Doctoral Dissertations   Theses, Dissertations, Capstones and Projects

Summer 5-18-2018

Impact of a School-Based Mindfulness Intervention on Children's Self Regulation

Elizabeth Chaney
lizchaneyy@gmail.com

IMPACT OF A SCHOOL-BASED MINDFULNESS INTERVENTION ON CHILDREN'S

SELF REGULATION

A Clinical Dissertation Presented to

The University of San Francisco

School of Nursing and Health Professions

Department of Integrated Healthcare

PsyD Program in Clinical Psychology

In Partial Fulfillment of the Requirements for the Degree

Doctor of Psychology

By

Elizabeth Crockett-Chaney

July 2018

PsyD Program Signature Page

This dissertation, written under the direction of the candidate's dissertation committee and approved by members of the committee, has been presented to and accepted by the faculty of the PsyD Program in Clinical Psychology in partial fulfillment of the requirements for the degree of Doctor of Psychology. The content and research methodologies presented in this work represent the work of the candidate alone.
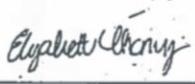
Candidate Signature

Elizabeth Albany

7/31/2018

Candidate   Date
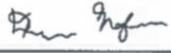
Dissertation Committee Signatures

7/25/2018

Chair   Date

7/30/18
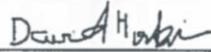
Committee Member   Date

7/31/18

Committee Member   Date

Administrator Signatures

08/01/18

PsyD Program Director   Date
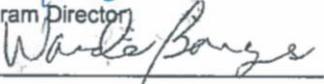
08/01/18

Dean, School of Nursing and Health Professions   Date

4

Abstract

When schools recognize the importance of social-emotional learning and support young children's self-regulation skills, students are also likely to see improvements in their academic potential. Youth who encounter the stressors of toxic stress and thus, who may have more challenges developing self-regulation competencies, may particularly benefit from classroom environments where self-regulation and coping skills are emphasized. The current study examined the impact of a school-based mindfulness program on self-regulation and mindfulness skills of 42 children in two fourth grade classrooms that were assigned to either a Mindfulness Group (n = 30) or to a Control Group (n = 12). The intervention group received 30-minute mindfulness lessons delivered by a trained facilitator once a week, for eight weeks. The Trauma Symptom Checklist for Children-Alternate version was used at baseline to measure the incidence of Post-Traumatic Stress Disorder. The Self-Control Regulation scale was completed by teachers to measure changes in self-regulation. The Child Adolescent and Mindfulness Measure was used to measure the children's overall mindfulness score. The Brief Problem Monitor-Teacher was used to measure changes in the children's behavior in the classroom as reported by teachers. Data were collected before (Time 1), at midpoint (Time 2) and one week following the end of the 8-week intervention (Time 3). Results indicated that the children in the mindfulness group demonstrated an increase in mindfulness skills, improvement in self-regulation, and increased positive behavior in the classroom compared to the control group. The study suggests the potential benefits of a school-based mindfulness intervention with underserved children facing complex trauma.

Dedication

This dissertation is dedicated to my parents, Alfred and Brenda, whose love and support laid the foundation for this work. Thank you for giving me the world and for always encouraging me to pursue my dreams.

Acknowledgements

I would like to express deep gratitude and appreciation for my chair, Dr. Dhara Meghani, for her support, guidance, and mentorship throughout this process. Her continuous encouragement aided me in the completion of this work. Thank you to my committee members, Dr. Konjit Page and Dr. David Hoskins, each of who provided valuable insight and feedback throughout this process. To JG Laronchette, thank you for allowing me to partner with your organization and for believing in this endeavor. Thank you to all of the participants who volunteered to share with me their experiences, I am forever grateful. To Dr. Lauren Howe, I am thankful and appreciative for you contributing your time and expertise to lend me support in this project. Lastly, and most importantly, I would like to thank my family and friends for their encouragement and inspiration. Your support means the world to me.

TABLE OF CONTENTS

Statement of the Problem

Challenges with self-regulation impact school-age children's ability to sustain attention, utilize working memory, and express emotion in healthy and positive ways. Difficulties with self-regulating can disrupt a child's emotional and cognitive development in areas such as learning, maintenance of relationships, and understanding the feelings and behaviors of others (Cadina, Verschueren, Leal, & Guedes, 2015). There are all important aspects of social and emotional domains that contribute to a child's development and academic achievement. Emerging research has demonstrated the positive academic, social, and emotional effects of mindfulness training for children of all ages (Mindful Schools, 2016). For example, elementary school teachers reported that mindfulness training has improved their students' ability to sustain attention, practice self-control, participate in activities, and care for and respect others (Schonert-Reichl, Oberle, Lawlor, Abbott, Thomson, & Oberlander, 2015). Whereas mindfulness in the classroom is becoming more widely accepted, taught, and practiced, gaps remain with regard to understanding its effectiveness for students from a variety of backgrounds. Mindfulness interventions with youth, particularly children from socioeconomically disadvantaged backgrounds, can potentially have a positive impact on future development and behavior through increasing self-regulation skills (Mindful Schools, 2016). Mindfulness expands individuals' awareness of the present moment, and helps to boost focus and attention, thus cultivating skills that help to bolster academic success. Based on previous research, mindfulness may have a positive impact on the skills and behaviors children need in the classroom to be successful (Greenberg & Harris, 2012; Kaiser-Greenland, 2010; Meiklejohn, Phillips, Freedman, Griffin, Biegel, Roachet, 2012; Mind and Life Education Research Network, 2012). However, few empirical studies have examined whether mindfulness interventions are indeed effective at

decreasing behavioral problems and increasing positive coping skills in the classroom for youth coming from low income families (Poehlmann-Tynan, Vigna, Weymouth, Gerstein, Burnson, Zabransky, & Zahn-Waxler, 2016).

The Mindful Life Project (MLP), based in Richmond, CA, aims to teach mindfulness meditation practices to elementary school children in order to improve self-awareness, self-regulation, impulse control, confidence, and resiliency. The MLP works with students from socioeconomically disadvantaged backgrounds, many whom have not previously had opportunities for this type of support in their school settings. The current study investigates the impact of an 8-week mindfulness intervention delivered by the MLP on elementary school children's self-regulation; aims and hypotheses related to this study are listed below:

Specific Aim 1: To understand the extent that fourth grade students attending school in a socioeconomically disadvantaged area experience trauma symptomology, difficulties with self-regulation, and behavioral problems.

Specific Aim 2: To test the effects MLP on 4th grade children's self-regulation skills, behavior in the classroom, and mindfulness skills at completion of the eight-week intervention, compared with their behavior and ability to be mindful prior to the intervention, and compared with peers in the control condition.

Study Relevance to Jesuit Mission

In accordance with the Jesuit mission of social justice, the current study was intended to help elucidate the ways in which the MLP can positively impact students whose developmental trajectories may be compromised due to challenges in their home, neighborhood, and/or community. The results of this study may also support the MLP and other similar programs in demonstrating how their interventions work, which may provide much needed evidence in grant applications for continued funding. I will provide feedback to the MLP regarding the ways in which their program has impacted students' self-regulation skills and behavior in the classrooms that were part of this study. Ideally, the MLP will use this information to improve their programming and services and perhaps expand to other classrooms in the local community.

Literature Review

Children whose developmental context include multiple adversities such as low socioeconomic status, language barriers, caregivers' involvement in high-risk or illegal behaviors, neglectful parenting, and home environments where they are exposed to domestic violence and or alcohol and substance use are at greater risk of experiencing developmental disruptions, and in extreme cases, developmental trauma (Cloitre, Stolbach, Herman, van der Kolk, Pynoos, Wang, & Petkova, 2009). Van der Kolk & Pynoos (2009) define developmental trauma as

> Exposure to multiple or prolonged adverse events over the period of at least 1 year including both direct experience or witnessing of events and disruptions in protective caregiving, separation, or emotional abuse; and (b) complex traumatic reactions, including repeated patterns of dysregulation across multiple areas (e.g., affective and physiological, attentional and behavioral, self and relational. (pp. 6)

Many children living in underserved environments experience traumatic stress and experience difficulties with anxiety, anger management, dissociative symptoms, aggression, and socially avoidant behaviors (Cloitre et al., 2009). Developmental trauma suggests that there are core disruptions that are impaired when children are exposed to trauma. According to the National Child Traumatic Stress Network, several developmental domains can be impaired, including attachment, biology, affect regulation, dissociation, behavioral control, and cognition (2003). Additionally, being raised in an environment with multiple risk factors may contribute to chronic stress, anxiety, and long-term consequences such as poor self-regulation skills, decreased impulse control, difficulty understanding and expressing emotions, and less success coping productively with conflict (Gould, Dariotis, Mendelson, & Greenberg, 2012; Mezcappa, 2004).

In turn, children whose self-regulation skills are compromised are likely to experience challenges with learning and in their socio-emotional development at school. Several studies also confirm that exposure to chronic stressors may potentially trigger neurobiological events that can alter the development of the biological stress response system, impairing the child's ability to self-regulate and modulate their response to stress, thereby setting into motion a negatively cascading developmental trajectory (Anderson, 2003; Anderson & Teicher, 2009; Shonkoff, Boyce, & McEwen, 2009; Teicher, Andersen, Polcari, Anderson, & Navalta, 2002).

In the last decade, mindfulness interventions have quickly gained popularity in the fields of psychology, public health and medicine (Kerrigan, Johnson, Stewart, Magyari, & Hutton, 2011). Increasing evidence demonstrates that mindfulness interventions may be effective in improving self-regulation skills in school-age children (Poehlmann-Tynan, Vigna, Weymouth, Gerstein, Burnson, & Zahn-Waxler, 2016). Mindfulness programs designed for school-aged children tend to focus on self-management training, with the primary goals of increasing attention and self-regulation. Being that mindfulness is a contemplative practice, it focuses on emotional recognition, emotional regulation, and perspective taking, all skills that help to increase children's self-regulation skills (Diamond & Lee, 2011; Forston, Gunnar, Johnson, Zelazo 2011; Rempel, 2012). Furthermore, when programs are implemented at school, they are more likely to include youth who may not otherwise have equitable access to behavioral health initiatives or interventions. School-based programs that target large groups of students are also typically more cost-effective than relying solely on individual school counselors whose availability is often limited (Farahmand, Grant, Polo, & Duffy, 2011). Finally, stigma of receiving an intervention at school may be lowered if a program is implemented for all children rather than for select students who demonstrate behavioral problems.

Participating in a mindfulness program may significantly improve mental health outcomes, particularly with trauma-exposed, underserved populations (Sibinga, 2013). Few studies have tested whether this is true for children who live in chronically high stress environments and who typically have limited access to additional support. Gaps remain in understanding whether mindfulness interventions can be successfully implemented in a school setting where children have many challenges to overcome due to limitations in resources that may be amplified by additional adversities within their microsystem. The goal of the current research study is to examine the impact of a school-based mindfulness program called The Mindful Life Project on self-regulation ability of children in the fourth grade at Aspire Academy in Oakland, CA.

Sociopolitical Context and Child Development

Children living in areas of political conflict are at an increased risk of mental health problems due to trauma exposure and discrimination (Scrimin, Moscardino, & Natour, 2014). Restrictive immigration policies substantially impact how individuals are able to navigate their environments and limit the resources upon which immigrant families can draw, which creates chronic concerns for parents and children. More than half of all Latinx children in the United States have at least one foreign-born parent (Brown, 2015). Therefore, stringent immigration policies and parent deportations have the potential of affecting millions of children born in the United States who are growing up in Latinx households (Ayón, 2015; Brown, 2015; Dreby, 2012). Children, along with their families fear detention and deportation as well as experiencing high levels of discrimination, all of which can have a negative impact on healthy development. When Latinx childrens' nationalities are questioned, they experience the stigma of being undocumented and are exposed to the narrative that "in this country people without papers are

worthless" (Leidy, Guera, & Toro, 2010, p. 257). These experiences are critical in terms of development given the strong association between discrimination and poor health outcomes.

Bronfenbrenner's ecological theory posits that the ecodevelopmental framework regarding human development is influenced by four systems – the micro, meso, exo, and macro systems (Bronfenbrenner, 1977). Therefore, changes in the structure, organization, integration, and functioning of the child's social ecology will over time influence their development. This framework indicates that children's development is influenced by various systems; for example, through their direct interactions with their parents, peers and teachers (micro system); and policies and societal sentiment (macro system) (Ayón, Ojeda, & Ruano, 2018). The current sociopolitical climate in which this research was conducted, within which immigration policies were spotlighted and in flux, is a significant factor surrounding the developmental context of children in this study and should be considered as a potential contributor to the development of toxic stress. Below, I'll discuss potential contributors of the vulnerability of children in this study, as well as the impact it has on their development.

Toxic Stress

Toxic stress refers to when a child experiences strong, frequent, and/or prolonged adversity—such as physical or emotional abuse, chronic neglect, caregiver substance abuse or mental illness, exposure to violence, and/or the accumulated burdens of family economic hardship—without adequate adult support (Condon, Sadler, & Mayes, 2018). Research has shown that early childhood and adolescence are known to be sensitive periods of development during which biological systems are easily shaped by both positive and negative external influences and experiences. Exposure to frequent, prolonged, or intensely negative experiences in childhood is associated with long-term negative health outcomes, such as heart disease,

cancer, asthma, diabetes, and premature death (Bucci, Marques, Oh, & Burke-Harris, 2016).

Previous research has found that a toxic stress response can result from exposure to extreme

stressors in childhood, e.g. poverty, violence, or parental mental illness. A child's stress response

system can become consistently elevated leading to disruptions that result in alterations in the

brain, immune, metabolic, and cardiovascular functioning, and impaired developmental

outcomes in language, social, and emotional skills (Garner, 2013). In terms of the brain, it is

particularly sensitive to early life adversity during sensitive periods of development, which

effects how its architecture develops and functions. Exposure to severe and sustained adversity

(toxic stress) in childhood can lead to long-lasting changes in the brain that may impact how the

nervous system responds to future adversity. Studies have shown that the alterations of multiple

organ systems, in combination with genetic vulnerability and epigenetics, place an individual at

risk for negative physical, mental, and behavioral health outcomes well into adulthood (Bucci et

al., 2016).

The current study focuses on children's self-regulation and evaluates an intervention that

may have the potential to improve self-regulation skills for children who have been exposed to

toxic stress. Because the target group for this study was made up of students living in

underserved areas in Oakland, it was important to assess their level of PTSD severity as a way to

contextualize and understand their experiences prior to participating in the intervention. One way

of interpreting PTSD symptomology is to not only look at distinct events that have occurred in a

child's life but to understand that there may be a collection of stressors that contribute to an

overall toxic environment, and consequently, symptoms, which become the background for a

child's developmental experience and/or trajectory. Thus, we chose to examine PTSD severity in

the context of toxic stress in this study rather than focusing on trauma exposure. In the sections

that follow, I define self-regulation, discuss the importance of these skills in school environments, and provide examples of the consequences of poor self-regulation among school-age children.

