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Fostering Resilience: A Pilot Study for Mindful Yoga as an Intervention for Adolescents Exposed to Chronic Adversity

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by

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ABSTRACT

The effects of ongoing stress can cause chronic affect dysregulation, destructive behavior against self and others, learning disabilities, dissociative problems, somatization, and distortions in concepts about self and others (Bessel van der Kolk, 1994, p. 259). There may be particular benefits for youth who live in urban, underserved populations as they have experienced social challenges such as poverty, violence, drugs, racism, and immigration. Given the historical tendency of youth to express their emotions externally as a coping strategy, there is rationale to support a physically based treatment, like yoga, as an intervention for this population (Beltran et al., 2016). This study explores using yoga to build resilience as a mindfulness-based intervention for children who have experienced chronic adversity, particularly for students living in underserved communities. The primary research questions for this mixed methods study are **(R1):** Does mindfulness-based yoga improve adolescents' perception of their ability to emotionally self-regulate; and **(R2):** How does mindfulness-based yoga improve adolescents' perception of their ability to self-regulate?

This mixed-methods study used the Perceived Stress Scale (PSS) and the Positive Affect and Negative Affect Schedule (PANAS-C) as a pre-post methodology, interview methods, along with application of the spiritual capitol theory, to examine the effectiveness of yoga as an intervention for increased emotion regulation for underserved, minority school settings. Adolescents (n = 12) participated in an eight-session, four-week pilot yoga intervention that targeted increasing resilience as evidence by perceived stress and emotion regulation.

There was not a statistically significant difference from pre to post yoga program despite the decrease in participants' perceived stress (t (11) = .114; p >.05). Overall, participants scored higher before the yoga program on the perceived stress measure (M = 17.58, SD = 3.370) but decreased once the program concluded (M = 15.50, SD = 4.583). Positive affect was not statistically significant although the scores increased from before to after the yoga program (t (11) = .276; p >.05). Despite this trend, students scored lower before the yoga program on positive affect (M = 39.25, SD = 10.515) and trended towards significant increase after the program (M = 42.25, SD =8.001). There was a statistically significant difference from the pre to post yoga program for negative affect (t (11) = .029; p <.05] experienced by the participants. Overall, the students scored higher before the yoga program (M = 30.75, SD = 9.265) and significantly decreased after the program (M = 25.25, SD =8.740) indicating a reduction in negative affect.

Despite limited statistical significance, the participants expressed positive experiences, increased emotion regulation, and reduced stress. These are significant outcomes for adolescents who have experienced chronic adversity to build resilience. Yoga, in school settings, has many implications to include fostering the development of resilience for children who have experienced chronic adversity. Future researchers may work towards understanding how yoga strengthens resilience among increased sample sizes within the same target population.

Keywords Yoga, Adolescents, Emotion Regulation, Perceived Stress, Resilience

DEDICATION

I dedicate this completed dissertation to my students of the past, present, and future. May my endeavors give you an example and representation of what pursuing your life's passion resembles. It is my hope that my pursuits inspire and drive you to find what you love most in life and go after it wholeheartedly.

ACKNOWLEDGEMENTS

Lord, what you have given me, I give back to you. Each accomplishment and milestone was your work manifested through the vessel of my body. Thank you, Jesus, for your infallible love.

To my loving husband, Terrell Pinellas: Thank you for believing in me and for supporting me in all of my endeavors no matter how lofty. Your love and steadfastness are truly appreciated and admired. I love you.

To my children, Marcell, Terrell Jr. and Sevyn: You are the best gift I have ever received. Whatever you put your mind to, you can indeed accomplish. Keep God first, love endlessly, and always do your best. I love you with my whole heart!

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To my participants: I truly thank and appreciate each and every one of you for without your contribution, this milestone would not be possible.

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Chapter One: Introduction

My journey with trauma-informed practices and yoga began as a personal experience. As a doctoral student, professional school counselor, spouse, and mother, the demands of life quickly escalated beyond my physical ability to manage them. Through my own personal health challenges, yoga became an important part of my healing journey. In the pursuit of lifelong self-improvement and personal growth, the practice of yoga led to transformative experiences that I believe are of benefit to many, including children and adolescents. The practice and benefits of yoga, for both adults and children, are numerous. The general benefits of yoga for adults include decreased perceived use of negative coping skills and aggressive behaviors, improved balance, improved perceptions of well-being and enhanced methods of non-violent, self-coping in stressful situations (Berger & Steinm, 2009). Yoga has also increased effectiveness among children who exhibit symptoms of inattentiveness, anxiety, depression, substance use/abuse, and eating disorders in both treatment and academic environments (Beltran et al., 2016).

As a school counselor, I am witness to the adverse events students face on a daily basis as a result of family discord, bullying, academic concerns, or other environmental stressors. Consequently, students often struggle with these stressors through a variety of means reflecting self-injurious behaviors, drug and alcohol abuse, and violence (Wadman et al., 2018; Wadsworth, 2015). These struggles manifest into classroom challenges, overt disrespect of authority, continued and elevated drug and alcohol abuse, and a variety of other methods (Hess et al., 2016). The literature supports that if not appropriately addressed in childhood, these maladaptive behaviors can become damaging in adulthood (Wadsworth, 2015). The foundation of understanding childhood chronic adversity is therefore pertinent to understanding the phenomenon of using yoga as an intervention among this population.

Chapter one will identify the problem related to the use of yoga as an intervention for adolescents exposed to chronic adversity offering context, background, significance and relevance, along with, identifying preliminary methods and measures. Specifically, chapter one presents the background of the study, along with the problem statement for why the targeted population lacks the skills necessary to independently manage chronic, adverse experiences. Also included in this chapter is the purpose of this study, the research questions, and assumptions of the study.

Background of the Study

The effects of ongoing stress can cause chronic affect dysregulation, destructive behavior against self and others, learning disabilities, dissociative problems, somatization, and distortions in concepts about oneself and others (Bessel van der Kolk, 1994). There may be particular benefits for youth who live in urban, underserved populations as they typically have experienced social challenges related to poverty, violence, drugs, racism, and immigration. The literature has identified ways to support adolescents who are struggling emotionally. During conflict, students who experience chronic stress often overreact, reflecting threat vigilance that develops in the home or neighborhood when they genuinely felt in danger (Thompson & Haskins, 2014). One way to support the emotional health of our children is through Eastern practices, such as yoga and mindfulness. Schoeberlin, Koffler, and Jha (2005) developed a targeted yoga program to help train and refine attention, promote emotional balance and by extension, help students develop the ability to self-regulate. Woodyard (2011) also indicated that when consistently practiced, yoga produces a physiological state opposite to the flight-or-fight stress response, which causes an interruption in the stress response, allowing a sense of balance and union between the mind and body to be achieved.

Adolescents who engage in yoga also have fewer negative developmental behaviors, like screaming and yelling, hitting others, or throwing items when upset (Berger & Steinm 2009). Given the historical tendency of youth to express their emotions externally, as a coping strategy, there is rationale to support a physically based treatment, like yoga, as an intervention for this population (Beltran et al., 2016). Yoga has the potential to empower underserved children chronically exposed to adversity by teaching them tools to become aware of the triggers that cause them emotional anguish and strengthens perseverance in the face of future challenges. The tools facilitated by yoga not only create awareness of triggers but increase the ability to build spiritual capital.

