the present with positive social/emotional experiences, which students with EBD or trauma exposure sometimes lack. I hope to contribute to efforts to make the systems within my school more trauma informed by shifting disciplinary practices from punitive to restorative. I hope to help colleagues understand that "behaviors" serve as a function for students and such behaviors have been adapted to because of traumatic environments. Stress and trauma exposure impair emotion regulation and executive functioning negatively affecting students' ability to behave in class, pay attention, and retain material. These issues likely contribute to a more academic and behavioral problems. It has been proposed that Developmental Trauma Disorder be created as a new diagnosis in the DSM-V because children who have developed in settings with traumatic experiences sometimes have no diagnosis, multiple unrelated diagnoses, and there is an emphasis on behavioral control without recognition of where the underlying symptoms come from (van der Kolk & Pynoos, 2009).

Summary

Youth with trauma-related symptoms frequently receive other diagnoses, which is likely to lead to ineffective interventions. Numerous studies support the use of mindfulness as an effective intervention for youth exposed to trauma. In my career, I hope to move toward a trauma-informed approach when implementing interventions for students with trauma-related symptoms.

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