Self-Regulation

Self-regulation is defined as the capacity to control or direct one's attention, thoughts, emotions, and actions (Kangas, Ojala, & Venninen, 2015). Self-regulation is associated with the development of neural networks in the prefrontal cortex and begins developing during infancy and early childhood years with significant growth between the ages of three and eight (Welsh, Nix, Blair, Bieman, & Nelson, 2010; Cadina, Verschueren, Leal, & Guedes, 2015). Successful self-regulation is related to and requires the development of cognitive capacities such as attention, flexibility, working memory, and inhibitory control (Happaney, Zelazo, & Stuss, 2004). A child is expected to demonstrate an increasing proficiency in their ability to regulate their behavior and mood, while adapting to the demands of their immediate circumstances, particularly as they are exposed to environments outside of their home such as daycare and school. For example, children are expected to be able to direct and maintain their attention and select from internal and external sources the most relevant information for a given situation prior to deciding how to respond from an array of from multiple competing options. Concurrently, youth are expected to be able to exert increasing capacity to wield control over their emotions and behaviors (Mezzacappa, 2004; Posner & Rothbart, 2000). The ability to regulate psychological distress in early childhood has been found to contribute to overall adjustment (Compas, Connor-Smith, Saltzman, Thomsen & Wadsworth, 2000). Youths' ability to regulate their emotional states and cope with stress is negatively correlated with their level of risk for

developing maladaptive coping strategies (Compas et al., 2000). Becoming aware of one's

emotional state allows for an individual to have more control of how to regulate emotions.

   The importance of self-regulation in developmental and academic success. When

children are not able to acquire developmentally appropriate self-regulation skills, they may be at

higher risk for concurrent and future emotional and behavioral problems. One study

demonstrated that approximately 30% to 50% of low-income African American boys and girls

ages 7-15 years old with difficulties with self-regulation also experience difficulties with

conduct, per their caregiver's report on the Children's Self-Control Scale (Zalot, Jones,

Forehand, & Brody, 2007). Additionally, lack of proficient emotional regulation skills and high

impulsivity in early childhood have predicted later antisocial and criminal behaviors (Caspi,

2000; Farrington, 2005; Frick and Morris, 2004; Tremblay, 1994), as well as unemployment,

interpersonal relationship quality, and substance abuse in middle childhood, adolescence, or

young adulthood (Caspi, 2000; Tarter, Kirisci, & Mezzich 1999).

   Research studies are increasingly demonstrating that self-regulation is critical to

academic success and may be a key to understanding individual differences in children's school

readiness skills (Blair, 2002). In the classroom, self-regulation is necessary for children's social,

cognitive, and emotional development. Activities such as taking turns, persisting on a task, or

remembering directions are dependent on abilities such as behavioral inhibition, impulse control,

concentration, and attention control (McClelland & Cameron, 2011). Elementary school children

who have difficulty managing and regulating their emotions and behaviors are more likely to

demonstrate lower academic achievement than children with higher self-regulation skills (Blair

& Razza, 2007; Dobbs, 2006; McClelland, Cameron, Connor, Farris, Jewkes, & Morrison, 2007;

Miles & Stipek, 2006).

Toxic stress and self-regulation among school age children

The environment in which a child grows up may sometimes be a limiting factor in facilitating the development of healthy and sufficient self-regulation skills. Toxic stress modifies an individual's baseline level of stress and capability to return to a more relaxed state, making an individual more reactive to changes in the environment and normal stressors. This can lead to a faster and more intense reaction to a stressor, or may produce a reaction to a lower level stressor which may not have previously occurred. This reaction to a lower stressor can lead to a need to self-regulate while concurrently making it more difficult to do so. Additionally, children from lower socioeconomic environments with exposure to chronic trauma and stressors and who live in underserved areas tend to demonstrate less competent emotional self-regulation as measured by observed delayed gratification (Evans & English, 2002), have increased rates of behavioral problems (Qi & Kaiser, 2003), lower overall socioemotional functioning (McLoyd, 1998), and additional difficulty adjusting to school (Rimm-Kaufman, Pianta, & Cox, 2000). Similarly, another study found that youth exposed to complex trauma and chronic and severe environmental stressors, such as personal violence, criminal activity, and poverty engaged in self-regulatory strategies in more maladaptive ways as measured using the "Ecological Interview" than youth who were not exposed to these types of settings and stressors. (Mason, Korpela, Mennis, Coatsworth., Valente, & Pate 2010). For example, growing up in a disadvantaged neighborhood may exacerbate the possibility of individual risk factors such as difficulties with self-regulation for girls (Brooks-Gunn, Klebanov, & Duncan, 1996; Mezzacappa, 2004).

In sum, toxic stress and trauma exposure influence self-regulation abilities such that capacities normally utilized for coping tend to be overwhelmed, which affect the ability to be

able to self-regulate, concentrate, and sustain attention. Given this information, one can see the importance of self-regulation and how trauma can negatively impact one's ability to self-regulate. Considering one's PTSD symptom severity aids in capturing the amount of toxic stress to which a child may have been exposed. Researching interventions that may potentially buffer against trauma symptoms is one step in supporting children who report active trauma symptoms that may interfere with their academic and socioemotional development. Emerging research suggests that poor self-regulation skills may be addressed through mindfulness interventions, even for young children (Viglas & Perlman, 2017). Through learning mindfulness skills, individuals have increased capacities for self-regulation and also have improved executive function, where they are able to think more clearly and anticipate consequences. For children in underserved areas where resources are limited, a school-based intervention that has been positively shown to impact one's ability to self-regulate may be an answer to help aid in the classroom performance of children experiencing toxic stress and/or complex trauma.

School-Based Mindfulness Interventions

Mindfulness involves two primary activities: the cultivation of attention regulation and emotional equanimity, and mindfulness meditation is described as "bringing one's complete attention to the present experience on a moment-to-moment basis" (Britton et al., 2014, p. 264). A mindfulness practice encourages individuals to nonjudgmentally and purposefully pay attention to the present moment (Coholic, 2011). Some researchers suggest that children's openness to experience, readiness to learn, and creativity make them more likely to benefit from mindfulness than adults (Goodman, 2005; Kabat-Zinn, 1990), and there is growing interest in developing interventions that are developmentally appropriate for children of varying ages.

For school-age children, there are several efforts being undertaken to design mindfulness programs that can be successfully integrated into the school curriculum. Mindfulness school-based meditation programs typically implement activities such as directing attention to a specific "attentional anchor," meaning focusing one's attention on the body and one's breathing or environmental sounds one can return to whenever the mind begins to wander. Additionally, because a key premise of mindfulness is that becoming aware of one's emotional state allows for an individual to have more control of how to regulate emotions, the activities implemented in interventions support the cultivation of increased clarity and acceptance of moment-to-moment experiences (Britton et al., 2014). Often, school-based programs will guide students to incorporate mindful awareness into daily activities such as eating, walking, and talking. One example is teaching children mindful eating practices by having them by having them use their five senses to smell, see, taste, and touch the food in order to eat with intention and attention how food effects the body (Moffitt et al., 2011).

Effectiveness of school-based mindfulness programs. Mindfulness meditation interventions have been implemented in school settings as adaptations of existing mindfulness approaches (e.g., Mindfulness Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT)), as well as through curricula developed for school settings, which are discussed later in this section. Whereas the majority of research involving the effectiveness of mindfulness interventions has been conducted with adults, an increasing number of studies demonstrate promise with school-age children (Greenberg & Harris, 2012; Kaiser-Greenland, 2010; Meiklejohn, Phillips, Freedman, Griffin, Biegel, Roachet, 2012; Mind and Life Education Research Network, 2012).

A sizeable literature exists regarding the effects of MBSR, MBCT, and adaptations of these interventions within school-age children (Segal et al., 2002). Both MBSR and MCBT have resulted in decreases in students' anxiety, depression, and behavioral and conduct problems, as well as improvements in attention and executive functioning. In a six-week MBSR study, seven and eight year olds attending an inner city elementary school with anxiety-related academic difficulties were administered a six-week school-based mindfulness curriculum once a week for 45 minutes. Participants in the study included 3 boys and 2 girls who attended an elementary school in inner city Harlem, New York. The curriculum included: brief guided breathing meditations, mindful eating, group discussions, and mindfulness home exercises. Measures administered in this study included the Child Behavior Checklist to assess for behavior in the classroom reported by teachers, the Multidimensional Anxiety Scale for Children to assess for anxiety, and the Feely Faces scale to assess for mood. Researchers found improvements in academic performance and a 6 point statistically significant decrease in teacher-reported problem behaviors, per the Child Behavior Checklist (Semple, Reid, & Miller, 2005). Another study examined gender, grade-level, and depressive symptoms as potential moderators of school-based MBSR interventions on self-regulatory outcomes of inner city youth in the fourth and fifth grades. They found that there was a significant decrease in stress in youth with baseline depressive symptoms in comparison to the control group (Gould et al., 2012). Another school-based MBSR intervention was found to improve psychological functioning among inner city low-income males in the 7th and 8th grades (Sibinga et al., 2013). Study participants (42 boys; 95% African American; median age 12.5; low socioeconomic status) were provided 12 sessions of MBSR training. Outcomes were measured using the Symptom Checklist-90R and the COPE inventory, which suggested that the MBSR training contributed to lowered anxiety, less

rumination, improved coping skills, and lowered cortisol levels in response to academic stress in

comparison to a control group who did not receive the intervention

Mindfulness programs developed especially for use in schools are limited, but the few

that have conducted program evaluations have yielded generally positive results. A school-based

mindfulness intervention program known as Mindful Schools was established in Emeryville, CA

in 2007, and teaches a mindfulness curriculum to both educators and students from all 50 states

and over 100 countries. The program is designed for under resourced public schools with high

turnover rates and high amounts of stress. It has impacted more than 750,00 children and

adolescents (Mindful Schools, 2016). The measures used to determine the effects of Mindful

Schools were the Kindger Associates Behavioral Rubric, Attention Network Task, Mindful

Attention Awareness Scale (MAAS), Mindfulness Sustainability Questionnaire, and the Child

Acceptance & Mindfulness Measure (CAMM). Researchers also conducted focus groups with

teachers, asking open ended questions to assess their experiences with the program, including

their use of mindfulness strategies in the classroom, the benefits of the program, aspects they

would change, and their feelings about using mindfulness in the future (Smith et al., 2012). After

participating in Mindful Schools, 83% of educators reported that their students in grades

kindergarten through fifth grade had increased ability to focus in the classroom, 89% more

emotion regulation, 76% more compassion, and 79% improved engagement in class (Mindful

Schools, 2016). Another mainstream school-based mindfulness program is known as Mind Up

and is based in Miami, FL. Mind Up has a fifteen-week curriculum for students in kindergarten

through high school designed to improve learning, and scholastic performance while increasing

optimism and compassion. An evaluation conducted to examine the effects of Mind Up on

students found that 81% of students reported an increase in their self-regulation and emotional

intelligence (Mind Up, 2016). In another school-based program called Learning to Breathe, therapists and teachers provide mindfulness training to adolescents and have found promising results. In an eight-week intervention using the Learning to Breathe curriculum with 19 low-income ethnic minority middle-school students, researchers found a significant reduction in parent-reported externalizing programs and youth reported internalizing problems (Fung, Guo, Jin, Baer, & Lau, 2016). Despite early indicators of the success of these school-based mindfulness programs, additional research is necessary, particularly with programs that have not undergone formal evaluation due to limitations in funding, staff capacity, and/or experience engaging in research.

Purpose and Rationale of the Study

The current study aimed to contribute to the current literature on the impact of school-based mindfulness interventions for children, particularly those who are living in low- or underresourced areas and who are experiencing chronic stressors that can contribute to self-regulation problems. Many children living in socioeconomically disadvantaged areas that do not have access to resources could especially benefit from mindfulness interventions. Thus far, there is some evidence suggesting the success of mindfulness interventions in reducing emotional and behavioral difficulties among children in elementary and middle school settings. This quantitative study will consist of an evaluation of the impact of The Mindful Life Project (MLP) on fourth graders' self-regulation. Specifically, the research questions in my study are as follows:

Research Questions

Question 1: To what extent do fourth-grade students attending school in a socioeconomically disadvantaged area experience trauma exposure, difficulties with self-regulation, and behavior problems?

Hypothesis 1: Based on the geographic location where the target schools are located, I expect that on average, students in the study will have been exposed to moderate levels of trauma. I expect that teachers will report that students exhibit low levels of self-regulation and subclinical or clinical levels of internalizing and externalizing symptoms.

Question 2: How does participation in the MLP mindfulness intervention impact students' self-regulation skills and mindfulness skills over time?

Hypothesis 2a): I expect to see a significant increase in students' ability to self-regulate in the classroom setting over time as measured by the student's self-report and teacher's report. I expect to see an increase in mindfulness for students who participate in the MLP intervention.

Hypothesis 2b): I expect that there will be a statistically significant difference between self-regulatory and mindfulness skills of students who complete the eight-week MLP intervention and the comparison group.

Method

Participants

Participants were 42 students from two fourth grade classrooms at Aspire College Academy and Aspire Eres Academy in Oakland, California. Additionally, two teachers participated from Aspire College Academy and one teacher participated from Aspire Eres Academy. The teachers' ethnicities were African American, Asian American, and White and all three teachers were female. The teachers ages were 25, 26, and the last teacher's age was unreported. The teachers worked at their respective schools for 2 years, 1 year, and the last teacher's number of years worked were unreported. Thirty students from Aspire College Academy participated in the intervention, whereas the remaining 12 students at Aspire Eres Academy made up the comparison group[1]. The researcher matched groups by age and gender in comparison to a wait-list control group.

The intervention and control groups were similar with respect to demographics. The intervention and control groups did not differ with respect to gender (Intervention = 63% girls [19/30 children], 37% boys [11/30 children], Control = 58% girls [7/12 children], 42% boys [5/12 children]), $\chi^2(1) = 0.09$, $p = 0.76$. The groups were similar with respect to age ($M_{\text{Intervention}} = 9.10$, $SD_{\text{Intervention}} = 0.31$, $M_{\text{Control}} = 9.25$, $SD_{\text{Control}} = 0.45$), $t(40) = 1.25$, $p = 0.22$. In the control group, 100% of the children (12 out of 12) identified as Latinx. In the intervention group, 63.33% of the children (19 out of 30) identified as Latinx, 16.67% (5 out of 30) identified as African-American, 16.67% (5 out of 30) identified as mixed race, and 3.33% (1 out of 30) did not report a race or ethnicity. Table 1 provides demographic information broken down by group

---

[1]The comparison group was significantly smaller than the intervention group most likely because the intervention school had twice the number of fourth graders. The intervention school had two fourth grade classrooms and the comparison group only had one.

(intervention vs. control). The majority of students did not report their family's income, possibly because they were unaware of it, or did not feel comfortable reporting it.

Description of Participating Schools

Aspire Schools currently operates 40 schools in California and Tennessee and serves 16,000 students in grades K-12. Its mission is to open and operate small, high quality charter schools in low-income neighborhoods to increase the academic performance of underserved students and catalyze change in public schools. Aspire College Academy is a charter school that had an enrollment of 299 K-5 students at the time the study was conducted. It is located in East Oakland, California. There are two classrooms at the fourth-grade level. The ethnic breakdown of the school is as follows: 71% Latinx, 18% African American, and 1% Pacific Islander students, whereas the breakdown of students that participated in the study as self-reported by fourth-graders is 63% (19 out of 30) Latinx, 17% (5 out of 30) African-American, 17% (5 out of 30) mixed race, and 3% (1 out of 30) unreported. Ninety-four percent of students at the school receive free or reduced lunch. Aspire Eres Academy, also located in East Oakland, CA, had an enrollment of 217 students in grades kindergarten through eighth grade at the time this study was conducted. The ethnic breakdown of the school is as follows: 90% Latinx, 2% African American, 0% Pacific Islander, 1% Asian American, 3% White. All participants in this study from Aspire Eres Academy identified as Latinx. Ninety-four percent students at Aspire Eres receive free or reduced lunch.