Yoga constitutes an important component of spiritual capital, which is associated with spiritual intelligence. Zohar and Marshall (2004) define spirituality as a component of vitality or life in a system or organism. Paraphrased, the root of spirit means breath, which is stressed in yoga practice to facilitate the union among the mind, body, and spirit (Woodyard, 2011). The spirit of a person gives insight and guidance towards meaning and purpose. The spirit, as mentioned, speaks to the intelligence used to access our deepest meanings, values, purposes, and highest motivations (Zohar & Marshall, 2004). This spiritual intelligence, in Western theory, is commonly referred to as self-actualization. When practiced regularly, yoga has the potential to generate a sense of overall well-being, decrease stress, regulate emotion and increase resilience to allow adolescents to transcend beyond survival towards a self-actualized state that fulfills their purpose (Bhajan, 2004; Cohen, Kessler, & Gordon, 1997; Maslow, 1968).

Problem Statement

There is a need to teach skills that extend beyond traditional curricula and address social problems, violence, and the lack of respect for one another and the environment (Sarkissian,

2012). Adolescents who are exposed to adversity are continuously operating in "fight or flight" as a result of chronic stress, therefore, causing the inability to cope with academic pursuits and lead a healthy, productive life because of diminished capacity to engage in cognitive, creative, and productive activities (Sarkissian, 2012).

There is limited explanation for the impacts that yoga has specifically for adolescents to build resilience as evidence by increased emotional regulation and diminished perceived stress. This study seeks to identify this gap and solve this problem through a yogic approach. There must be a pedagogical shift in how youth are educated and groomed to become successful human beings along with methods to assess the effects of reducing stress, regulating emotions, and building resilience.

The public education system has greatly focused on the development of the mind, with limited regard to body integration. School curricula emphasizes skills related to math, reading, science, and language giving elective to courses like sports with an even smaller percentage of focus on the fine arts. This disregard, or lack of funding contributing to the disregard of these elective areas, subsequently inhibits the development of emotional and psychological arenas (Robinson, 2006; Saraswati, 2006). As such, it is apparent that pedagogy systems have the tendency to compartmentalize experiences of both students and educators who, historically, have not questioned the purpose of education and take for granted that it is something to do in order to succeed in life (Sarkissian, 2012). Extending beyond the scope of school, the mind and body do not function independently from one another and therefore the school can serve as the model to reflect real, lived experiences. To effectively integrate the mind, body, and spirit, there must be consideration for and evaluation of the interventions and strategies currently in place to do so (Robinson, 2006).

Zohar and Marshall (2004) assert that many students enter classrooms disengaged and often disown their feelings, concerns, and emotional challenges, and attempt to lay their burdens outside the school. These students are taught to focus on what they can control, which causes disintegration from self and propels focus on external accomplishments, like performance on assessments. Based on this conditioning of focus, students are consequently taught that fulfillment is extrinsic, not intrinsic, and if achievements do not bring happiness, then there becomes an endless search to find fulfillment by other means, often leading to maladaptive and sometimes fatal choices (e.g., Richards, 2009; Robinson, 2006; Saraswati, 2006; Zohar & Marshall, 2004). Based on this concept of negative conditioning, there stands an increased need for educational systems to provide support that not only cultivates the mind, but engages the body and spirit as well, particularly in schools with high student populations who have experienced added stressors as a consequence of poverty or low socioeconomic status (SES) in urban communities.

Purpose of Study

The purpose of this study is to explore the use of yoga to build resilience as a mindfulness-based intervention for children who have experienced chronic adversity, particularly for students living in underserved communities (low SES). In this mixed-methods study, the Perceived Stress Scale (PSS) and the Positive Affect and Negative Affect Schedule (PANAS-C) are used as a pre-post methodology, in addition to semi-structured interview methods, and application of the spiritual capitol theory to examine the effectiveness of yoga as an intervention for increased emotion regulation for underserved, minority school settings. Adolescents from a low-income, urban high school participated in an eight-week yoga intervention that targeted increasing resilience as evidence by perceived stress and emotion regulation.

Stress implicates a variety of disparities and there is a priority to focus on stress management and reduction to shrink the burden of disease and negative emotional states (Woodyard, 2011). Through yoga, individuals gain insight through integrating all facets of themselves, including the mind, body, and spirit, which has been historically ignored in educational settings (e.g., Miller, 2009; Richards, 2009). These skills can extend the focus of education, generating the ability to understand others in a more efficient manner. These same skills can assist youth to connect with their inner selves, encouraging a level of transcendent understanding and awareness (Zohar & Marshall, 2004). Thus, the initial motivation for this study was to introduce the calming effects of yoga to adolescents, within a school district, who may have experienced chronic adversity.

Research Questions

The primary research questions for this mixed methods study are: **(R1):** Does mindfulness-based yoga improve adolescents' perception of their ability to emotionally self-regulate; and **(R2):** How does mindfulness-based yoga improve adolescents' perception of their ability to self-regulate? Based on this mixed-methods research design, it is hypothesized that the participants' ability to self-regulate emotionally, will increase after exposure to mindful yoga practices.

Through participation of this study, students can develop the greatest self-actualized versions of themselves through yoga while growing through their experience of alleviation of stress and regulation of emotions. Yoga can also serve as a support to balance core subjects with the emotional and mental demands of education, systematically integrating all aspects of self in order to become full, engaged, confident, focused human beings while effectively navigating the increasing social and emotional pressure of adolescents (Sarkissian, 2012). Bhajan (2003) stated:

> "[Stamina is needed for] stress, clarity of values for decisions, and [offers] a new base for identity. We need the ability to command our brain, mind and states of consciousness consciously through the filter of intuition, wisdom and the positive, negative and neutral minds" (p. 5).

To generate this prescribed stamina, there needs to be an educational model that fosters a comprehensive human development approach. Because yoga is a physical exercise, it can be practiced in a variety of settings (religious or secular) through a plethora of techniques like meditation, breathing, and focused poses. Yoga helps to center the mind, allowing for greater intuition and creativity which can foster personal understanding of thoughts and behaviors, thereby leading to a self-actualized state of being in our interconnected presence.

Assumptions to the Study

In this mixed methods study, both qualitative and quantitative approaches were utilized to strengthen the validity of the study. Despite this approach, there were still limitations present based on the selected instruments, time, and setting restrictions with interviews.

Given the four-week time frame of the study, it is difficult to generate a comprehensive and thorough assessment of the results of the curriculum on students due to their age-related growth and development. As such, maturation became a limitation of the study. To further this, effects of the prescribed curriculum could be attributed to external factors beyond the yoga program like prior knowledge and experience in yoga or influences in the participants' lives. These external threats could limit the validity of the study. Time also became an additional limitation, as most who practice yoga feel its effects almost immediately; however, the long-term effects on attitude, behavior, and awareness, often take longer than the four-week time frame of this study. Lastly, this particular study did not offer comparison to a control group to examine if the effects of yoga were exclusive to the prescribed yoga program compared to another type of exercise or to another form of yoga practice. As such, this limits the generalizability of this study.

Delimitations, or further restrictions, of this study can be attributed to the convenience sampling of the participants. The participant site was chosen based on a pre-existing relationship with the researcher; therefore, a random sampling of schools was not conducted. This study was further delimited as a result of the program being only offered to virtually to students enrolled in urban communities with low socioeconomic, ethnic, and urban populations. In an effort to maximize participant comfort and focus, the researcher did not delimit the class population to gender specific groups. In addition, and due to budget constraints, the classes were not offered separately to male and female participants, and all classes throughout the four-week program were taught by one, certified instructor.

Definition of Terms

As conceptualized for the purpose of this study, perceived stress is defined as "(a) actual environmental experiences, (b) subjective evaluations of the stressfulness of a situation, and (c) the affective, behavioral, or biological responses to environmental experiences or their subjective situation" (Cohen, Kessler, & Gordon, 1997, p.3). Emotional affect is defined as the emotions that were categorized as either positive (happy, strong, and calm) related to over stimulation or negative (sad, upset, and scared) which were associated with emotional distress (Laurent, Catanzaro, Joiner, Rudolph, Potter, Lambert, & Gathright, 1999).

Summary

Presented in this study, a pilot yoga program is facilitated to evaluate the extent to which yoga programming in school settings can improve adolescent emotion regulation and alleviate perceived stress. The presented yoga program focuses on developing spiritual capital, which can lead to increased emotion regulation and diminished perceived stress. Yoga programs can create an opportunity for schools to increase support of students by teaching them practical skills to

alleviate, integrate, and balance social, academic, and personal pressures. By incorporating meditation into these yoga programs, a unique step towards holistic school programming that focuses on the mind, body, and spirit can lead to stress reduction, emotional regulation, and increased resilience (Sarkissian, 2012). Implementation of a yoga program can also have direct benefits for urban schools with high populations of students who are chronically exposed to challenges in their social and academic lives such as poverty, racism, violence, drugs, and immigration.

In summary, this study seeks to alleviate the need of adolescents chronically exposed to adversity to operate in the "fight or flight" response to stress and create an internal locus of control, thus allowing yoga to become a form of intervention. Specifically, the purpose of this study was to explore the use of yoga to build resilience, as a mindfulness-based intervention, for children who have experienced chronic adversity, particularly for students living in underserved communities (low SES).

Chapter One of this dissertation has identified the problem related to this phenomenon offering context, background, significance and relevance along with identifying preliminary methods and measures. Chapter Two will offer a comprehensive review of the relevant literature related to the general and specific areas of study, as well as the theoretical framework. Chapter Three will detail the prescribed yoga program, as well as the research questions, methodology, and design. The results and data analysis are presented in chapter four and in chapter five, recommendations for improvements to the current study as well as implications for further research are offered. In this same chapter, conclusions on whether the study expanded the area of scholarship are also shared.

Chapter Two: Literature Review

Adolescents experience adverse events on a daily basis as a result of family discord, bullying, academic concerns, or other environmental stressors (Hess et al., 2016). As a result, students often struggle with these stressors through a variety of means. Growing up can be particularly challenging for children who live in low-income families, may be homeless, regularly witness marital or domestic conflicts, are in foster care, have been abused or neglected, lack maternal nurturing, or who have unpredictable lives (Thompson & Haskins, 2014). Stress can increase in children's lives by unpredictability as well as having parents with limited emotional support or that have abandoned them. Young children who have experienced chronic stress similarly have poorer impulse control, have difficulty in focusing their attention, and have limited control of their emotions which is consistent with the effects of stress hormones found in the prefrontal cortex (Thompson & Haskins, 2014).

Purpose Statement

The purpose of this literature review is to provide an exhaustive overview of the yoga and mindfulness literature along with what it can or does for adolescents in school-based settings. This dissertation seeks to address the following questions: **(R1):** Does mindfulness-based yoga improve adolescents' perception of their ability to emotionally self-regulate; and **(R2):** How does mindfulness-based yoga improve adolescents' perception of their ability to self-regulate? To address these research questions, an exhaustive search for relevant literature was completed.

The goal for this study is to examine how emotional regulation can be increased by practicing yoga. Yoga in school settings has many implications to include fostering the development of resilience for children who have experienced chronic adversity. The theoretical

framework applied to this study is founded on the idea of spiritual capitol, which supports the practice of yoga in underserved, minority school settings.

This dissertation attempts to illustrate the effects of implementing a yoga program in low socioeconomic, urban school settings in an effort to provide additional support to adolescents. Teaching the tools required to alleviate chronic stress, regulate their emotions, and increase resilience thus serves as an opportunity for overall well-being to better equip this population with meeting their social and academic demands of life. The primary research questions for this mixed methods study are **(R1):** Does mindfulness-based yoga improve adolescents' perception of their ability to emotionally self-regulate; and **(R2):** How does mindfulness-based yoga improve adolescents' perception of their ability to self-regulate? Based on this mixed-methods research design, we hypothesize that participants' ability to self-regulate emotionally, will increase after exposure to mindful yoga practices.

Theoretical Framework

Spiritual Capital

Spiritual capital is strongly associated with spiritual intelligence, which is strengthen through spirituality. Zohar and Marshall (2004) offer that spirituality is a component of life in an organism. The root word of spirit can be interpreted to mean breath, which is reflected throughout yogic practice where emphasis is placed on breathing and creating union among the mind, body, and spirit (Woodyard, 2011). Spirit is defined as "an intelligence with which we access our deepest meanings, values, purposes, and highest motivations" (Zohar & Marshall, 2004, p. 3). Zohar, through her own lived experiences of being a mother and seeker of knowledge made sense of her defining moments of clarity, which ultimately guide this framework. She notes, "We live much of our lives in a spiritual desert distinguished by superficiality, absence of

commitment, and lack of deep meaning." (Zohar & Marshall, 2004, p. 4). This quote also speaks to how spiritual intelligence is conceptualized here. Without spiritual clarity, there is a limited understanding of life's purpose, which can foster feelings of anguish and hopelessness. Spiritual intelligence guides thinking and decision-making processes, and the things that we think are worthwhile to do. Furthermore, Zohar and Marshall (2004) explain that this intelligence gives people access to the deepest meanings, values, purposes, and highest motivations creating pathways for material wealth.

Spiritual intelligence helps to gain capital, or access to things that enhance the quality of life. As such, spiritual capitol seeks to acquire access to and expand a wealth of intelligence that offers the deepest meanings, values, motivators, and wisdom which sheds insight into greater purpose. This greater purpose, or self-actualization, as evidence by Western psychology, is associated with the practice of yoga, which helps to regulate emotions and foster resilience. Those who sustain the practice of yoga acknowledge outcomes of enhance life perspective, self-awareness and an improved sense of energy to live life fully and with genuine enjoyment (Woodyard, 2011). Zohar and Marshall (2004) assert within this framework that people, especially children and adolescents, are often victimized and left with limited control of their life circumstances. Because of this, youth must be taught methods to reduce these external, oppressive factors and increase internal resources for empowerment.