Study Planning and Recruitment Procedure

It is essential to discuss the process of relationship building with Mindful Life Project (MLP) as well as the decision concerning the schools ultimately selected for this project as these components required significant effort and dictated which students would receive the

intervention. After searching online for mindfulness programs that delivered interventions in

school settings in the Bay Area, I identified two possible programs that I may be able to

approach: The MLP and Mindful Schools. I contacted both programs and the Executive Director

at MLP indicated that he was interested in having research conducted on his program to examine

how mindfulness affects behavioral outcomes in elementary school-age children. Although he

was enthusiastic to collaborate, I encountered significant challenges in obtaining meetings with

the director, as he was busy with the every day operations of running a non-profit program. I also

depended on his input regarding which school(s) in the study would receive the MLP

intervention, and it took several contact attempts and a few phone meetings before we made this

decision. Schools were ultimately suggested based on the executive director's contacts and his

desire to expand the program from Richmond to Oakland to reach a wider range of students in

the San Francisco Bay Area. MLP works exclusively with inner city schools, which aligned with

my research goal of hoping to examine the impact of mindfulness on children who face

significant stressors. The executive director of MLP helped foster a connection between myself

and the schools selected for the research study. My point of contact at the intervention school

(Aspire College Academy) was the principal who helped me to set up a meeting with herself and

their two fourth-grade classroom teachers. In the meeting, I introduced my role as a graduate

student researcher and stated that I believed that mindfulness could positively impact the

behavior of their children in the classroom and that supporting research could ultimately have a

positive effect on the local community. The teachers and principal were excited that the fourth

grade classrooms would receive the MLP intervention free-of-charge and agreed to allow me to

recruit participants for the study. Similarly, at my comparison school my point of contact was the

school's fourth grade teacher who I had a meeting with describing how participating in the study could have a positive impact on children and she readily agreed to participate as a control group.

Students at both schools were recruited through letters sent to their homes in December 2016, just before the start of their spring semester[2]. Students were only able to participate if parents or legal guardians provided written consent and returned it to school with their child. Students whose caregivers consented to their participation in the study were asked to provide assent when administered the questionnaires.

Students' caregivers were recruited for the study at the same time as their children and were provided a separate letter asking for their consent to participate. If caregivers had questions about the study they were invited to contact the researcher or principal of the school. They were clearly informed that participation was voluntary and would not affect evaluation of their child at school. Approximately half of the parents in the control group's classroom did not consent for their children to participate in the study. This may have been the case because parents did not speak with the researcher face-to-face and may have had some concerns about the study and the intention of the research. Additionally, nearly half of the caregivers in the intervention group did not consent for their children to participate in the study. However, the intervention school had two fourth grade classrooms, whereas the control group only had one fourth grade classroom. Caregivers were also informed that they could request a resource list of low-fee therapy options in the East Bay Area if they would like for their child to begin therapy before, during, or after receiving the mindfulness intervention[3].

---

[3] The researcher was only able to recruit one caregiver and therefore did not end up using caregiver data for the study.

Teachers of students in the classrooms that are part of this study were recruited in person and with the support of staff from The Mindful Life Project, who implemented the intervention. The IRB of the University of San Francisco approved this study.

Procedures

The intervention group, which was composed of two fourth-grade classrooms at Aspire College Academy, received a school-based mindfulness curriculum from a facilitator at the Mindful Life Project once a week for thirty minutes, for eight weeks starting in January 2017. The facilitator of the intervention was the executive director and founder of the Mindful Life Project. He is half White and half Latinx, 38 years old, and has a bachelor's degree in psychology and a teaching credential. He has been conducting mindfulness interventions for five and a half years with the Mindful Life Project. He strictly adhered to the Mindful Life Project curriculum as he was a part of the creation team and has only ever taught this specific curriculum. The control group was composed of one fourth-grade classroom at Aspire Eres College Academy and was informed that they would receive the same eight-week intervention starting at the end of the spring term. However, when the Mindful Life contacted the administration at Aspire Eres Academy, their schedules conflicted and they were not able to set up mindfulness training for that academic year.

Description of MLP intervention. A Mindful Life Project lesson is broken down into 30-minute sessions for children. A typical session begins with a one to three-minute mindfulness sitting session where the teacher shares the mindful sitting position chant "Feet on the floor. Spine in a line. Hands in your lap. Heart to the Sky. I got my Feet on the floor. Spine in a line. My hands in my lap. My heart to the sky. Now close your eyes-alright. Now close your eyes-

alright. Now close your eyes-alright. Breathe in, breathe out Breathe in, breathe out." After a

brief sit, leaders help students practice heartfulness. Heartfulness in the curriculum is defined as

"A practice of sending love and kindness to ourselves and others." To practice heartfulness the

leader may lead the students in a chant such as the following: "I feel my heart as my love As my

heart grows Sending heartfulness As my love flows From me-to me And everybody I see!" After

practicing heartfulness, leaders review the PEACE agreements with students which are

agreements that help to create a respectful classroom environment e.g. Keep our hands and feet

to ourselves and use kind words and kind actions. PEACE stands for "Practice respect, everyone

uses heartfulness, always be present, create mindful responses, and every student keeps hands

and feet to themselves. The leader asks students why we have agreements and listen to their

responses. The next part of the lesson is a 2 minute introduction to the lesson for that day, a

review to see who practiced mindfulness since the last meeting, who taught someone

mindfulness, and to acknowledge and encourage students who were able to practice on their

own. After the introduction, the leader reviews the mindfulness objective and goal, which varies

from session to session (1 minute). The objective is listed at the top of each lesson. In the

teachers' own words, they tell the students what they are going to learn and why they are going

to learn it, emphasizing why it is important. Then 10-15 minutes of new mindfulness content is

introduced. This lesson may include a new chant, vocabulary word, or song and typically the

content is woven into a longer sit while they practice the material. After the lesson the leader

may engage the students in a mindfulness song. Songs are used as incentive for using time

wisely at least once per month, and are encouraged to use when the mindfulness teacher is not

there. Songs are adapted from popular hip-hop and R&B songs that kids may be familiar with

but the lyrics are changed to include lyrics with mindful language. Lastly, there is a closing sit and the teacher ends the class.

Data collection. Three time points of data collection took place in this study. I physically went to classrooms at each school on the day that I was to collect data (at baseline, midway through the intervention, and one week following the eighth session of the intervention), and talked to students about the study and answered any questions that the teachers, school administrators, and students had. I administered and collected questionnaires at each time point. Students in the intervention and wait-list control groups were asked to complete self-report measures at Time 1 (baseline), Time 2 (four weeks into the intervention), and Time 3 (after the last session of the intervention). Teachers were asked to complete questionnaires at Time 1 and Time 3. Table 2 indicates when and to whom measures were administered throughout the study.

Adverse events. In reviewing Time Point 1 data when the TSCC-A was administered, I discovered that nine students at both schools indicated suicidal ideation, by marking the statement, "Wanting to kill myself" with the response choice being on a scale of 0-3. 0 indicates it never happened to you, 1 indicates it happens sometimes, and 2 indicating it happens frequently, with nine students marking a 2 or 3 on this statement. I immediately shared this information with the dissertation chair and committee to consult about how to proceed. Because the students are minors in the study, it was decided that the teachers of the students should be notified about the students' responses so that students' parents could be informed and provided with resources as needed. In addition, school counselors administered a risk assessment with the students who had endorsed suicidal ideation, and I provided the school with a list of counseling resources in the area that could be shared with parents and students. After the risk assessment, all students were still able to participate in the study and school administrators told me that none of

the students were currently at risk. Additionally, at the next data collection time point, when I

went to each school, I emphasized my role as a mandated reporter by using language that was

developmentally appropriate for the students, and reiterated the reasons that I would need to

break confidentiality. I was initially met with some suspicion by the students who expressed that

they felt 'betrayed,' but this reaction was less pronounced when they understood that I needed to

inform parents and school personnel of what happened because students' safety was the primary

concern.

Measures

The following measures were used to collect data from student participants in the study:

      Demographic data. Students were asked to complete brief demographic questionnaires

at Time 1 (Appendix A).

      Stress/trauma symptomatology. The Trauma Symptom Checklist for Children-

Alternate Version (TSCC-A, Briere, 1996; Appendix C) is a 44-item, multiscale self-report

measure of posttraumatic psychopathology for children and adolescents. It uses Likert-type

response options ranging from 0 = never to 3 = almost all of the time. The TSCC-A is an

alternative version of the original TSCC (Briere, 1996), but excludes the original instrument's 10

items referencing sexual concerns, and is more likely to be used in school settings. The measure

is written at a level appropriate for the language and reading capabilities of children 8-16 years

old (Briere, 1996). The TSCC has demonstrated adequate internal consistency for its primary

scales of Anxiety (Cronbach's α = .87), Depression (.90), Anger (.91), Dissociation (.89), and

Posttraumatic Stress (.88) (Sadowski & Friedrich, 2000). The TSCC was normed on 3008

children from three nonclinical samples: 53% female; 44% White, 27% Black, and 22%

Hispanic. Scores are calculated by converting raw scores to their corresponding clinical scale T

score, based on age and gender. For example, a raw score of 19 for a 10-year old girl on the

posttraumatic stress scale translates to a T score of 67 (Briere, 1996). A higher score reflects

greater symptomatology. T scores at or above 65 for any clinical scale are considered clinically

significant, and scores at or above 60 are considered clinically suggestive (Briere, 1996). In the

current study, we used 10 items selected from the TSCC to assess trauma symptomatology (α =

.84).

Mindfulness. The Child and Adolescent Mindfulness Measure (CAMM; Greco et al.,

2011; Appendix F) is a 10-item measure of children's' mindfulness skills (present-moment

awareness and non-judgmental, non-avoidant response to thoughts and feelings). Responses are

completed with a 5-point Likert scale ranging from 0 (never true) to 4 (always true) and are

summed for a total score. Reported reliability is Cronbach's α = 0.82 (Greco et al., 2011). The

possible score range is 0 to 40, with higher scores indicating better mindfulness skills. The

measure is written at a level appropriate for children ages 10-17 years old. In studies utilizing

this measure on children and adolescents, researchers found that CAMM scores were positively

correlated with quality of life, academic competence, and social skills and negatively correlated

with somatic complaints, internalizing symptoms, and externalizing behavior problems (Greco,

Baer, & Smith 2011). In the current study, we used the 10-item measure from previous research

(α_{Time1}= 0.78, α_{Time3}= 0.79).

The following measures were administered to teachers in the study:

Behavioral problems. The Brief Problem Monitor (BPM; Achenbach, McConaughy,

Ivanova, & Rescorla, 2011; Appendix G) is a 21-item questionnaire with versions for both

parents and teachers that assesses assess a child's emotional/behavioral problems and social and

academic competencies. The measure is written at a level appropriate for youth ages 6-18 years

old. Items are rated on a 3- point scale ranging from 0 to 2, with higher scores indicating greater

problems and are summed for a total score of up to 42. T scores above 65 are considered to be of

concern. The Brief Problem Monitor has four scales: Internalizing (INT), Attention Problems

(ATT), Externalizing (EXT), and Total Problems (TOT). For this study, I used the overall score

(TOT) to look at how the child' functioning across competencies and their problem behavior

changed on a global level. The scales comprise items from the Child Behavior Checklist for

Ages 6-18 (CBCL/6-18), Teacher's Report Form (TRF), and Youth Self-Report (YSR).

Cronbach's $\alpha = 0.91$ as reported in validation studies conducted by the authors of the scale. The

items, scales, and norms are based on decades of research summarized in the BPM Manual

(Achenbach, McConaughy, Ivanova, & Rescorla, 2011). In the current study, we used 18 items

selected from the BPM to assess behavioral problems ($\alpha = .84$)[4].

     Self-regulation. The Self-Control Rating Scale (SCRS; Kendall, 1979; Appendix D) is a

measure given to teachers and/or caregivers to obtain perspectives on children's self-control.

Questions on the Self-Control Rating Scale are comparable to items found on other self-

regulation scales (Conners, 1997). It is a 33-item scale with high internal consistency and test-

retest reliability and is appropriate for children ages 8-13. This questionnaire is designed for

caregivers and teachers and was completed by teachers in the current study. The scores are

summed for a total score of up to 231, with lower scores being indicative of higher self-

regulation. The SCRS appears to be a reliable and valid self-report measure of self-control and

previous studies have demonstrated it to have a Cronbach's α of 0.89 and 0.88 (Cho, Kogan,

Brody, 2016). In the current study, we used the 33-item measure from previous research (α_{Time1}=

0.93, α_{Time3}= 0.95).

---

[4] BPM chronbach alpha is a combination of time 1 and time 3 scores.

Results

I analyzed all data using R statistics, v. 3.4.4. Table 3 shows means and standard deviations for trauma exposure at time 1, and mindfulness, self-regulation, and problem behaviors at time 1 and time 3. I conducted conduct chi-square comparisons along these variables between the intervention and wait-list control group to note whether there are differences between these groups at baseline. Effect sizes (Cohen's d) were calculated for independent sample t-tests using the *effsize* package in R, and calculated for unstandardized linear regression coefficients using the *esc* package in R.

The two groups did not significantly differ in their trauma exposure ($p = 0.23$, Cohen's d=0.43, mindfulness ($p = 0.21$, Cohen's d=-0.45, self-regulation (p= 0.13, Cohen's d=0.69), or problem behaviors (p= 0.31, Cohen's d=0.35). Table 4 shows intercorrelations of all study variables for the entire study sample at time points 1 and 3. Notably, there is a moderate significant correlation between self-regulation and problem behaviors at time 1 (r =.46, p <.05), which indicates that greater problem behaviors were associated with worse self-regulation skills at the beginning of the study. Additionally, whereas there was not a significant correlation between trauma exposure and self-regulation at time 1 ($r = -0.02$, $p = 0.92$), there was a marginally significant negative relationship between trauma exposure and self-regulation at time 3 ($r = -0.47$, $p = 0.06$). This trend suggests that higher trauma exposure was associated with better self-regulation at time 3, and may be partially attributable to changes experienced by the intervention group, although more power is needed for a definitive conclusion regarding this correlation.

Question 1: To what extent do fourth-grade students attending school in a socioeconomically disadvantaged area experience trauma exposure, difficulties with self-

regulation, and other social and emotional problems at the beginning of the study? The mean

trauma score for the intervention group was (58.10) with the range of trauma scores being [0,

30]. The trauma mean score for the control was (53.25) with the range being [1, 23]. There were

no statistically significant differences between the control and intervention group on TSCC-A

scores (p=0.92). 23% of students in our sample scored in the clinically significant range, and

17% scored in the subclinical range on the Post Traumatic Stress Scale. With respect to potential

gender differences, it is notable that the mean score on the posttraumatic stress scale for girls in

our study is higher than boys (58.10 and 53.25 respectively).

The mean score for the intervention group for the SCRS was 112.68. The mean score for

the control group was 96.18. There were no statistically significant difference between the

control group and intervention group on SCRS scores (p=.13).

The mean score for the intervention group for the BPM was 8.37. The mean score for the

control group was 6.75. There was no statistically significant difference between the control

group and intervention group on BPM scores (p=.31). Data from the overall score of the BPM

was used to assess the level of subclinical and clinical level behavioral concerns that teachers

reported for students at time 1.

Question 2: How does participation in the Mindful Life Project mindfulness intervention

impact students' self-regulation skills, behavior, and mindfulness skills over time?

I answered this question with both within-group and between-group analyses as described

below:

I examined the impact of the MLP intervention on students who participated in the eight-

week intervention using a within-group analysis of variance (ANOVA) with time as the

independent variable (time 1, 2, and 3), and self-regulation skills, mindfulness skills, total problems scale (per teachers' reports) as dependent variables.

Next, I examined whether there is a significant between-group effect by creating a linear mixed model for repeated measures over time to determine if differences exist between the intervention and wait-list control groups on self-regulation skills, and mindfulness skills. Two separate analyses were conducted using caregivers' and teachers' internalizing and externalizing scores from the BPM as the dependent variable, whereas the independent variable will be the student's group (intervention or wait-list control).

Effects on Self-Control

We used linear regression predicting Time 3 SCRS scores with the condition children were in (Intervention vs. Control group) and controlling for Time 1 SCRS scores measured before the intervention. There was not a statistically significant difference between the groups, B = -29.41, p = 0.18, Cohen's d=-1.83 [95% CI: -2.61, -1.06] (see Table 5). If anything, children in the intervention group reported lower scores on the SCRS.

Effects on Student Behavior in the Classroom

We used linear regression predicting Time 3 Brief Problem Monitor scores with the condition children were in (Intervention vs. Control group) and controlling for Time 1 Brief Problem Monitor scores measured before the intervention. Teachers rated children in the intervention group lower on the Brief Problem Monitor scale, B = -4.08, p = 0.008, Cohen's d=-3.40 [95% CI: -4.39, -2.41] (see Table 6). Children in the intervention group showed more behavioral improvement over time compared to children in the control group.

Effects on Mindfulness

We used linear regression predicting Time 3 mindfulness scores with the condition children were in (Intervention vs. Control group) and controlling for Time 1 mindfulness scores measured before the intervention. Children in the intervention group reported a trend towards statistical significance on the CAMM scale, $B = -3.01$, $p = 0.10$, Cohen's d=-2.65[95% CI: -3.53, -1.78] (see Table 7), meaning that their mindfulness increased as a result of the program**.**

Discussion

The present study aimed to contribute to the existing research on the impact of school-based mindfulness intervention for children who are living in chronically under resourced environments and experiencing habitual stressors that contribute to challenges in self-regulation and behavior. The goal of the study was to determine whether fourth-graders living in socioeconomically disadvantaged areas in Oakland, CA and attending two demographically comparable schools with limited access to resources could benefit from a relatively brief (8-week, 30 minutes per week) mindfulness intervention. A wait-list control group was also established at one of the schools in order to determine if changes in the variables studied were indeed related to the intervention. Specifically, our study examined the impact of a school-based mindfulness program delivered by The Mindful Life Project on fourth-grade students' self-regulation, problem behaviors, and mindfulness skills. It was found that overall, the mean exposure to trauma among students in this study was quite high especially compared to peers in the general population. Students who participated in the mindfulness intervention program had significantly fewer problem behaviors and experienced and increase in their mindfulness skills at the end of the intervention. Although not a significant finding, students in the intervention group tended to demonstrate increased self-regulation skills relative to the children in the control group. We discuss each of the findings in greater detail below.

Post-Traumatic Stress Symptom Exposure

The results of this study suggest that the population we studied had a higher incidence of post-traumatic stress symptoms compared to the general population. In a study examining the incidence of trauma in foster children ages 8-15, researchers found that 61% of youth scored clinically significant on the Post Traumatic Stress scale of the TSCC (Barboza, Dominguez, S.,

& Pinder, J, 2017). In our sample, the students' mean on the posttraumatic stress scale was higher than the general populations with boys and girls respectively scoring 53.25 and 58.10, with 40% scoring clinically suggestive and/or significant symptoms. This demonstrates that the students in the study are experiencing post-traumatic stress symptoms at higher rates than the general population, which can make it more challenging to succeed academically. The mean score for girls in the general population is 49.5 and the mean score for boys is 50. The mean scores of the general population are based on a study by the Mayo Clinic in Minnesota, which included 222 children 8-12 and 13-16 who were undergoing routine physical examinations and did not live in the inner city (Friedrich, 1995; Briere, 1996). Emerging research has demonstrated that self-regulation skills are an essential key to school success and impact a child's social, cognitive, and emotional development. Toxic stress can be a limiting factor in the development of healthy and sufficient self-regulation skills. Previous studies have shown that children living in underserved areas demonstrate less competent emotional regulation skills, a higher incidence of behavioral problems, and lower socioemotional functioning (English & Evans, 2002; Qi & Kaiser, 2003; McLoyd, 1998; Rimm-Kaufman, Pianta & Cox 2000). Preliminary findings in our study suggest that because of the higher incidence of posttraumatic stress symptoms in our population, competence in self-regulation may be a more challenging skill to master. Trauma exposure impacts an individual's ability to regulate their emotional state, which is necessary in order to learn and master academic skills in the classroom. The effects of trauma can significantly compromise students' self-regulation skills. The more trauma exposure one has, the more likely it may be that a child will have difficulties with self-regulation, which can put them at a higher risk for compromised academic achievement and success without adequate protective factors in their environment.

Self-Regulation Skills

Our study found that the intervention group demonstrated a trend toward improvement in their self-regulation abilities after completing eight weeks of the MLP intervention, although this finding was not statistically significant. However, the control group's SCRS scores increased over time, whereas the intervention group's SCRS scores decreased between time 1 and time 3. To assess for students' ability to self-regulate we used the Self-Control Rating Scale (SCRS; Humpfrey, 1982; Appendix D). For example, self-regulation may have been impacted positively for students through the intervention because of the child's increased ability to sit with their emotions, take deep breaths, learn to calm down after experiencing difficult emotions, and a general growth in their social and emotional learning skills which they could apply to other moments where they needed to self-regulate in the classroom. As the children in the program become more aware of their thoughts and feelings they are potentially able to feel less stressed and more attuned to the present moment. This present moment awareness may have allowed some students in the class to increase their ability to sustain attention, concentrate, and regulate their emotional experience. Another reason we see a general trend towards more self-regulation in the classroom may be due to the passage of time and not necessarily the intervention, although this is less likely since the same trend was not seen in the control group. As teachers learned more about each of their students they may have been able to potentially respond to them in a different way and/or shift their expectations. Another study found that with a school-based mindfulness curriculum, 81% of students reported an increase in their self-regulation and emotional intelligence which was similar to the present study. In this 15-session program that was created for youth from prekindergarten to eighth grade, the focus was on teaching mindfulness to improve student focus and engagement in the classroom. Students who

participated in the program reported that they learned how to quickly calm down after

experiencing overwhelming or difficult emotions so that they could think before acting. (Mind

Up, 2016). Findings from this study suggest the potential that a relatively brief school-based

mindfulness program can have on a child's ability to self-regulate in the classroom.

Student Behavior in the Classroom

Our study found that the intervention group significantly increased their positive behavior

in the classroom. With regards to our finding of children's behavior in the classroom we used the

Brief Problem Monitor. We found the Brief Problem Monitor to be highly significant in terms of

impacting children's behavior in the classroom as reported by teachers. Although we do not

know what children's behavior was like at home, we received a significant number of teacher

reports to know that the behavior shifted in the classroom. The positive shift in behavior we saw

in the classroom may be due to the curriculum's focus of present moment awareness in a way

that is relatable to children. Students behavior in the classroom may have gotten better because

this may have been their first exposure to thinking about their internal experience and gaining

knowledge about social and emotional learning. Knowledge is a powerful catalyst for change and

having the opportunity for the students to gain insight into what is occurring for them

emotionally may have helped them to increase positive behavior in the classroom. In another

similar study, researchers found a decrease in parent-reported externalizing problems, youth-

reported internalizing problems, and youth-reported use of expressive suppression for low-

income ethnic minority students in a school-based mindfulness intervention program (Fung,

Guo, Jin, Bear, & Lau, 2016). It is also a possibility that teachers who participated in the

intervention were somewhat biased in their thinking and hoping that the program would change

their students' behavior. Teachers were present while the mindfulness leaders came in to conduct

the study so it is possible that their hope for changed influenced the way that they answered the surveys.

Mindfulness Skills

This study found that the intervention group had significantly increased their ability to be mindful. To assess for mindfulness we used the Child and Adolescent Mindfulness Measure (CAMM; Greco et al., 2011; Appendix F). The results of this study suggest that the MLP intervention demonstrates a significant impact on children's ability to learn and practice mindfulness skills. This effect likely occurred for a few reasons. The first and primary reason being that the program is successful in their ultimate goal of teaching students how to be more mindful. The program is effective in teaching students to potentially use mindfulness as a means of increasing their self-regulation and positive behavior in the classroom. Encouraging the students to share examples of them being mindful allowed for practical application outside of the classroom setting, which may have further strengthened their mindfulness skills. Using popular hip-hop songs translated into lyrics encouraging may have also bolstered the effectiveness of the mindfulness for students. By using the tune of songs that kids are familiar with and enjoy, and replacing the lyrics with mindfulness lyrics may have been a way of increasing the effectiveness in their intervention. We looked specifically at the change in mindfulness skills over time and found that the MLP curriculum fosters the development of mindfulness skills even when delivered for a short period of time. The results of the present study suggest that school-based mindfulness interventions demonstrate promise for school-based mindfulness interventions to be taught in schools that are typically underserved and under resourced.

Overall, the results of the study suggest that a relatively brief mindfulness intervention, delivered in a school setting with the cooperation of teachers and administrators, has promising

potential to support self-regulation and positive behaviors in fourth-grade students who have had significant lifetime exposure to traumatic events. Students in the intervention group demonstrated that they were able to learn and practice mindfulness skills to the extent that they perceived a difference in themselves by the end of the 8-week intervention; similarly, teachers of students in the intervention noticed an observable difference in classroom behaviors, and notably, an increase in positive behaviors at the end of the intervention. Whereas self-regulation skills were not found to be significantly improved following the intervention, there was a trend in this direction that may be worthwhile exploring further with a bigger sample size in the future.

The results of this study are generally in agreement with previous studies that have evaluated the impact of school-based mindfulness interventions in elementary school settings. For example, in a similar school-based mindfulness program called Soles of Feet, researchers found that educators reported the students in their third grade classrooms to be more academically engaged and spending less time on off-task behavior in comparison to a control group (Felver, Frank, McEachern, 2013). Hence, the study adds to the growing literature on mindfulness interventions and provides additional evidence that mindfulness practices can provide added value to classrooms where children have been exposed to a high incidence of trauma. This study is particularly unique for its examination of a mindfulness intervention within schools located in high-need areas in which the majority of students in this sample had experienced high levels of trauma exposure by fourth grade. The results indicate that students with complex trauma do experience challenges with self-regulation and classroom behavior, and that interventions delivered at school, may buffer and/or reduce the effects of trauma exposure on their emotional and behavioral competencies.

Study Limitations

There were several limitations of this study which must be considered in conjunction with the promising results. First, this study featured a small sample size, with uneven numbers of participants in the control and intervention groups. This disparity was largely based on some of the initial challenges in establishing which schools would participate in the study, as well as the ultimate difference of there being one fourth grade classroom in one of the schools and two fourth grade classrooms in the other school. Despite this difference, there was a sufficient number of students in the control group to be able to compare and contrast groups and obtain significant results. Approximately half of the parents in the control group's classroom did not consent for their children to participate in the study. A significant limitation of the study is that the researchers do not know if there were demographic, trauma exposure, self-regulation, and behavioral differences between the students whose parents consented and the students whose parents did not because we could not collect data from the students whose parents did not consent. In future research studies, having more balanced control and intervention groups would help to yield stronger results. Having equal or close to equal numbers for the intervention and control groups is an important consideration for future research.

The second limitation of the study was limited parent participation with the questionnaires reporting their child's behavior. Because so few parents agreed to participate in the study (i.e., to complete questionnaires regarding their child's behavior and self-regulation skills), the original plan to survey parents was discarded and we depended on teacher reports of classroom behavior for this study. In future studies, parent involvement in the study will be a significant key into gaining insight into how a child's behavior is impacted at home as the result of the mindfulness program. In our study, parents were given Spanish and English versions of

the questionnaire to account for language differences. However, parents still did not fill out the questionnaires. In order to enhance the effectiveness of school-based mindfulness interventions, future research programs might be tailored to place a more heavy emphasis on recruiting parents particularly with face-to-face contact. It is important, especially in ethnic minority cultures where there may be a general suspicion around researchers, that face-to-face contact with parents could potentially increase the likelihood of caregiver participation in the study. It is also possible that the parents in the study were too busy to participate themselves e.g. if they are working long hours or have multiple jobs but were okay with having their child participate since that aspect of the study did not require caregiver involvement.

Another limitation of the study was variable student attendance on the days the researcher distributed measures. On many days when the researcher came to distribute questionnaires students were absent and not able to fill out questionnaires for the study. On certain the days the children were out sick, one day there was an immigration protest that many students participated in with their parents and did not come to school. To obtain measures from all of the children at every time point, ideally the researcher would have the flexibility to go in the next day and potentially the day after that to collect questionnaires from children that were not in attendance the day questionnaires were distributed. The researcher brought in candy for the kids at time points 1 and 3 to create incentive for students to come to school that day. To further bolster participation, the researcher could potentially collaborate more with teachers and school administrators to help create more incentive for students to come to school on the days that questionnaires were distributed e.g. extra recess time. Measures at every time point from every student would have increased insight into the effectiveness of the mindfulness intervention. Additionally, a limitation may have been that the only facilitator of the intervention was one of

the creators of the curriculum. This raises the issue of whether others who are trained to deliver the intervention can be as successful, and as effective as he was. There are currently 15 trained MLP instructors on staff. The next step in research is to examine the fidelity of delivering the intervention across different facilitators.

Interestingly, teachers were able to fill out the Brief Problem Monitor for students at time points 1 and 3. However, teachers had difficulty getting back the Self Control Regulation Scale to the researcher and as a result the researcher was only able to draw limited conclusions from this scale. Since I received few questionnaire responses back from teachers, my overall power to observe differences was limited. The intervention at control group teachers both had difficulties with getting the Self Control Rating Scale at 2 time; therefore, we were not able to use time 2 in the present study. It is possible that the questionnaires the teachers were asked to fill out were too long given their many other responsibilities with students. In future studies, it may be important to distribute shorter questionnaires to teachers to help guarantee their participation. In retrospect, it may be important for the researcher to focus on cultivating strong relationships with the teachers to help them understand what the data collection is for and the ultimate outcome of the research. It may also be beneficial to plan with teachers around what would be the best time during the academic year to distribute measures e.g. a less busy time during the academic year. Having school administrators e.g. the principal or vice principal that are familiar with students help teachers in filling out surveys on student behavior at school may have helped to gather data at all the three points and to get all of the measures returned.