Yoga helps to build the consciousness of those who feel victimized through both physical and psychological interventions leading to self-actualization (Nahai, 2012). Yoga has historically shown that emotion regulation is strengthened, thoughts and focus are made clearer, and self-expression is enhanced (Gard et al., 2014). When practiced regularly, yoga also strengthens endurance and flexibility and facilitates qualities like friendliness, compassion, and calmness

(Woodyard, 2011). Because of these general benefits, there is great evidence to support how spiritual capital can empower people to seek a more purposeful life, thereby increasing capitol. Spiritual capitol is ignored, historically, in schools (Sarkissian, 2012). Teaching this framework to youth in school settings may be the ideal extension to this idea.

The overarching point of education is to gain mastery of oneself, first, while gaining an understanding of how one is connected to the external world (Saraswati, 2006). This guiding principle of enlightenment and self-actualization is also aligned to the purpose of yoga. With this understanding, Saraswati (2006) therefore defines education as not simply for the development of skills for professional growth but for a way to live and integrate the authentic self with personal development throughout life. By offering lessons based on increasing spiritual capital in schools, children can develop critical consciousness, which, according to Freire (2009), is founded on their interactions in the world as transformers of the world itself.

There is a worldwide need for teaching skills that extend beyond traditional curricula and address social problems, violence, and the lack of respect for one another and the environment (Sarkissian, 2012). To address the need for these skills, there must be a pedagogical shift in how youth are taught to become successful human beings. A yogic approach is one way that can address this social phenomenon. These skills can extend the focus of education to oneself generating the ability to understand others in a more efficient manner. These same skills can assist youth in becoming connected with their inner selves, encouraging a level of transcendent understanding and awareness (Zohar & Marshall, 2004). The following sections examine the culminating effects of perceived stress and emotional regulation on adolescents who have experienced adversity to gain foundational rationale for how yoga in urban, low socioeconomic school settings can serve as an effective intervention.

Review of Literature

Title 1 School Settings

Schools are categorized by a variety of factors related to school grade, student residential information, population of enrolled students, and funding sources. Schools that are situated in low socioeconomic communities are impacted by a variety of factors, which, more often than not, affect children simultaneously. Schools with a majority of their student population living in low socioeconomic neighborhoods are given Title 1 funding to assist with operations, supplemental services and programs, allocating resources, and teacher retention. Specifically defined by the U.S. Department of Education (2018), "Title I of the Elementary and Secondary Education Act provides financial assistance to local educational agencies (LEAs) and schools with high numbers or high percentages of children from low-income families to help ensure that all children meet challenging state academic standards" (p. 1). Many Title 1 schools have limited access to necessary materials coupled with high teacher turnover as a result of burnout. Funds allocated to these schools help to address these issues. Funds are provided to these schools where the number of children from low-income families is at least 10 and at least 5 percent of the LEA's school-age population (US Department of Education, 2018). As noted, part of the eligibility for this funding reflects that the majority of the students who attend the school must currently reside in low-income communities, or poverty. Poverty reflects the socioeconomic status of the family, along with the surrounding community.

Because Title 1 schools are filled with students living in poverty, there is evidence to support the idea that these students are experiencing adversity. While this may not be true of all Title 1 schools and their students, many who live in poverty may be or have experienced gun or domestic violence, food scarcity and/or death. There also may be instances where several of these

adversities occur simultaneously. Based on this explanation, it is evident that students in Title 1 schools need access to opportunities that aid in building and strengthening resilience and emotional affect regulation. Interventions and techniques utilized in these school settings, in particular, should focus on coping and increasing methods for managing current and future adversity.

Youth in low-resource communities are more likely to experience chronic and acute stress that is strongly associated with poverty and violence (Mendelson et al., 2013). Often, children who have experienced adversity express their emotions with aggression, anxiety, fear, may have developmental delays, and/or the inability to form meaningful relationships (Dozier et al., 2006). Other challenges that are intensified among this population include an increasingly fast-paced globalized reality, mass media influences, economic instability, poverty, deterioration of family dynamics, drugs, and violence (Sarkissian, 2012). These challenges, if not attended to, can often become continuous stressful and traumatizing factors for adolescents in urban settings, perpetuating mental, physical, and emotional strain causing psychological and physical damage related to sickness, emotional instability, and lack of coping mechanisms required to live a prosperous life (Lance, 2011; Sarkissian, 2012). Among urban youth, many adverse experiences stem from environmental stressors that extend beyond their immediate control.

Environmental Stress

There are many factors that greatly contribute to stress, particularly among children and adolescents. Environmental factors do not only include the neighborhood and community for youth, but also the culture of these communities. Often disadvantaged communities assert gender roles on youth, offering stern expectations for how adversity and confrontation should be handled (Ilan, 2015). Role socialization of minority, urban youth places them at greater risk for negative

behavior and mental health outcomes, as well as interpersonal aggression, illegal substance use and criminality (Beltran et al., 2016) along with social-emotional difficulties, behavior concerns, and poor academic performance (Mendelson et al., 2010). One of the greatest environmental stressors, however, is poverty.

Based on a National Center for Children in Poverty (NCCP) report (2011), there are close to 15 million children in the United States who live below the federal poverty level of $22,050 per year. While this 21% includes all children in the nation, the income required to cover basic living expenses is double the proposed federal poverty level. Consequently, approximately 42% of the children residing in the United States are living either below the poverty level or in low socioeconomic circumstances (www.nccp.org).

Poverty can substantially limit children's ability to learn and contributes to social, emotional, and behavioral problems and which exacerbates poor physical and mental health (Sarkissian, 2012). The risks for children who experience poverty are greatest in early childhood or if poverty is persistently experienced during this crucial time in development showing correlation that poverty can become detrimental to children's well-being (NCCP, 2011). Those who are living below the poverty line, or within low-socioeconomic status are significantly more at risk of social, physical, academic, and psychological stressors (Evans & Kim, 2007) when compared to their affluent peers. There are a host of other barriers, or stressors, including violence, abuse, and trauma, causing childhood stress, which often leads to lasting effects that inhibit adolescents from becoming thriving, healthy, and productive adults (Sarkissian, 2012).

Stress in Adolescence

Regardless of whether an adolescent lives in a lower socioeconomic home or community, they all are under increased stress in today's society than previous generations (Eggleston, 2015).

A stressor is described as the event that stimulates the stress response through cognitive evaluation of whether the event is a risk to overall wellbeing (Santangelo White, 2012). The authors of the Perceived Stress Scale (Cohen, Kessler, and Gordon, 1997), which is used in this study, articulates stress as the relationship of environmental demands to psychological perceptions, along with the ability to cope with the meaning individuals place on the events in life. Another conceptual definition, offered by leading clinical psychiatrist, scholar, and researcher, Bessel van der Kolk (1994), contends that the effects of ongoing stress and trauma can cause "chronic affect dysregulation, destructive behavior against self and others, learning disabilities, dissociative problems, somatization, and distortions in concepts about self and others" (p. 259). Based on these conceptual definitions of stress, there is evidence to support the need for programs or services that directly target the stressors specific to adolescents.

Adolescent stressors can include homework, peer pressure, bullying, receiving poor grades, standardized testing, parental pressure, and isolation (Santangelo White, 2012). The likelihood of this exposure increases for minority children as they are most affected by poverty, racial discrimination and injustice, limited educational and employment opportunities, child neglect and/or abuse, poor parenting, single parenthood and parental conflict, psychopathology, and biological problems (Mendelson et al., 2010). Based on the estimates of Middlebrooks & Audage (2008):

> Stress is a significant public health problem in the United States. An estimated 8,755,000 juvenile victims live in this country. This high frequency reflects that more than 1 out of 7 children between the ages of 2 and 17 years have experienced maltreatment. This maltreatment includes instances of physical abuse, sexual abuse, psychological or emotional abuse, neglect, and custodial interference or family abduction (p. 4).