The cultural backgrounds of the participants in the study may have impacted the findings in the study. The sample in our study was primarily Latinx, with the students in the control condition being 100%Latinx, and 100% of students being of color. The cultural mistrust that

exists in communities of color in the United States can extend to a lack of desire to participate in a research study or not being fully transparent in their participation. Given the historical context in the United States of people of color being exploited in research studies, this may have been a reason as to why only one parent agreed to participate in the study. Also, the current sociopolitical context and the multiple and complex factors around immigration may have also been a reason that parents did not consent for themselves or students to participate in the study. Despite yielded promising results, it is essential to note that this study was conducted during a particularly stressful time for many families of color and future studies may consider how to be more sensitive to the reasons that may dissuade potential participants from consenting.

Directions for Future Research

There are a number of suggestions for future research. Ideally, future studies would obtain long-term follow-up data after the end of the intervention. Our current study collected data at the 8-week period when the mindfulness intervention ended but did not assess for additional changes in self-regulation, problem behaviors, and mindfulness at later time points. Trials with follow up periods of 6 and 12 months and longer are needed to investigate the long-term effects of school-based mindfulness interventions. Studies that follow students with regard to changes in their behavior and emotional coping skills throughout the academic year may further our understanding with regard to the longevity of mindfulness interventions and the specific areas in which they are particularly impactful.

In general, obtaining more data from students would provide greater insights into the efficacy of the intervention. Quantitative data can be collected to gauge students' own perceptions of change with regard to their behavior and self-regulations skills; for example, the SCRS is available in a student version and was purposely not administered in this study because

of limited time, but other studies could consider including this and other student measures in the future. Qualitative data can be collected through interviews or focus groups to better understand students' experience of the intervention, i.e., whether they enjoy the intervention, and what they value they see in the program and mindfulness. This information would also help facilitators and curriculum designers to have greater clarity regarding what aspects of the intervention were particularly memorable, effective, and practically useful to the students. Students may also have suggestions with regard to how to make an intervention even more accessible to their specific grade/developmental level, and provide feedback about activities and exercises that could be integrated into future versions of school-based mindfulness curricula.

Because of the various individuals involved in children's lives during the school age years, future studies should continue to gather data from teachers, as well as others who can speak to the child's behavior in different settings. Teachers could participate in qualitative interviews to provide feedback regarding the changes they experienced in their students undergoing the mindfulness intervention. Facilitators of the intervention could also be interviewed or asked to complete quantitative measures about the students more regularly throughout the intervention to better understand the process of change and to examine whether they noticed changes in the students' over time. It may also be helpful to hold focus groups and qualitative interviews with them to learn more about any challenges or successes they experienced while delivering the intervention. Finally, caregivers who spend significant time with students at home and in other facets of life would be crucial to include in future studies measuring changes in their child's behavior. Whereas mindfulness programs delivered in a school setting are emerging as effective supports in improving behavior and self-regulation at school, it is essential to determine whether these changes carryover at home.

Currently, very little is known about school-based mindfulness programs and its effect on family relationships. In future research, measures could be utilized to evaluate whether mindfulness interventions have the potential to improve parent-child relationships and family communication such as with the Family Assessment Device (FAD) (Epstein, Baldwin, & Bishop, 1983), which may be especially important for children whose home and community environments include a high degree of chronic stress and/or trauma exposure. Additionally, research can be conducted to determine if mindfulness impacts children's motivation such as with the Patterns of Adaptive Learning Scales (PALS) to assess how a mindfulness intervention could positively impact a child's grade point average (Midgley, 1993).

Clinical Implications

The results demonstrate that school-based mindfulness training can positively impact children's mindfulness, behavior in the classroom, and ability to self-regulate. Our findings suggest mindfulness training is beneficial for children of color and children who have experienced life stressors with limited access to resources. Overall, these findings suggest that mindfulness training delivered as part of a school curriculum might be effective in improving the overall well-being of elementary school aged children during their academic career. Our study highlights the potential for mindfulness training in the classroom and contributing to our overall understanding of mindfulness and its effects in education. This general training in the classroom setting may be relevant for school counselors and psychologists because it may lower their demand through normalizing interventions that focus on mental health and well-being, as well as self-monitoring behavior in the classroom. The impact of school-based mindfulness interventions could have potentially very positive implications in respect to preventative possibilities for youth whose trajectories may be trending towards challenges with self-regulation and or

psychopathology in the future. In the overall landscape of low-income underserved children's academic and personal path it may be help to steer them in a positive direction by giving them the tools necessary to be successful in school and in life.

Training Implications

The results of this study demonstrate that school-based mindfulness training may be an effective skill to acquire for clinical psychologists who are working in school settings. Due to the intervention's usefulness with children's self regulation skills, behavior, and mindfulness abilities, having a school-based mindfulness program delivered by school psychologists may be beneficial to the overall well-being of students. This is particularly important for schools with limited resources that may not have the resources to bring mindfulness facilitators to their campus. Clinical psychologists working in schools may be able to reduce the demand of students utilizing mental health services on campus while simultaneously promoting the health and well being of students by delivering a weekly mindfulness intervention. Additionally, for consulting psychologists who come into a school setting to improve behavioral outcomes for students, a mindfulness intervention may be an effective solution for students with emotional difficulties in the classroom coming from environments where they are exposed to toxic stress.

References

Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist 4–18 and 1991 profile*.

Burlington: Department of Psychiatry, University of Vermont.

Achenbach, T. M., & Edelbrock, C. (1983). *Manual for the Child Behavior Checklist and revised*

behavior profile. Burlington: University of Vermont, Department of Psychiatry.

Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA School-Age Forms &*

Profiles. Burlington: University of Vermont, Research Center for Children, Youth, &

Families.

American Academy of Pediatrics. Helping foster and adoptive families cope with trauma.

Available at: https://www.aap.org/en-us/advocacy-and-policy/ aap-health-

initiatives/healthy-foster-care-america/Documents/Guide.pdf. Accessed November 6,

2016.

Anda, R. (2002, November). The wide ranging health effects of adverse childhood experiences.

Paper presented at the 18th Annual Meeting of the International Society for Traumatic

Stress Studies, Baltimore, MD.

Aneshensel CS, Sucoff CA (1996) The neighborhood context of adolescent mental health. *J*

Health Soc Behav. doi:10.2307/ 2137258

Ayón, C. (2015). Economic, social, and health effects of discrimination: Raising families in an

anti-immigration political environment. *Children And Youth Services Review*, 8857-65.

doi:10.1016/j.childyouth.2018.02.042

Ayón, C., Ojeda, I., & Ruano, E. (2018). Cultural socialization practices among Latino

immigrant families within a restrictive immigration socio-political context. *Children And Youth*

Services Review, *88*57-65. doi:10.1016/j.childyouth.2018.02.042

Barboza, G. E., Dominguez, S., & Pinder, J. (2017). Trajectories of post-traumatic stress and externalizing psychopathology among maltreated foster care youth: A parallel process latent growth curve model. Child Abuse & Neglect, 72370-382. doi:10.1016/j.chiabu.2017.09.007

Bellon, J. A., Moreno-Peral, P., Motrico, E., Rodriguez-Morejon, A., Fernandez, A., Serrano-Blanco, A., et al. (2015). Effectiveness of psychological and/or educational interventions to prevent the onset of episodes of depression: a systematic review of systematic reviews and meta-analyses. *Preventive Medicine*, 76, S22–S32.

Berenson, C. K. (1996). Anxiety and the developing child. *American Psychiatric Press Review Of Psychiatry*, *15*383-404.

Biegel, G.M., Brown, K.W., Shapiro, S., & Schubert, C.M. (2009). Mindfulness-based stress reduction for the treatment of adolescent psychiatric outpatients: Randomized clinical trial. *Journal of Consulting and Clinical Psychology*, 77, 855–866

Blair, C. (2002). School readiness: Integrating cognition and emotion in a neurobi-ological conceptualization of children's functioning at school entry. *American Psychologist*, 57, 111–127. http://dx.doi.org/10.1037/0003-066X.57.2.111

Blair, C., Granger, D., Willoughby, M., Mills-Koonce, R., Cox, M., Greenberg, M. T., & the FLP Investigators. (2011). Salivary cortisol mediates effects of poverty and parenting on executive functions in early childhood. *Child Development*, 82, 1970–1984. http://dx.doi.org/10.1111/j.1467-8624.2011.01643.x

Blair, C., & Raver, C. C. (2012). Child development in the context of adversity: Expe- riential canalization of brain and behavior. *American Psychologist*, 67, 309–318. http://dx.doi.org/10.1037/a0027493

Blair & Razza, R. P. (2007). Relating effortful control, executive function, and false belief understanding to emerging math and literacy ability in kindergarten.

Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development.* New York, NY: Basic Books.

Caspi, A. (2000). The child is father of the man: Personality continuities from child- hood to adulthood. *Journal of Personality and Social Psychology*, 78, 158–172. http://dx.doi.org/10.1037/0022-3514.78.1.158

Bootzin, R. R., & Stevens, S. J. (2005). Adolescents, substance abuse, and the treatment of insomnia and daytime sleepiness. *Clinical Psychology Review*, 25, 629 – 644. Child Development, 78, 647–663. http://dx.doi.org/10.1111/ j.1467-8624.2007.01019.x

Briere, J. (1996). Trauma Symptom Checklist for Children: Professional Manual. Odessa, FL: Psychological Assessment Resources, Inc.

Britton, W. B., Lepp, N. E., Niles, H. F., Rocha, T., Fisher, N. E., & Gold, J. S. (2014). A randomized controlled pilot trial of classroom-based mindfulness meditation compared to an active control condition in sixth-grade children. *Journal Of School Psychology*, 52(3), 263-278. doi:10.1016/j.jsp.2014.03.002

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32(7), 513–530.

Brooks-Gunn, J., Duncan, G. J., Klebanov, P. K., & Sealand, N. (1993). Do neighborhoods influence child and adolescent development? *American Journal of Sociology*, 99(2), 353-395.

Brunswick, A.F., Lewis, C.S., & Messeri, P.A. (1992). Drug use and stress: Testing a coping

    model in an urban African-American sample. *Journal of Community Psychology*, 20,

    148–162.

Boggess, L. N., & Linnemann, T. W. (2011). At-risk youth. In W. J. Chambliss (Ed.), Juvenile

    crime and justice. New York: Sage.

Bucci, M., Marques, S. S., Oh, D., & Harris, N. B. (2016). Toxic Stress in Children and

    Adolescents. *Advances In Pediatrics*, *63*(Advances in Pediatrics), 403-428.

    doi:10.1016/j.yapd.2016.04.002

Cadima, J., Verschueren, K., Leal, T., & Guedes, C. (2016). Classroom interactions, dyadic

    teacher–child relationships, and self–regulation in socially disadvantaged young children.

    Journal Of Abnormal Child Psychology, 44(1), 7-17. doi:10.1007/s10802-015-0060-5

Cho, J., Kogan, S. M., & Brody, G. H. (2016). Genetic moderation of transactional relations

    between parenting practices and child self-regulation. *Journal Of Family*

    Psychology, *30*(7), 780-790. doi:10.1037/fam0000228

Chorpita BF, Tracey SA, Brown TA et al (1997) Assessment of worry in children and

    adolescents: an adaptation of the Penn State Worry Questionnaire. Behav Res Ther

    35:569–581

Cloitre, M., Stolbach, B. C., Herman, J. L., van der Kolk, B., Pynoos, R., Wang, J., & Petkova,

    E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative

    trauma as predictors of symptom complexity. *Journal Of Traumatic Stress*, *22*(5), 399-

    408. doi:10.1002/jts.20444

Condon, E. M., Sadler, L. S., & Mayes, L. C. (2018). Toxic stress and protective factors in multi-

ethnic school age children: A research protocol. *Research In Nursing & Health*,

doi:10.1002/nur.21851

Cooley-Strickland M, Quille TJ, Griffin RS, Stuart EA, Bradshaw CP, Furr-Holden D (2009)

Community violence and youth: affect, behavior, substance use, and academics. *Clin

Child Fam Psychol* Rev. doi:10.1007/s10567-009-0051-6

Conners, C. K. (1997). *Conners'Rating Scales-Revised: Technical manual*. North Tonawanda,

NY: Multi-Health Systems. Cronk, C. E., & Sarvela, P. D. (19

Connor-Smith, J. K., Compas, B. E., Wadsworth, M. E., Thomsen, A. H., & Saltzman, H.

(2000). Responses to stress in adolescence: Measurement of coping and involuntary

stress responses. *Journal Of Consulting And Clinical Psychology*, 68(6), 976-992.

doi:10.1037/0022-006X.68.6.976

Costello, E., Angold, A., & Keeler, G. (1999). Adolescent outcomes of childhood disorders: The

consequences of severity and impairment. Journal of the AmericanAcademy of Child and

Adolescent Psychiatry, 38, 121–128.

Cutuli, J. J., Wiik, K. L., Herbers, J. E., Gunnar, M. R., & Masten, A. S. (2010). Cortisol

function among early schoolaged homeless children. *Psychoneuroendocrinology*, 35,

833–845. doi:10.1016/j.psyneuen.2009.11.008 Del Giudice, M., Ellis, B. J., & Shirtcliff,

E. A. (2011). The adaptive calibration model of stress responsivity

Definition of anxiety in English:. (n.d.). Retrieved June 22, 2016, from

http://www.oxforddictionaries.com/us/definition/american_english/anxiety

Diamond, A., & Lee, K. (2011). Interventions shown to aid executive function development in

children 4 to 12 years old. Science, 333, 959–964. doi:10.1126/science.1204529.

Dobbs, J., Doctoroff, G. L., Fisher, P. H., & Arnold, D. H. (2006). The association between preschool children's socio-emotional functioning and their mathematical skills. *Applied Developmental Psychology*, 27, 97–108. http://dx.doi.org/10.1016/j.appdev.2005.12.008

Dube, S.R., Anda, R.F., Felitti, V.J., Chapman, D.P., Williamson, D.F., & Giles, W.H. (2001). Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: Findings from the adverse childhood experiences study. *JAMA: Journal of the American Medical Association*, 286, 3089- 3096.

Dube, S. R., Anda, R. F., Felitti, V. J., Croft, J. B., Edwards, V. J., & Giles, W. H. (2001). Growing up with parental alcohol abuse: Exposure to childhood abuse, neglect, and household dysfunction. *Child Abuse & Neglect*, 25, 1627-1640.

Eaton, D. K., Kann, L., Kinchen, S., Ross, J., Hawkins, J., Harris W. H., ... Wechsler, H. (2006). Youth risk behavior surveillance. *MMWR Surveillance Summaries*, 55(SS05), 1–108. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5505a1.html

Edwards, M., Adams, E. M., Waldo, M., Hadfield, O. D., & Biegel, G. M. (2014). Effects of a mindfulness group on Latino adolescent students: Examining levels of perceived stress, mindfulness, self-compassion, and psychological symptoms. *Journal For Specialists In Group Work*, 39(2), 145-163. doi:10.1080/01933922.2014.891683

Epstein, N., Baldwin, L. & Bishop, D. (1983) The McMaster Family Assessment Device. *Journal of Marital and Family Therapy*, 9, 171-180.

Evans, G. W., & English, K. (2002). The Environment of Poverty: Multiple Stressor Exposure, Psychophysiological Stress, and Socioemotional Adjustment. *Child Development*, (4). 1238.

Farahmand, F. K., Grant, K. E., Polo, A. J., & Duffy, S. N. (2011). School-based mental health and behavioral programs for low-income, urban youth: A systematic and meta-analytic review. *Clinical Psychology: Science And Practice*, *18*(4), 372-390. doi:10.1111/j.1468-2850.2011.01265.x

Farrington, D. P. (2005). Childhood origins of antisocial behavior. *Clinical Psychology & Psychotherapy*, 12, 177–190. http://dx.doi.org/10.1002/cpp.448

Felitti, V.J., Anda., R.F., Nordenberg, D., Williamson, D.F., Spitz, A.M., Edwards, V., et al. (1998).Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACS) study. *American Journal of Preventive Medicine*, 14, 245-258.

Felver, J. C., Frank, J. L., & McEachern, A. D. (2014). Effectiveness, acceptability, and feasibility of the Soles of the Feet mindfulness-based intervention with elementary school students. *Mindfulness*, *5*(5), 589-597. doi:10.1007/s12671-013-0238-2

Fernald, L., & Gunnar, M. R. (2009). Effects of a poverty-alleviation intervention on salivary cortisol in very low-income children. *Social Science and Medicine*, 68, 2180–2189. doi:10.1016/j.socscimed.2009.03.032

Frick, P. J., & Morris, A. S. (2004). Temperament and developmental pathways to conduct problems. *Journal of Clinical Child and Adolescent Psychology*, 33, 54–68. http://dx.doi.org/10.1207/S15374424JCCP3301 6

Garbarino, J. (1998). Raising Children in a Socially Toxic Environment. Family Matters, (50), 53-55.

Garner, A. S. (2013). Home visiting and the biology of toxic stress: Opportunities to address early childhood adversity. Pediatrics, 132,S65–S73. https://doi.org/10.1542/peds.2013-1021D.104|CONDON ET AL.

Gay, F., Quintana, E., Gorman-Smith, D., Scrimshaw, S., Henry, D., & Tolan, P. (2002). Patterns of violence toward partners: Quantitative and qualitative analysis. *Journal of Adolescent Research*,12, 423–449.

Greco, L. A., Baer, R. A., & Smith, G. T. (2011). Assessing mindfulness in children and adolescents: Development and validation of the Child and Adolescent Mindfulness Measure (CAMM). *Psychological Assessment*, 23(3), 606-614. doi:10.1037/a0022819

Goodman, T.A. (2005). Working with children: Beginner's mind. In C.K. Germer, R.D. Siegel & P.R. Fulton (Eds.), *Mindfulness and psychotherapy*. New York: The Guilford Press.

Gordon, H. W. (2002). Early environmental stress and biological vulnerability to drug abuse. *Psychoneuroendocrinology*, 27(1-2), Special Issue: Stress and drug abuse, 115-126.

Gould, L. F., Dariotis, J. K., Mendelson, T., & Greenberg, M. T. (2012). A school-based mindfulness intervention for urban youth: Exploring moderators of intervention effects. *Journal Of Community Psychology*, 40(8), 968-982. doi:10.1002/jcop.21505

Gunnar, M. R., & Donzella, B. (2002). Social regulation of the cortisol levels in early human development. Psychoneuroendocrinology, 27(1-2), Special Issue: Stress and drug abuse, 199-220.

Gunnar M, Quevedo K. (2007) The neurobiology of stress and development. *Annu Rev Psychol* 2007;58:145e73.

Halfon N, Hochstein M. Life course health development: An integrated framework for developing health, policy, and research. *Milbank Q* 2002; 80: 433e79.

Herbert, J., Goodyer, I., Grossman, A.B., Hastings, M.H., de Kloet, E.R., Lightman, S.L., et al.,
2006. Do corticosteroids damage the brain? J. *Neuroendocrinology* 18 (6), 393–411.

Humphrey, L. L. (1982). Children's and teachers' perspectives on children's self-control: The
development of two rating scales. *Journal of Consulting and Clinical Psychology*, 50,
624 – 633. http://dx.doi.org/10 .1037/0022-006X.50.5.624

Jaffee, K., Liu, G., Canty-Mitchell, J., Qi, R., Austin, J., & Swigonski, N. (2005). Race,
urban community stressors, and behavioral and emotional problems of children with
special health care needs. *Psychiatric Services*, 56, 63–69.

Johnson, A. E., Forston, J. L., Gunnar, M. R., & Zelazo, P. D. (2011). A randomized controlled
trial of mindfulness meditation training in preschool children. QC: Poster presented at the
Society for Research in Child Development Biennial Meeting in Montreal.

Kabat-Zinn, J. (1990). Full catastrophe living: Using the wisdom of your body and mind to face
stress, pain, and illness. New York: *Delacorte*.

Kagan J. (2003). Surprise, uncertainty and mental structures. Cambridge, MA: Harvard
University Press.

Keenan, K., Hipwell, A., Feng, X., Babinski, D., Hinze, A., Rischall, M., et al. (2008).
Subthreshold symptoms of depression in preadolescent girls are stable and
predictive of depressive disorders. *Journal of the American Academy of Child and
Adolescent Psychiatry*, 47, 1433–1442.

Kerrigan, D., Johnson, K., Stewart, M., Magyari, T., Hutton, N., Ellen, J. M., & Sibinga, E. M.
(2011). Perceptions, experiences, and shifts in perspective occurring among urban youth
participating in a mindfulness-based stress reduction program. *Complementary Therapies
In Clinical Practice*, *17*96-101. doi:10.1016/j.ctcp.2010.08.003

Kliewer W, Cunningham JN, Diehl R, Parrish KA, Walker JM, Atiyeh C, Neace B, Duncan L, Taylor K, Mejia R (2004) Vio- lence exposure and adjustment in inner-city youth: child andcaregiver emotion regulation skill, caregiver-child relationship quality, and neighborhood cohesion as protective factor. *J Clin Child Adolesc Psychol*. doi:10.1207/s15374424jccp3303_5

Last, C. G., Perrin, S., Hersen, M., & Kazdin, A. E. (1996). A prospective study of childhood anxiety disorders. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35(11), 1502–1510. http:// dx.doi.org/10.1097/00004583-199611000-00019

Liem, J. H., & Boudewyn, A. C. (1999). Contextualizing the effects of childhood sexual abuse on adult self and social functioning: An attachment theory perspective. *Child Abuse & Neglect*, 23, 1141-1157.

Lyvers, M., Makin, C., Toms, E., Thorberg, F. A., & Samios, C. (2014). Trait mindfulness in relation to emotional self-regulation and executive function. *Mindfulness,* 5(6), 619-625. doi:10.1007/s12671-013-0213-y

M. (n.d.). Home - Mindup. Retrieved October 17, 2016, from https://mindup.org/?nabm=0

M. (n.d.). Mindful Schools | Mindfulness for Your School, Teachers, Students. Retrieved October 17, 2016, from http://www.mindfulschools.org/

Margolin G, Gordis EB (2000) The effects of family and com- munity violence on children. *Annu Rev Psychol*. doi:10.1146/ annurev.psych.51.1.445

Mason, M. J., Korpela, K., Mennis, J., Coatsworth, J. D., Valente, T. W., Pomponio, A., & Pate, P. A. (2010). Patterns of place-based self-regulation and associated mental health of urban adolescents. *Journal Of Community Psychology*, 38(2), 155-171. doi:10.1002/jcop.20357

Maunder, R. G., & Hunter, J. J. (2001). Attachment and psychosomatic medicine: Developmental contributions to stress and disease. *Psychosomatic Medicine*, 63, 556-567.

McClelland, M. M., Cameron, C. E., Connor, C. M., Farris, C. L., Jewkes, A. M., & Morrison, F. J. (2007). Links between behavioral regulation and preschoolers' literacy, vocabulary, and math skills. *Developmental Psychology*, 43, 947–959. http://dx.doi.org/10.1037/0012-1649.43.4.947

McFadyen-Ketchum, L. S., Hurwich-Reiss, E., Stiles, A. A., Mendoza, M. M., Badanes, L. S., Dmitrieva, J., & Watamura, S. E. (2016). Self-regulation and economic stress in children of Hispanic immigrants and their peers: Better regulation at a cost?. *Early Education And Development*, *27*(7), 914-931. doi:10.1080/10409289.2015.1036345

McKnight, C., Huebner, E., & Suldo, S. (2002). Relationships among stressful life events, temperament, problem behavior, and global life satisfaction in adolescents. *Psychology in the Schools*, 39(6), 677– 687. doi:10.1002/pits.10062.

Mendelson, T., Greenberg, M. T., Dariotis, J. K., Gould, L. F., Rhoades, B. L., & Leaf, P. J. (2010).

McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *American Psychologist*, 53, 185–204. http://dx.doi.org/10.1037/0003-066X.53.2.185

Meiklejohn, J., Phillips, C., Freedman, M., Griffin, M., Biegel, G., Roach, A., et al. (2012). Integrating mindfulness training into K-12 education: Fostering the resilience of teachers and students. *Mindfulness*, 1, 1–17, http://dx.doi.org/10.1007/s12671-012-0094-5.

Merikangas, K. R., He, J. P., Brody, D., Fisher, P. W., Bourdon, K., & Koretz, D. S. (2010).

    Prevalence and treatment of mental disorders among US children in the 2001–2004

    NHANES. Pediatrics, 125, 75–81, http://dx.doi.org/10.1542/peds.2008-2598.

Mezzacappa, E. (2004). Alerting, orienting, and executive attention: Developmental properties

    and sociodemographic correlates in an epidemiological sample of young, urban children.

    Child Development, 75(5), 1373-1386. doi:10.1111/j.1467-8624.2004.00746.x

Midgley, C. (1993). Motivation and middle level schools. In P. Pintrich. & M. L. Maehr, (Eds.).

    Advances in motivation and achievement, Vol. 8: Motivation in the adolescent years (pp.

    219-276). Greenwich, CT: JAI Press.

Miles, S. B., & Stipek, D. (2006). Contemporaneous and longitudinal associ- ations between

    social behavior and literacy achievement in a sample of low-income elementary school

    children. *Child Development*, 77, 103–117. http://dx.doi.org/10.1111/j.1467-

    8624.2006.00859.x

Mind and Life Education Research Network (MLERN), Davidson, R., Dunne, J., Eccles, J.,

    Engle, A., Greenberg, M., et al. (2012). Contemplative practices and mental

    training: Prospects for American education. *Child Development Perspectives*, 6, 146–

    153, http://dx.doi.org/10.1111/j.1750-8606.2012.00240.x.

Moffitt, T. E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R. J., Harrington, H., et al.

    (2011). A gradient of childhood self-control predicts health, wealth, and

    public safety. *Proceedings of the National Academy of Sciences of the United States of*

    America, 108, 2693–2698, http://dx.doi.org/10.1073/pnas.1010076108.

Moskow, D. M., Addington, J., Bearden, C. E., Cadenhead, K. S., Cornblatt, B. A., Heinssen, R.,
& ... Walker, E. F. (2016). The relations of age and pubertal development with cortisol
and daily stress in youth at clinical risk for psychosis. *Schizophrenia Research*, *172*(1-3),
29-34. doi:10.1016/j.schres.2016.02.002.

Muris, P., Meesters, C., & Gobel, M. (2001). Reliability, validity, and normative data of the Penn
State Worry Questionnaire in 8-12-yr-old children. *Journal Of Behavior Therapy And
Experimental Psychiatry*, *32*(2), 63-72. doi:10.1016/S0005-7916(01)00022-2.

Napoli, M., Krech, P. R., & Holley, L. C. (2005). Mindfulness training for elementary school
students: The attention academy. *Journal of Applied School Psychology*, 21, 99 –125.

Noble, K. G., Norman, M. F., & Farah, M. J. (2005). Neurocognitive correlates of
socioeconomic status in kindergarten children. *Developmental Science*, 8, 74–87.
http://dx.doi.org/10.1111/j.1467-7687.2005.00394.x

Ooi, J., Dodd, H. F., & Walsh, J. (2015). Shared cognition in childhood anxiety: Interpretation
bias in preschool children and their parents. *Journal Of Child And Family Studies*,
24(11), 3413-3422. doi:10.1007/s10826-015-0143-5

O'Neil, K. A., & Kendall, P. C. (2012). Role of comorbid depression and co-occurring
depressive symptoms in outcomes for anxiety-- disordered youth treated with cognitive-
behavioral therapy. *Child & Family Behavior Therapy*, 34(3), 197–209. http://dx.doi.org/
10.1080/07317107.2012.707086

Overstreet S, Braun S (2000) Exposure to community violence and post-traumatic stress
symptoms: mediating factors. *Am J Orthopsychiatry* 70(2):263–271

Paat, Y. (2013). Working with immigrant children and their families: An application of

    Bronfenbrenner's ecological systems theory. *Journal Of Human Behavior In The Social*

    Environment, 23(8), 954-966. doi:10.1080/10911359.2013.800007

Paus, T., Keshavan, M., & Giedd, J. N. (2008). Why do many psychiatric disorders emerge

    during adolescence? *Nature Reviews Neuroscience*, 9, 947–957, http://dx.

    doi.org/10.1038/nrn2513.

Pine, D., Cohen, E., Cohen, P., & Brook, J. (1999). Adolescent depressive symptoms as

    predictors of adult depression: Moodiness or mood disorder? *American Journal of*

    Psychiatry, 156, 133–135.

Poehlmann-Tynan, J., Vigna, A. B., Weymouth, L. A., Gerstein, E. D., Burnson, C., Zabransky,

    M., & ... Zahn-Waxler, C. (2016). A pilot study of contemplative practices with

    economically disadvantaged preschoolers: Children's empathic and self-regulatory

    behaviors. *Mindfulness*, *7*(1), 46-58. doi:10.1007/s12671-015-0426-3

Posner, M. I., & Rothbart, M. K. (2000). Developing mechanisms of self-regulation.

    Development and Psycho- pathology, 12, 427 – 441.

Putnam, F. (1993). Dissociative disorders in children: Behavioral profiles and problems. Child

    Abuse and Neglect, 17, 39-45.

Putnam, F. W. (1997). *Dissociation in children and adolescents: A developmental perspective*.

    New York, NY: Guilford Press.

Qi, C., & Kaiser, A. P. (2003). *Behavior problems of preschool children from low- income*

    families: Review of the literature. *Topics in Early Childhood Special Education*, 23, 188–

    216. http://dx.doi.org/10.1177/02711214030230040201

Raver, C. C. (2004). Placing emotional self-regulation in sociocultural and socioeconomic

    contexts. *Child Development*, 75, 346–353. http://dx.doi.org/10.1111/j.1467-

    8624.2004.00676.x

Raver, C. C., Jones, S. M., Li-Grining, C., Zhai, F., Bub, K., & Pressler, E.(2011). CSRP's

    impact on low-income preschoolers' preacademic skills: self-regulation as a mediating

    mechanism. *Child Development*, 82, 362–378. doi:10.1111/j.1467-8624.2010.01561.x.

Rempel, K. D. (2012). Mindfulness for children and youth: a review of the literature with an

    argument for school-based implementation. *Canadian Journal of Counseling and*

    Psychotherapy, 46(3), 201–220. Roth-Hanania, R., Davidov, M., & Zahn-Waxler, C.

    (2011). Empathy development from 8 to 16 months: early signs of concern for others.