According to the U.S. Department of Health & Human Services (2003), there is an estimated 70% of the population that have experienced adversity. From those polled, the most

frequent occurrence of this adversity was reported to have occurred in childhood through sexual assault, physical or sexual assault, natural disasters, domestic violence, and school and work-related violence. Because of these high occurrences and the frequency of life trauma, it has been recognized as a high-priority public health risk (U.S. Department of Health & Human Services, 2003). This health risk creates a pathway of disparity that can trigger neurobiological effects that can alter brain development in children with adverse experiences (Mendelson et al., 2010). These neurobiological effects can also impair youth's stress response system that is associated with cognitive and emotion regulation (Andersen & Teicher, 2009). There is also evidence to show that stress contributes to heart disease, cancer, and stroke as well as other chronic conditions and diseases (Woodyard, 2011).

Adversity, or negative life events, overwhelm an individual's ability to cope and use resources to successfully adapt to that particular stressor. These events typically extend beyond the traditional life experience and therefore cause extreme stress. Prolonged exposure to stress increases emotions causing the experience to be become unmanageable to the point of threatening physical and psychological well-being. Prolonged stress can also become toxic for adolescents as they often lack the resources and skills necessary to manage these circumstances effectively, which creates possible permanent adverse effects on their brain development (U.S. Department of Health & Human Services, 2003). Stress and adversity can be impactful at any stage of life, but it is most detrimental in childhood.

Adolescent stress has profound impacts on the emotional, behavioral, cognitive, social, and physical functioning of children. Developmental experiences determine the organizational and functional status of the mature brain (Cao et al., 2016). Child maltreatment and related adverse experiences equally have long-term, negative impacts on children (Beltran et al., 2016).

Those exposed to sudden, unexpected man-made violence appear to be more vulnerable making the millions of children growing up with domestic violence or community violence at great risk for profound emotional, behavioral, physiological, cognitive, and social problems (Perry et al., 1995). Adolescents who experience adversity may show increased symptomology for symptoms of Post-Traumatic Stress Disorder (PTSD) or related behavior or depressive disorders like anxiety and phobias (Beltran et al., 2016). With this understanding of stress, it is important to note both the psychological and physiological factors that are directly affected by stress.

Psychological impacts of adverse experiences. Stress that is caused by an emotional response to a situation directly impacts the physical health of humans (Sarkissian, 2012). From a traditional lens, youth from disadvantaged communities are reared to internalize their emotional distress as it may be interpreted as weak, which perpetuates the idea that an aggressive identity shields their psychological pain (Beltran et al., 2016). Physical changes in the brain, as a result of harsh environments or trauma exacerbates vulnerability to future psychopathology (Herrman et al., 2011). Depending on the severity, frequency, nature, and pattern of traumatic events, at least half of all children exposed may be expected to develop significant neuropsychiatric symptomatology (Schwarz & Perry, 1994).

Gladstone, Parker, Mitchell, Malhi, Wilhelm, and Austin (2004) note that exposure to stressful events in childhood consistently show lasting effects on the HPA axis, which can increase likelihood of mood and anxiety disorders. Stress in general can lead to anxiety and depression, along with continued sympathetic and HPA axis activation (Michalsen et al., 2005). In a study conducted by Evans and Kim (2007), they found that "elevated cumulative risk exposure during early childhood compromises the ability of the body to handle environmental

demands efficiently" (p. 956) so much so that childhood poverty may be a factor in raising the likelihood of disease, due to heightened levels of HPA.

There is a clear mind body connection among stress and a person, and according to Guilliams and Edwards (2010), the sympathetic nervous system and HPA are triggered when an individual's state of equilibrium is violated by a stressor ultimately triggering the fight or flight response. If adolescents who are exposed to adversity are continuously operating in "fight or flight" as a result of this exposure, the capacity to engage in cognitive, creative, and productive activities is diminished causing the inability to cope with academic pursuits and lead a healthy, productive life (Sarkissian, 2012). Diminished ability to engage in academic pursuit thus limits students' ability to focus and perform in classroom settings.

Physiological impacts of adverse experiences. The U.S. Department of Health and Human Services (2003) has stated:

> Stress is internal or external influences that disrupt an individual's normal state of wellbeing. These influences can affect health by causing emotional distress and leading to a variety of physiological changes.

Children and adolescents who experience persistent poverty or other chronic environmental stressors are at risk for developmental challenges (Mendelson et al., 2010). There are various adaptive mental and physical responses to adverse experiences, including physiological, hyperarousal, and dissociation. Because the developing brain organizes and internalizes new information in a use-dependent manner, the more a child is in a state of hyperarousal or dissociation, the more likely they are to have neuropsychiatric symptoms following adversity. The acute adaptive states, when they persist, can become maladaptive traits (Perry et al., 1995).

Conservative estimates of the number of children in the United States exposed to a traumatic event in 1 year exceed 4 million (Perry, 1994a). These experiences—physical or sexual

abuse, living in the fallout zone of domestic or community violence, surviving a serious car accident—all have an impact on the child's development (Osofsky, 1995; Pynoos et al., 1987; Taylor, Zuckerman, Hank, & Groves, 1992). As humans, we each have our own set of responses and coping mechanisms which either strengthen or weaken our ability to overcome stress.

There is an important consideration presented here for children and schools to create and implement holistic programs as the literature presents implications for physiological health that affect academic achievement (Price, 2008). Yoga's potentially multidimensional affect for human physiology inadvertently exercises the sympathetic and parasympathetic systems of the body (Sarkissian, 2012; Bhajan, 2003) which assists in controlling organs. Discussing the physiological implications of stress in this context serves as illustration for the possibilities of yoga's holistic effect and interconnectedness of various systems of the body. These interconnections include the mental, emotional, and physical, expanding to the nervous and glandular organs of the body (Sarkissian, 2012). These connections also build understanding for why certain childhood stressors and adversities evoke different emotional reactions.

Emotional Affect Regulation

One of the most detrimental consequences of prolonged stress on children and adolescents is their inability to appropriately regulate their emotions (Mendelson et al., 2010; Sarkissian, 2012). As this inability continuously grows among communities of impoverished communities, emotional distress subsequently increases, transforming this into a public health concern (Michalsen et al., 2005). According to the National Research Council and Institute of Medicine (2009), youth need to be trained to regulate their stress responses and subsequent emotional states. Providing regulation interventions can help to modify stress responses and decrease the risk of problematic behaviors for youth in disadvantaged communities (Mendelson et al., 2010).

Researchers have examined the use of the Positive Affect and Negative Affect Schedule – Child Form (PANAS-C), which is also used in this study, to examine emotional affect using a scale that differentiates internalized emotions. As operationalized, the scale is used to measure the differences in affect pre and post intervention and includes negative affective words (e.g., sad, upset, scared) that are often associated with general emotional distress or a depressed state and positive affective words (e.g., happy, strong, calm) that are related to over stimulation (Laurent et al., 1999). As an alternative definition, Sarkissian (2012) posits that emotional regulation is strongly associated with initiation, motivation, and adaptation of behavior, specifically related to preventing stress caused by negative emotions leading to disruptive or harmful behavior. To expand this idea, literature further supports the thought that children with symptoms of anxiety and depression display limited emotional awareness and dysregulation often causing the inability to differentiate between experienced states and appropriate descriptions (Price, 2008; Kim & Cicchetti, 2010).

Kim and Cicchetti (2010) studied emotion regulation in children exposed to prolonged stress and found that participants had diminished ability to interpret, adapt, and regulate their internal and external realm, causing a direct impact on their life experiences. This study examined 215 maltreated and 206 non-maltreated children from low socioeconomic families with maltreatment being defined as sexual abuse, physical abuse, physical neglect, and emotional maltreatment. Results of the study indicated that participants who experienced maltreatment experienced emotional dysregulation. Similarly, Kim and Cicchetti (2010) concluded that healthy emotional regulation is associated with higher peer acceptance, which can lead to lower internalization of emotions.

In addition to the dysregulation of emotions, prolonged stress can cause clinical and psychological disorders over time within children and adolescents. Rumination has been strongly associated to anxiety and depression in children and adolescents (Mendelson et al., 2010). Distressful affect caused by stress can also cause modified states of depression (Kovacs, Joormann, & Gotlib, 2008). Beyond these symptoms, children who endure this continuous exposure to stress seem to exhibit aggression, have diminished conflict resolution skills, are believed to be numb of emotions, and are more susceptible to psychological pathologies (Cicchetti et al., 2010; Cullerton-Sen et al., 2008; Kim & Cicchetti, 2006; Price, 2008).

The behavioral symptoms of children surviving adverse experiences are often misunderstood and viewed as intentional, controlled acts not specifically as symptoms of the event itself (van der Kolk, 2005). Because childhood depression, and emotions in general, can often be misinterpreted, it is important to have programs that offer children ways to identify their emotions while simultaneously alleviating some of their internalized feelings in a more preventative way (Cole, Luby, & Sullivan, 2008). These programs should be facilitated and operated, especially in the school setting, by those who are able to recognize signs and symptoms atypical of childhood development and reflect emotional distress. It is also imperative that teachers communicate with children's families regularly to understand whether the behaviors seen in the classroom may be connected to stress or other adverse experiences (Wright, 2014) to assist in emotion regulation.

Stress and emotion dysregulation are clearly impactful to children and adolescents. To overcome these factors, children must have skills and tools that foster methods of perseverance. While it is not directly measured in this study, resilience is discussed in this context as if offers insight into coping mechanisms specific to this population.

Resilience

While there are clear correlations for childhood stress and limited emotion regulation leading to psychological distress, there are many children who overcome these negative circumstances and become contributing adult members of society. Children need to have tools that are necessary to sustain them through their educational and social pressures in order to make healthy choices while building resilience to follow through with those choices under difficult and potentially stressful circumstances (Sarkissian, 2012). Resilience is a process, not merely a characteristic, and must be built (Brooks, 2006) which can lessen vulnerability to psychological issues (Priyadarsini & Rohini, 2015). When considering how to effectively build resilience, one central question is why some people withstand adverse situations without developing negative mental or physical conditions (Herrman, Stewart, Diaz-Granados, Berger, Jackson & Yuen, 2011).

According to Sarkissian (2012), there are three factors that contribute most to building resilience; the child, the family, and the environment. Regarding the child, personality traits of children and adolescents can serve as factors that impact resilience. Traits that reflect openness, extraversion, internal locus of control, mastery, self-efficacy, self-esteem, cognitive appraisal, and optimism all collectively increase resilience (Herrman et al., 2011, p. 260). Likewise, families and communities are essential to children and thus when partnered can build resilience (Brooks, 2006). Social support is derived from family, friends, and community organizations which equally facilitate growth in resilience. Lastly, resilience is impacted by the environment. Because resilience is impacted by the environment, modifying the environment thus subsequently impacts the level of resilience (Brooks, 2006). Resilience is responsive to external manipulation, therefore there is potential for interventions that focus on such (Priyadarsini & Rohini, 2015).

Access to quality schools, community services, sports and artistic opportunities, cultural factors, spirituality and religion, and lack of exposure to violence (Herrman et al., 2011, p. 260) are environmental factors that assist in resilience building. Just as a positive environment impacts resilience, related adversities like socioeconomic inequalities, minority oppression and racism, and social exclusion can have oppositional effects (Herrman et al., 2011).

Additional factors that play a role in building resilience include the familial network and supportive peers along with cultural beliefs and traditions (Priyadarsini & Rohini, 2015). Deficient parenting, poverty, homelessness, traumatic events, natural disasters, violence, war, and physical illness (Herrman et al., 2011) are all adverse situations beyond the child's control. According to Boisture (2003), resilience building includes "surrounding all of our children with a network of nurturing supportive relationships" (p. 6). This network should include the family, community organizations, schools, religious organizations (Brooks, 2006).

According to the specific areas that contribute to resilience, children who have the care and attention of at least one adult, have an area of personal competence, are socially engaged, have age appropriate responsibility in making decisions, self-esteem, and the ability to self-regulate are more likely to thrive against adversity than their peer counterparts (Sarkissian, 2012). Essentially, resilience is built through interactions of children and their peers, schools, parents, and communities (Brooks, 2006).

When circumstances are beyond the control of the child, interventions and coping strategies may be required to assist with alleviating the pressure of the incident (Sarkissian, 2012). There is a great need for interventions that improve resilience among children and adolescents that have been impacted by maltreatment, interpersonal violence, and other severe adverse experiences (Herrman et al., 2011). Resilience is increased by working through the emotions and

impacts of stress through interventions that develop thinking and self-management skills (Priyadarsini & Rohini, 2015). Comprehensive models of mindfulness, ones that address the mind, heart, and body of children, in a holistic manner can further enhance capacities for resilience (Mendelson, et al., 2013).

Interconnection of Adolescent Stress, Emotional Regulation, and Resilience

Children with low resilience typically have experienced a variety of overwhelming circumstances, may not have been appropriately nurtured, and exhibit self-destructive behavior and affect dysregulation (Sarkissian, 2012). When chronically exposed to adversity, children can spiral into emotion dysregulation limiting overall capability to make healthy decisions. Continuous exposure to adversity with limited support can also result in serious disruptive effects of brain functioning (Shonkoff, Boyce & McEwen, 2009). Resilience helps to moderate severe depressive symptoms in those who are chronically exposed to adverse childhood experiences (Priyadarsini & Rohini, 2015) and there is a plethora of factors that increase this after experiencing adversity. Mastering methods for facing adversity as children is essential in developing resilience later in life (Herrman et al., 2011).

There is a need to teach skills to adolescents that extend beyond traditional curriculums and address social problems, violence, and the lack of respect for one another and the environment (Sarkissian, 2012) which all speak to spiritual capital. To address this need, there must be a pedagogical shift in how youth are educated and groomed to become successful human beings along with methods to assess the effects of reducing stress, regulating emotions, and building resilience. Because stress implicates a variety of disparities, the priority should be to focus on stress management and reduction to shrink the burden of disease and negative emotional states (Woodyard, 2011). A yogic approach is one way that can address this social phenomenon.