    Infant Behavior and Development, 34(3), 447–458. doi:10.1016/j. infbeh.2011.04.007.

Rimm-Kaufman, S. E., Pianta, R. C., & Cox, M. J. (2000). Teachers' judgments of problems in

    the transition to kindergarten. *Early Childhood Research Quarterly*, 15, 147–166.

    http://dx.doi.org/10.1016/S0885-2006(00)00049-1

Robles-Pina, R. A., DeFrance, E., Cox, D., & Woodward, A. (2005). Depression in urban

    adolescents. *International Journal on School Disaffection*, 3(2), 8–14.

Rojas, J. R., & Coker, T. R. (2015). The cause and consequence of mental health problems

    among at-risk youth. *Journal Of Adolescent Health*, *57*(5), 453-454.

    doi:10.1016/j.jadohealth.2015.08.006

Semple, R. J., Reid, E. F. G., & Miller, L. (2005). Treating anxiety with mindfulness: An open

    trial of mindfulness training for anxious children. *Journal of Cognitive Psychotherapy*,

    19, 379 –392.

Schonert-Reichl, K. A., Oberle, E., Lawlor, M. S., Abbott, D., Thomson, K., Oberlander, T. F., & Diamond, A. (2015). Enhancing cognitive and social–emotional development through a simple-to-administer mindfulness-based school program for elementary school children: A randomized controlled trial. *Developmental Psychology*, 51(1), 52-66. doi:10.1037/a0038454

Scrimin, S., Moscardino, U., & Natour, M. (2014). Socio-ecological correlates of mental health among ethnic minorities in areas of political conflict: A study of Druze adolescents in Israel. *Transcultural Psychiatry*, (2). 209.

Sibinga, E. S., Perry-Parrish, C., Chung, S., Johnson, S. B., Smith, M., & Ellen, J. M. (2013). School-based mindfulness instruction for urban male youth: A small randomized controlled trial. *Preventive Medicine: An International Journal Devoted To Practice And Theory*, 57(6), 799-801. doi:10.1016/j.ypmed.2013.08.027

Sibinga, E. S., Kerrigan, D., Stewart, M., Johnson, K., Magyari, T., & Ellen, J. M. (2011). Mindfulness-based stress reduction for urban youth. *The Journal Of Alternative And Complementary Medicine*, 17(3), 213-218. doi:10.1089/acm.2009.0605

Short, M. M., Mazmanian, D., Oinonen, K., & Mushquash, C. J. (2015). Executive function and self-regulation mediate dispositional mindfulness and well-being. *Personality And Individual Differences*, doi:10.1016/j.paid.2015.08.007

Smith, A. Guzman-Alvarez, A., Westover, T., Keller, S., & Fuller, S. (2012). Mindful Schools Program Evaluation. *University of California at Davis: Center for Education and Evaluation Services*.

Spence, S. H. (1998). A measure of anxiety symptoms among children. *Behaviour Research & Therapy*, 36, 545–566.

Stockings, E. A., Degenhardt, L., Dobbins, T., Lee, Y. Y., Erskine, H. E., Whiteford, H. A., et al. (2016). Preventing depression and anxiety in young people: a review of the joint efficacy of universal, selective and indicated prevention. *Psychological Medicine*, 46(1), 11–26.

Tan, L., & Martin, G. (2015). Taming the adolescent mind: A randomised controlled trial examining clinical efficacy of an adolescent mindfulness-based group programme. *Child And Adolescent Mental Health*, 20(1), 49-55. doi:10.1111/camh.12057

Tarter, R. E., Kirisci, L., & Mezzich, A. (1996). The Drug Use Screening Inventory: School adjustment correlates of substance abuse. *Measurement And Evaluation In Counseling And Development*, *29*(1), 25-34.

Teicher, M. H., Andersen, S. L., & Polcari, A. (2002). Developmental neurobiology of childhood stress and trauma. Psychiatric Clinics of North America, 25, *Special Issue: Recent advances in the study of biological alterations in post-traumatic stress disorder*, 397-426.

Tolan, P.H., Gorman-Smith, D., Henry, D., Chung, K., & Hung, M. (2002). The relation of patterns of coping of inner-city youth to psychopathology symptoms. *Journal of Research on Adolescence*, 12, 423–449.

Tremblay, R. E., Pihl, R. O., Vitaro, F., & Dobkin, P. L. (1994). Predicting early onset of male antisocial behavior from preschool behavior. *Archives in General Psychiatry*, 51, 732–739. http://dx.doi.org/10.1001/archpsyc.1994.03950090064009

Turkheimer, E., Haley, A., Waldron, M., D'Onofrio, B., & Gottesman, I. I. (2003). Socioeconomic status modifies heritability of IQ in young children. *Psychological Science*, 14(6), 623-628. doi:10.1046/j.0956-7976.2003.psci_1475.x

Viglas, M., & Perlman, M. (2017). Effects of a mindfulness-based program on young children's

self-regulation, prosocial behavior and hyperactivity. Journal Of Child And Family

Studies, doi:10.1007/s10826-017-0971-6

Wall, R. B. (2005). Tai chi and mindfulness-based stress reduction in a Boston public middle

school. *Journal of Pediatric Health Care*, 19, 230 –237.

Wandersman, A., & Nation, M. (2002). Urban neighborhoods and mental health: Psychological

contributions to understanding toxicity, resilience, and interventions. *American

Psychologist*, 53(6), 647-656

Walker, E., Mittal, V., Tessner, K., 2008. Stress and the hypothalamic pituitary adrenal axis in

the developmental course of schizophrenia. Annu. Rev. *Clin. Psychol*. 4, 189–216

Weist, M. (1997). Expanded school mental health services: National movement in progress.

Advances in Clinical Child Psychology, 19, 319–351.

What Does Cortisol Do? (2016). Retrieved November 03, 2016, from

http://www.hormone.org/hormones-and-health/what-do-hormones-do/cortisol

White KS, Bruce SE, Farrell AD, Kliewer W (1998) Impact of exposure to community violence

on anxiety: a longitudinal study of family social support as a protective factor for urban

children. *J Child Fam Stud*. doi:10.1023/A:1022943216319

Xu, W., Wang, Y., & Liu, X. (2015). Effectiveness of 8-week mindfulness training improving

negative emotions. *Chinese Mental Health Journal*, 29(7), 497-502.

Yehuda, R., Spertus, I. L., & Golier, J. A. (2001). Relationship between childhood traumatic

experiences and PTSD in adults. In S. Eth (Ed.), *PTSD in children and adolescents* (pp.

117-158). Washington, DC: American Psychiatric Association.

Yoshikawa, H., Aber, J. L., & Beardslee, W. R. (2012). The effects of poverty on the mental, emotional, and behavioral health of children and youth: Implications for prevention. *American Psychologist*, 67, 272–284. http://dx.doi.org/ 10.1037/a0028015

Zalot, A. A., Jones, D. J., Forehand, R., & Brody, G. (2007). Self-regulation and conduct problems among low-income African American youth from single-mother homes: The roles of perceived neighborhood context and child gender. *Journal Of Black Psychology*, 33(3), 239-259. doi:10.1177/0095798407302569

Zhu, L., Liu, M., Li, H., Liu, X., Chen, C., Han, Z., et al., 2014. The different roles of glucocorticoids in the hippocampus and hypothalamus in chronic stress-induced HPA axis hyperactivity. *PLoS One* 9 (5).

Table 1

Participant Demographics

	Intervention Group	Control Group
	n = 30	n = 12
Gender		
Female	19 (63.33%)	7 (58.33%)
Male	11 (36.67%)	5 (41. 67%)
Race/Ethnicity		
Latinx	19 (63.33%)	12 (100%)
African American	5 (16.67%)	0
Mixed Race	5 (16.67%)	0
Asian/Pacific Islander	0	0
White	0	0
Did not report	1 (3.33%)	0

Table 2

Study Measure Administration Schedule and Number of Questionnaires Received Per Time Point

Measures	Participant	Time Point 1	Time Point 2	Time Point 3
Demographics	Student	Int: n = 30		
		Con: n = 12		
TSCC-A	Student	Int: n= 30		
		Con: n= 12		
CAMM	Student	Int: n= 25	Int: n= 27	Int: n=18
		Con: n= 12	Con: n= 11	Con: n=12
BPM-T	Teacher	Int: n= 26		Int: n= 26
		Con: n= 12		Con: n= 12
SCRS	Teacher	Int: n= 8		Int: n= 7
		Con: n= 11		Con: n= 11

Note. int = Intervention group, con = Control group. The number of questionnaires received at each time point varied due to student absences or unavailability of teachers to complete the questionnaires for each student. [5]

---

[5] I have included information about data collected for the CAMM at time point 2, but it was decided that these data would not be valid to include in analyses because there were two students who completed the questionnaire who had not completed the CAMM at time point 1.

Table 3

Means and Standard Deviations of All Variables

Variable name	Time 1	Time 3	Time 1 vs. Time 3
	M (SD)	M (SD)	Difference
			p-value
CAMM			
Overall Sample	22.95 (8.13)	24.10 (7.93)	0.91
Control Group	25.42 (8.17)	27.25 (9.71)	0.484
Intervention Group	21.76 (8.00)	22.00 (5.88)	0.468
BPM			
Overall Sample	8.37 (6.59)	6.90 (5.82)	0.088
Control Group	6.75 (6.98)	8.67 (8.63)	0.272
Intervention Group	9.12 (6.40)	6.08 (3.89)	<0.001
SCRS			
Overall Sample	112.68 (54.79)	112.29 (39.33)	0.764
Control Group	96.18 (41.98)	116.00 (42.58)	0.017
Intervention Group	135.38 (64.70)	107.00 (36.75)	0.191
TSCC-A			
Overall Sample	55.68 (22.83)	N/A	N/A
Control Group	53.25 (11.05)	N/A	N/A
Intervention Group	58.10 (11.78)	N/A	N/A

Note. The *p*-values were calculated using paired *t*-tests.

Table 4

Pearson's r correlations between all variables for entire sample at Time 1 and Time 3

	TSCC-A Time 1	CAMM Time 1	CAMM Time 3	BPM Time 1	BPM Time 3	SCRS Time 1
CAMM Time 1	0.15 (n=37)	--	--	--	--	--
CAMM Time 3	-0.17 (n=30)	0.62*** (n=67)	--	--	--	--
BPM Time 1	-0.02 (n=38)	0.06 (n=75)	-0.25 (n=68)	--	--	--
BPM Time 3	-0.11 (n=39)	-0.03 (n=76)	-0.24 (n=106)	0.67*** (n=77)	--	--
SCRS Time 1	-0.02 (n=19)	-0.15 (n=56)	-0.28 (n=49)	0.46* (n=57)	0.36 (n=58)	--
SCRS Time 3	-.47$^+$ (n=18)	-0.07 (n=56)	0.15 (n=48)	0.22 (n=56)	0.31 (n=57)	0.28 (n=37)

Note. TSCC-A = Trauma Symptoms Checklist-Alternate Version; CAMM = Child and Adolescent Mindfulness Measure; BPM = Brief Problem Monitor; SCRC = Self Control Regulation Scale

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^+$ $p < 0.10$

Table 5

Unstandardized regression coefficients from linear regression models predicting Time 3 scores on the SCRS, BPM, and CAMM.

Variable	Intervention Group	Time 1 Scores
SCRS Time 3	-29.41	0.29
	[-74.72. 15.90]	[-0.09, 0.67]
BPM Time 3	-4.08**	0.63***
	[-7.00, -1.15]	[0.42, 0.84]
CAMM Time 3	-3.91[+]	0.56***
	[-8.63, 0.82]	[0.28. 0.84]

Note. The number in square brackets is the 95% confidence interval of the unstandardized regression coefficient. The overall model for SCRS was not significant, $F(2,12) = 1.58$, $p = 0.247$, adjusted $R^2 = 08$. The overall model for BPM was significant, $F(2,35) = 20.30$ $p < 0.001$, adjusted $R^2 = 51$. The overall model for CAMM was significant, $F(2,27) = 10.89$, $p < 0.001$, adjusted $R^2 = 41$.

The omitted base group in all models was the Control Group.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, [+] $p < 0.10$

Table 6

Frequency of symptom ratings endorsed on the Trauma Symptom Scale.

Item	Overall Mean (SD)	n=0	n=1	n=2	n=3
Bad dreams or nightmares	1.52 (1.07)	6	20	4	12
Scary ideas or pictures just pop into my head	1.57 (1.11)	8	14	8	12
Remembering things that happened that I didn't like	1.30 (0.97)	6	15	13	8
Going away in my mind, trying not to think	1.05 (0.96)	14	16	8	4
Remembering scary things	1.64 (1.06)	8	9	15	10
Feeling scared of men	0.76 1.01	22	13	2	5
Feeling scared of women	0.60 (1.01)	28	8	1	5
Can't stop thinking about something that happened to me	1.43 (1.13)	10	15	6	11
Being afraid of the dark	1.69 (1.16)	6	18	1	17
Wishing bad things had never happened	1.71 (1.20)	10	7	10	15

Note. A score of 0 indicated that this never happens, 1 that it happens sometimes, 2 that it happens lots of times, and 3 that it happens almost all of the time.

Appendix A

Child Demographics Questionnaire:

1. Age:

2. Sex: Male   Female

3. Ethnicity: African American   Asian American   European American   Latino/Hispanic

    Bi-Racial/Mixed Race

4. Parent's Median Income:

    <$10,000

     $10,000-$30,000

     $30,000-$50,000

    $50,000-$70,000

     >$70,000

Appendix B

Trauma Symptom Checklist Children

The items in this booklet describe things that kids sometimes think, feel, or do. Read each item,

then mark how often it happens to you by drawing a circle around the correct number.

*Circle **0** if it **never** happens to you.*

*Circle **1** if it happens **sometimes**.*

*Circle **2** if it happens **lots of times**.*

*Circle **3** if it happens **almost all of the time**.*

1. Bad dreams or nightmares   0   1   2   3

2. Feeling afraid something bad might happen   0   1   2   3

3. Scary ideas or pictures just pop into my head   0   1   2   3

4. Pretending I am someone else   0   1   2   3

5. Arguing too much   0   1   2   3

6. Feeling lonely   0   1   2   3

7. Feeling sad or unhappy 0   1   2   3

8. Remembering things that happened that I didn't like 0   1   2   3

9. Going away in my mind, trying not to think 0   1   2   3

10. Remembering scary things   0   1   2   3

11. Wanting to yell and break things 0   1   2   3

12. Crying   0   1   2   3

13. Getting scared all of a sudden and don't know why 0   1   2   3

14. Getting mad and can't calm down

15. Feeling dizzy 0   1   2   3

16. Wanting to yell at people 0   1   2   3

17. Wanting to hurt myself 0   1   2   3

18. Wanting to hurt other people 0   1   2   3

19. Feeling scared of men 0   1   2   3

20. Feeling scared of women 0   1   2   3

21. Washing myself because I feel dirty on the inside

22. Feeling stupid or bad 0   1   2   3

23. Feeling like I did something wrong 0   1   2   3

24. Feeling like things aren't real 0   1   2   3

25. Forgetting things, can't remember things 0   1   2   3

26. Feeling like I'm not in my body 0   1   2   3

27.   Feeling nervous or jumpy inside 0   1   2   3

28. Feeling afraid   0   1   2   3

29. Can't stop thinking about something that happened to me   0   1   2   3

30. Getting into fights 0   1   2   3

31. Feeling mean   0   1   2   3

32. Pretending I'm somewhere else   0   1   2   3

33. Being afraid of the dark   0   1   2   3

34. Worrying about things   0   1   2   3

35. Feeling like nobody likes me   0   1   2   3

36. Remembering things I don't want to remember 0   1   2   3

37. My mind going empty or blank 0   1   2   3

38. Feeling like I hate people 0   1   2   3

39. Trying not to have any feelings   0   1   2   3

40. Feeling mad   0   1   2   3

41. Feeling afraid somebody will me   0   1   2   3

42. Wishing bad things had never happened   0   1   2   3

43. Wanting to kill myself   0   1   2   3

44. Daydreaming   0   1   2   3

Appendix C

Self -Control Regulation Scale

Please rate this child according to the descriptions below by circling the appropriate

number. The underlined 4 in the center of each row represents where the average child would

fall on this item. Please do not hesitate to use the entire range of possible ratings.