These abilities can extend the focus of education, generating the ability to understand others in a more efficient manner. These same skills can assist youth to connect with their inner selves, encouraging a level of transcendent understanding and awareness (Zohar & Marshall, 2004). Given the historical tendency of youth to express their emotions externally as a coping strategy, there is rationale to support a physically based treatment, like yoga, as an intervention for this population (Beltran et al., 2016). Yoga has the potential to empower underserved children chronically exposed to adversity by teaching them tools to become aware of the triggers that cause them emotional anguish and a leading sense of perseverance in the face of future challenges.

Principles of Yoga

Yoga is one of the oldest known systems and historically emerged from the Indian culture about 4,000 years ago (Lidell, 1983; Priyadarsini & Rohini, 2015l Woodyard, 2011). When considered a science, yoga's purpose is to understand the nature of the mind to facilitate awareness, compassion, and enlightenment (Brown & Gerbarg, 2009). In Tibetan, the word yoga, or *nejor*, means "union". The word *nejor* is also translatable to the "original" or "authentic knowledge" (Clifford, 1990). In Western psychology, this authentic knowledge is commonly referred to as one's "true self". Saraswati (2006) defined yoga as, "the art and science of living concerned with the evolution of mind and body" (p. 1). Although yoga is another form of exercise, Saraswati argues that in reality, it is a lifestyle that has been physiologically and scientifically created for over 3,000 years to integrate the mind, body, and spirit to assist in achieving higher levels of intellectual growth and awareness.

The aim of yoga, based on ancient Vedic text is to "cut the seed of sorrow before it sprouts" (Brown & Gerbarg, 2009). Yoga philosophy attributes a great deal of stress to the

fluctuations of the mind, swaying to and from general likes and dislikes, thoughts of the future, worries, or burdens of the past (Michalsen, et al, 2005; Brown & Gerbarg, 2009). Yoga helps to quiet these fluctuations and bring a person to their inner most peacefully conscious state. Many people practice yoga as a physiological release while others practice to connect to the deep, inner realm and psyche through the integration of postures, breathing, and meditation, which helps to quiet the mind and uncover the unseen surface (Lowry, 2011). There has been extensive research on the effectiveness of yoga as an intervention among a variety of populations (Michalsen et al., 2005).

The Yoga Journal (2008) offered results from a survey, which articulated that more than 10 million American adults extending from 18 to 54 years practice yoga, which has become one of the fastest growing forms of exercise. Because of the many described health and wellness benefits of the exercise, yoga has become more accepted in schools and, the call for standardization has subsequently increased as more types of yoga for adults and children are discovered (Lowry, 2011). From this research, a myriad of benefits for those who regularly engage in the practice of yoga have been discovered.

Yoga and Adolescents. The benefits of yoga for both children and adolescents has been researched since the 1970s. There are a plethora of general socio-emotional and health benefits related to the regular practice of yoga. Some of the recorded benefits of yoga include decreased perceived use of negative coping skills and aggressive behaviors, improved balance, improved perceptions of well-being and teaches nonviolent methods of self-coping in stressful situations (Berger & Steinm, 2009). Other examples of the benefits can be found in Linden's 1971 exploration of the effects of meditation and breathing on test anxiety and reading achievement. In this study, a pool of 90 randomly selected third grade students from a low socioeconomic urban

school were chosen with twenty-six students being led through meditation exercises for eighteen weeks. Linden (1973) hypothesized that meditation would help the participants focus, concentrate and change their emotional states, which, when compared to the control group, was found to be effective in alleviating stress and test anxiety. As such, this study offers that meditation and breathing can help children to strengthen their coping skills and effectively alter their emotional states as indicated by the test anxiety responses.

There are no concrete guidelines for best practice or frequency of yoga practice, however like with most exercise, with increased practice comes increased benefit. Yoga is a personalized practice, therefore the frequency and intensity are set to the individual's need (Woodyard, 2011). When used as an intervention, it has been associated with the improvement of symptoms and attainment of coping strategies for children with Attention Deficit/Hyperactivity Disorder (ADHD), depression, adjustment disorders, and irritable bowel syndrome (Berger & Steinm 2009). Brown and Gerbarg (2009) assert that mind-body interventions derived from yoga help to reduce stress-related mental and physical disorders like asthma, high blood pressure, cardiac illness, elevated cholesterol, irritable bowel syndrome, cancer, insomnia, multiple sclerosis and fibromyalgia (Beltran et al., 2016).

Other research has focused on the academic well-being of adolescents and impacts of ADHD. There has been a significant amount of research conducted on children with limited ability to stay on task who have been diagnosed with ADHD. Eggleston (2015) posits that yoga is an effective tool for students struggling with concentration-related issues like ADD/ADHD, stress, low esteem, depression, and anxiety. Peck, Kehle, Bray, and Theodore (2005) examined the effectiveness of yoga on attention problems as well yielding results that indicated that overall, observed behavior improved through time on tasks because of the yogic intervention. While there

has been extensive research on the impact of yoga with other health concerns, there has been minimal research on the preventative effects of yoga in healthy individuals (Berger & Steinm 2009).

Presented thus far has been a variety of literature to support the health and general benefits of practicing yoga. The following section focuses specifically on the measures of this research study, which include resilience as evidenced by level of perceived stress and ability to regulate emotions. Because of yoga's incorporation of meditation and breathing, these techniques will be included in the literature review as well, in an attempt to create a greater understanding of yoga, meditation, and its implications for use among children in school settings.

Yoga and Stress

Stress that is caused by an emotional response to any situation directly influences the physiological health of children over time. For children who are exposed to and experience emotional dysregulation, yoga serves as a powerful intervention to address emotional and behavioral consequences of exposure (Beltran et al., 2016). As such, the mind, body, and spirit connection is an important consideration for schools as they can implement programs that create a holistic approach to education. This is an important consideration given the research that shows how childhood stress has physiological repercussions that can lead to possible disease and impaired academic performance (Sarkissian, 2012Yoga can likewise serve as a tool that can assist in alleviating stressors and offer life-long tools that can be utilized when facing the demands in personal and social environments (Sarkissian, 2012).

Yoga has proven to be an effective intervention for a variety of maladaptive behaviors (Abadi, Madgaonkar & Venkatesan, 2008). Schure, Christopher, and Christopher (2008) conducted a study that examined the benefits of yoga in relation to stress relief, mood

disturbances and its impact on an overall sense of well-being and spiritual connectedness. While this study focused primarily on college students, it is important to note long-term reported effects. Results of the study indicated an increase in body awareness and ability to manage strong and threatening emotions, as well as increased capacity to understand themselves and report changes in their attitudes and perceptions, which was assessed by level of self-confidence (Schure, Christopher & Christopher, 2008). Those who regain balance and keep going despite adversity and misfortune can find meaning amidst confusion. Those with elevated resilience report being self-confident and better understand their own strengths and abilities.