1. When the child promises to do something, can you count on him or her to do it?

1 **Always**   2   3   **4**   5   6   **7** **Never**

2. Does the child butt into games or activities even when he or she hasn't been invited?

1 **Never**   2   3   **4**   5   6   **7** **Often**

3. Can the child deliberately calm down when he or she is excited or all wound up?

1 **Yes**   2   3   **4**   5   6   **7** **No**

4. Is the quality of the child's work all about the same or does it vary a lot?

1 **Same**   2   3   **4**   5   6   **7** **Varies**

5. Does the child work for long-range goals?

1 **Yes**   2   3   **4**   5   6   **7** **No**

6. When the child asks a question, does he or she wait for an answer, or jump to something else (e.g., a new question) before waiting for an answer?

1 **Waits**   2   3   **4**   5   6   **7** **Jumps**

7. Does the child interrupt inappropriately in conversations with peers, or wait his or her turn to speak?

1 **Waits**   2   3   **4**   5   6   **7** **Interrupts**

8.	Does the child stick to what he or she is doing until he or she is finished with it?	**1** **Yes**	2	3	**4**	5	6	**7** **No**
9.	Does the child follow the instructions of responsible adults?	**1** **Always**	2	3	**4**	5	6	**7** **Never**
10.	Does the child have to have everything right away?	**1** **No**	2	3	**4**	5	6	**7** **Yes**
11.	When the child has to wait in line, does he or she do so patiently?	**1** **Yes**	2	3	**4**	5	6	**7** **No**
12.	Does the child sit still?	**1** **Yes**	2	3	**4**	5	6	**7** **No**
13.	Can the child follow suggestions of others in group projects, or does he or she insist on imposing his or her own ideas?	**1** **Follows**	2	3	**4**	5	6	**7** **Imposes**
14.	Does the child have to be reminded several times to do something before he or she does it?	**1** **Never**	2	3	**4**	5	6	**7** **Always**
15.	When reprimanded, does the child answer back inappropriately?	**1** **Never**	2	3	**4**	5	6	**7** **Always**
16.	Is the child accident prone?	**1** **No**	2	3	**4**	5	6	**7** **Yes**
17.	Does the child neglect or forget regular chores or tasks?	**1** **Never**	2	3	**4**	5	6	**7** **Always**
18.	Are there days when the child seems	**1**	2	3	**4**	5	6	**7**

	incapable of settling down to work?	**Never**						**Often**
19.	Would the child more likely grab a smaller toy today or wait for a larger toy tomorrow, if given the choice?	**1** **Wait**	2	3	**4**	5	6	**7** **Grab**
20.	Does the child grab for the belongings of others?	**1** **Never**	2	3	**4**	5	6	**7** **Often**
21.	Does the child bother others when they're trying to do things?	**1** **No**	2	3	**4**	5	6	**7** **Yes**
22.	Does the child break basic rules?	**1** **Never**	2	3	**4**	5	6	**7** **Always**
23.	Does the child watch where he or she is going?	**1** **Always**	2	3	**4**	5	6	**7** **Never**
24.	In answering questions, does the child give one thoughtful answer, or blurt out several answers all at once?	**1** **One**	2	3	**4**	5	6	**7** **Several**
25.	Is the child easily distracted from his or her work or chores?	**1** **No**	2	3	**4**	5	6	**7** **Yes**
26.	Would you describe this child more as careful or careless?	**1** **Careful**	2	3	**4**	5	6	**7** **Careless**
27.	Does the child play well with peers (follows rules, waits turn, cooperates)?	**1** **Yes**	2	3	**4**	5	6	**7** **No**
28.	Does the child jump or switch from activity	**1**	2	3	**4**	5	6	**7**

	to activity rather than sticking to one thing at a time?	**Stick to** **one**					**Switches**
29.	If a task is at first too difficult for the child, will he or she get frustrated and quit, or first seek help with the problem?	**1** **Seek** **help**	2	3	**4**	5	6	**7** **Quit**
30.	Does the child disrupt games?	**1** **Never**	2	3	**4**	5	6	**7** **Often**
31.	Does the child think before he or she acts?	**1** **Always**	2	3	**4**	5	6	**7** **Never**
32.	If the child paid more attention to his or her work, do you think he or she would do much better than at present?	**1** **No**	2	3	**4**	5	6	**7** **Yes**
33.	Does the child do too many things at once, or does he or she concentrate on one thing at a time?	**1** **One at** **a time**	2	3	**4**	5	6	**7** **Too many**

1.

Appendix D

Child and Adolescent Mindfulness Measure (CAMM)

Instructions: We want to know more about what you think, how you feel, and what you do. Read each sentence. Then, circle the number that tells how often each sentence is true for you.

Never True=0

Rarely True=1

Sometimes True=2

Often True=3

Always True=4

1. I get upset with myself for having feelings that don't make sense. 0 1 2 3 4

2. At school, I walk from class to class without noticing what I'm doing. 0 1 2 3 4

3. I keep myself busy so I don't notice my thoughts or feelings. 0 1 2 3 4

4. I tell myself that I shouldn't feel the way I'm feeling. 0 1 2 3 4

5. I push away thoughts that I don't like. 0 1 2 3 4

6. It's hard for me to pay attention to only one thing at a time. 0 1 2 3 4

7. I get upset with myself for having certain thoughts. 0 1 2 3 4

8. I think about things that have happened in the past instead of thinking

about things that are happening right now. 0 1 2 3 4

9. I think that some of my feelings are bad and that I shouldn't have

them. 0 1 2 3 4

10. I stop myself from having feelings that I don't like. 0 1 2 3 4

Appendix E

Brief Problem Monitor-Teacher

Instructions: Below is a list of terms that describe students. Please note each item to describe the

student now or within the past 30 days .Please circle a 2 if the item is very true of the student.

Circle a 1if the item is somewhat true of the student. If the item does not seem true of the student

circle 0. Please answer all items as well as you can, even if some do not apply to this student.

0 1 2 1 . Acts too young for his/her age

0 1 2 2. Argues a lot

0 1 2 3. Fails to finish things he/she starts

0 1 2 4. Can't concentrate pay attention for long

0 1 2 5. Can't sit still, restless, or hyperactive

0 1 2 6. Destroys property belonging to others

0 1 2 7. Disobedient at school

0 1 2 8. Feels worthless or inferior

0 1 2 9. Impulsive or acts without thinking

0 1 2 10. Too fearful or anxious

0 1 2 11. Feels too guilty

0 1 2 12. Self conscious or easily embarrassed

0 1 2 13. Inattentive or easily distracted

0 1 2 14. Stubborn, sullen, or irritable

0 1 2 15. Temper tantrums or hot temper

0 1 2 16. Threatens people

0 1 2 17. Unhappy, sad, or depressed

0 1 2 18. Worries

<u>   </u>Additional Items

0 1 2   _____

0 1 2   _____

0 1 2   _____

Appendix F

Mindful Breathing Curriculum

Below is a sample curriculum from the Mindful Life Project.

Mindful Breathing

Objective: Students will learn how to be mindful of their breath and use intentional breath to help them be more relaxed, release stress, or be more focused.

Key Concept: In mindful sits, it is helpful for the students to both be mindful of their breath, noticing how their breath is in the moment, and learning how to manipulate their breath to regulate the body. When we are mindful of our breath, we may just notice the length, quality, sound, feel of the breath. It changes moment to moment. We also attune to how the breath moves throughout the body, noticing where there is space and where there might be tension. Intentionally breathing can help us focus on our breathing as a way of staying present and it can help us regulate our bodies and calm ourselves down when we feel a heightened level of stress. Sometimes we can lengthen the exhale to help relax, counting to 4 on the inhale and 8 on the exhale. We can also put a hand on the belly and chest, feeling the contraction and expansion, and feeling our bellies rise and fill up with air.

Mindfulness Song: "I'm Present"

Materials:

• Classroom projector or ELMO

• Curriculum guide and binder

• Copy of your PEACE Agreements

• Vibratone

• CD or MLP hip hop songs on phone

• Portable speakers or CD player

• Classroom Mindfulness Sit tracker for EACH classroom

• How to Lead a Mindful Sit worksheet for EACH classroom

Introduction:

(I): Hello everyone! My name is _____. I am your Mindful Life Project

Instructor and I am so happy to be with you again.

(I): Before we begin our Mindful Sit (remember to use your hand movement, touching your head

as you say Mindful and touching the desk or carpet as you say Sit), let's review our PEACE

agreements.

• Read the agreements aloud and ask everyone to give a thumbs up if they agree to them.

• Remind them of the procedures of what happens when an agreement is not honored.

(I): Wonderful! I am pleased we are all on board. Who remembers what Mindfulness is? Yes!

Let's say it together!

Mindfulness is paying attention to the present moment without judgment.

(I): Let's start today, like we will everyday when I get here, with a one minute Mindful Sit. Let's

practice our Mindful Position Chant.

• Practice the Mindful Position Chant with the students. You may practice it a few times so

they get the hang of it.

• The following is sample script of how to lead a one minute sit, feel free to explore and

discover how you want to lead the introductory sits.

(I): Feel your feet on the floor. Feel you legs resting on the chair. Feel your hands and fingertips

sitting on your desk or you knees. Feel your belly as it moves slightly with your breath. Feel your

shoulders move up and down as you breath. Notice how the breath feels inside your mouth.

Notice how the breath feels inside your nose. If you've practiced mindful breathing before, you can begin mindful breathing. You can say "breathing in" as you inhale, and "breathing out" as you exhale silently in your mind. I'm about the ring the vibratone bell, practice your mindful listening and open your eyes when the bell has completely stopped ringing. (Ring bell)

(I): Beautiful practice everyone! In the next few weeks, we will start to incorporate Mindful Leaders in our class. Mindful Leaders are students who help lead our Mindful Sits. Every student will have an opportunity to lead a sit this year. I believe every student in here will be an amazing leader, and you will have my help to teach you how to lead.

(I): Who practiced mindfulness at home since last week? Great!

Did you all practice as a class?

• Checking their classroom tracker every visit is essential in developing a classroom practice.

• Encourage them to keep trying if they haven't started yet. You may even choose to brainstorm with them on how they can give it a try. Maybe giving them a goal of at least once on a particular day. Asking the classroom teacher to commit to trying with the students.

• If they did practice, make a big deal!!!! Celebrate them, cheer them on!

Mindfulness Content and Goals:

(I): Today we are going to learn more an Mindful Breath and an Intentional Breath. I am going to teach you the mindful breathing chant.

Mindful Breathing

To live mindfully

The breath is the key

Breathe in

Breathe out

(I): We are always breathing. We don't have to tell our bodies to breathe. They just do. We don't

need to learn how to breathe, but we are learning how to pay attention to our breath. Even

though we always breathe, we usually don't pay attention to it. This is mindful breathing, when

we are just paying attention to our natural breath. We aren't forcing anything, we are just

listening and feeling our breath.

Let's try it. Let's get into the Mindful Position. (Say the mindful position chant)

Continue to breathe like we normally breathe.

How does it feel when you breathe in?

How does it feel when you breathe out?

Place a your hand just under your nose. How does your nose feel when you breathe?

Place a hand on your chest, how does your chest feel in the inside and the outside when you

breathe?

Place a hand on your rib cage. How does your rib cage feel on the inside and the outside of your

body?

Place a hand on your belly. How does your belly feel, on the inside and the outside, when you

breathe?

(Ring the bell to complete the sit)

(I): Turn to a partner or a group of three and tell them one thing you noticed as you breathed

mindfully today. Where did you notice your breath the strongest?

• Give them a minute to share with their partner. You may choose to walk around the room

and make sure that each student is engaged and is answering the question.

(I): Beautiful Mindful Breathing everyone! I want to now teach you something that has really

helped my mindfulness practice.

I use a deep, long Intentional Breath when I want to relax, calm the body, and increase my

focus. Like this-

• take a deeper and longer breath

• Invite the students to practice 3-5 breaths together

How do you feel after breathing more deeply? Right, deep breaths calm us down and it is easier

for us to make mindful decisions after our bodies are calmer. Our bodies often clamp up, close

tightly and get tense when we are stressed, worried, or afraid . Deeply breathing relaxes our

bodies again and helps us feel more peaceful.

When I practice a mindful sit, first I like to mindfully breath, paying attention to my natural

breath. Then I might take 3-5 intentional breaths to relax my body. Let's try a sit for a few

minutes, using these two breathing techniques.

• In this sit, first guide the students again in noticing how they are breathing, how it feels in their

bodies, lungs, throat, chest etc.

• Then invite them to take some intentional breaths.

• After the sit, invite them to reflect on what they noticed.

• Ask the students how they feel after taking some intentional deep breaths.

Mindful Hip Hop Song

(I): Let's practice the song "I'm Present." I love playing songs, and I really want you to

enjoy the songs. How do you think we can be mindful listeners and singers as we play the

song?

• Listen to their responses emphasizing the following ideas. Setting up a safe and contained

environment creates positive structure. Be explicit in your expectations around song

playing. It is extremely important to leave the students in a grounded and calm place for

their classroom teacher. It is very damaging to leave the children too excited and have

them return back to classwork.

-We have to stay seated in our chairs.

-We sing don't shout.

-We respect everyone's voices and give put ups not put downs.

-We commit to doing one minute of sitting after the song.

(I): Give me a thumbs up if you agree to these ideas? (Look around room and make sure that

everyone agrees, remember, we are a community and the actions of one person affects everyone)

Great! I am going to put the lyrics on the projector so we can sing along as I play the song.

• Play the song and encourage them to sing along. If one or students breaks the agreements,

give them individual Mindful Reminders. If a group of students is not following the

agreements, stop the song and let them know the agreements are there to keep a safe and

peaceful environment. We will try again next week, no biggie.

• If they did a great job of participating, praise them for being great mindful listeners and

singers!!!

Closure

(I): Let's close our class by practicing our Mindful Sit. Let's say our Mindful Position Chant.

• Guide students in a one-minute closing sit.

• Ring students out of the sit. Invite them to practice Mindful Listening and open their

eyes when they hear the finish ringing completely.

(I): Beautiful practice everyone! I invite you all again to try practicing your mindfulness as a

class. Your classroom teacher can record here you can record how many minutes you sit on this

chart. When I come back, I will see how many minutes you all practiced.

I encourage all of you to practice at home this week. Is anyone willing to try? Wonderful! I can't

wait to hear who practiced next week when I returned!