For adolescents living in disadvantaged communities who are faced with chronic stressors and other adverse experiences, yoga can serve as a powerful intervention (Berger & Steinm, 2009). Particularly, yoga has increased effectiveness among adolescents who exhibit symptoms of inattentiveness, anxiety, depression, substance use/abuse, and eating disorders in both treatment and academic environments (Beltran et al., 2016). Rosanova (2004) conducted a study that examined the stress-reducing effects of yoga among elementary-aged students in a Montessori classroom. From this study, researchers observed a calming effect on the student's nerves and enhanced their attention spans. Rosanova (2004) also allowed these students to engage in deep breathing techniques. When the techniques were coupled, children were able to release the tension in their bodies and relax more efficiently, increasing their ability to regulate their emotions.

Yoga and Emotional Regulation

Yoga plays a major role in both prevention and intervention of adolescent emotional and physical well-being (Berger & Steinm 2009). Yoga has also been proven to improve children's well-being, self-esteem, concentration, strength, flexibility, coordination, and motor skills (Berger

& Steinm 2009). Self-esteem is believed to be positively correlated with emotional and behavioral health as well (Berger & Steinm 2009; Abadi, Madgaonkar & Venkatesan, 2008). There are ample research studies that support the use of yoga to alleviate neurological and mental dysfunction that lead to poor overall well-being and quality of life (Sarkissian, 2012).

Abadi, Madgaonkar, and Venkatesan (2008) found in a study that yoga helped children overcome feelings and behaviors strongly associated with ADHD giving them alternative measures of coping with the disorder. Schoeberlin, Koffler, and Jha (2005) conducted a study that occurred over a one-year period that assessed the effectiveness of K-13 settings that used contemplative techniques. As described in the study, these techniques helped to train and refine attention, promote emotional balance and by extension, help students develop the ability to self-regulate. Results of this study indicated that many of the examined schools used similar interventions of mindfulness meditation practices, breath-awareness, body scans, movement, and mindful yoga, which all promote stress reduction, increase relaxation, lessen pain, increase pain tolerance, and improve self-esteem (Schoeberlin, Koffler, & Jha, 2005). Based on the information gained in the study, researchers concluded that school communities can benefit from mindfulness and other contemplative techniques "in an effort to become more responsive and less reactive, more focused and less distracted, calmer and less stress" (Schoeberlin, Koffler, & Jha, 2005, p. 7).

As mentioned in the previous study, a useful extension of yoga practice is breathing techniques. Yoga breathing, referred to as pranayama, is one of the Eight Limbs of Yoga that were included in Patanajali's yoga sutras and rapidly brings the mind to its most present state to reduce stress (Brown & Gerbarg, 2009). These eight limbs encompass ethical principles for living a meaningful life and serve as a guide for moral and ethical conduct and self-discipline

(Woodyard, 2011). Pranayama is comprised of two root words with Prana meaning vital energy and Ayama meaning the extension, thus offering a collective meaning of the extension of vital energy (Priyadarsini & Rohini, 2015; Brown & Gerbarg, 2009). Breathing, mantras, and movement specific to the yoga practice are used to control the mind and body and clear a path to one's realization or enlightment (Brown & Gerbarg, 2009). A study conducted by Naveen, Nagatathna, and Telles (1997) uncovered that uni-nostril breathing facilitates the performance on right and left-brain functioning. Increased brain functioning thus increases the ability to regulate emotions and appropriately respond to stress scenarios.

Breathing helps to normalize stress and emotional regulation, as well as the neuroendocrine system (Priyadarsini & Rohini, 2015). Breathing can also assist with reducing stress, anxiety, insomnia, and attention deficit disorder (Brown et al., 2013) which are all strongly present in children and adolescents exposed to chronic stress. A specific technique, Sudarshan Kriya (SK), which is cyclical breathing, evokes deep insight helping to resolve emotional conflict and create a newfound mental clarity, ultimately helping to reduce stress (Brown & Gerbarg, 2009). As noted previously, creating and having the ability to clear, direct, and prepare the mind for action is crucial to conserving energy and facilitating a balance for one's emotional affect (Brown & Gerbarg, 2009). Yoga that incorporates breath work is considered mindfulness. Mindfulness-based approaches can assist children in developing appropriate coping skills who have experienced chronic stress and reside in disadvantaged communities (Mendelson et al., 2010). Mindfulness is the component of yoga that makes the intervention more effective than other traditional interventions used with this population.

Mindfulness. For the purpose of this piece, the use of Kabat-Zinn's (1990) working definition of mindfulness is used. This definition explains that mindfulness is an activity that

encourages awareness to emerge through paying attention on purpose, nonjudgmentally in the present moment. From a theoretical perspective, and according to Tipitaka, mindfulness with the collaboration of breathing leads to four specific frames of reference: focus of the body, one's feelings, their mind, and their mental capacity (Brown & Gerbarg, 2009). These four frames jointly, speak to the seven factors of awakening (mindfulness, analysis and comprehension of the quality of mindfulness, persistence, rapture, serenity, concentration, and equanimity) which helps to become knowledgeable of oneself and release negative energies through mindful breathing (Brown & Gerbarg, 2009).

Mindfulness enhances awareness of thoughts and feelings, as they are experienced in the present moment (Santangelo White, 2012). Mindfulness has become an increasingly popular modality in the clinical profession. Teaching mindfulness-based skills can aid children in building resilience, and can potentially affect emotion-regulation, and self-esteem (Coholic & Eys, 2016) which is lacking particularly in children who have experienced some kind of trauma. Mindfulness has emerged as a promising intervention particularly in school settings (Coholic & Eys, 2016), as it can be most beneficial for children and youth.

The overarching goal of mindfulness practices is to improve concentration and attention, become aware of one's own consciousness, gain self-knowledge, and improve empathy and compassion (Greenberg & Harris, 2012). Programs that use mindfulness as a foundation can serve to be a buffer to chronic stress response (Mendelson et al., 2013). Teaching children mindfulness can result in a plethora of positive skills and behaviors. Mindfulness has been found to increase emotion regulation and self-esteem, along with reducing mood and anxiety disorders distress and blood pressure (Mendelson, Greenberg, Dariotis, Gould, Rhoades & Leaf, 2010). Being able to emotionally regulate feelings can subsequently lead to improved social skills, which

then affects self-confidence (Coholic & Eys, 2016). Increased awareness of one's feelings and emotions can lead to better coping and resilience in children (Schonert-Reichl & Lawlor, 2010).

Mindfulness has become increasingly beneficial in teaching children who have adverse experiences how to become more resilient, despite having limited literature on the topic (Mendelson et al., 2010). If childhood adversity is not appropriately addressed, it can result in aggression, anxiety, fear, poor social skills (Dozier et al., 2006) or even negatively impact the biological stress response system (Feagans Gould et al., 2012). There are some mindfulness approaches utilized within groups that are effective as well (DeLucia-Waack et al., 2013). Physical activities that include mindfulness also have preliminary evidence that support positive benefits of stress management among adolescents (Mendelson et al., 2010).

Mindfulness-based approaches like yoga and meditation have the potential to regulate the emotions of adolescents continuously exposed to stressors (Mendelson et al., 2010). Yoga has demonstrated many of the same positive effects mindfulness practices have, including stress reduction in clinical conditions of post-traumatic stress disorder, anxiety, and depression (Brown & Gerbarg, 2009). As such, yoga has enhanced the development of resilience, although the research is limited in this regard. The effects of yoga supplement the understanding of self-repair and the use of self-regulatory systems which increase longevity, resilience, and the overall quality of life (Brown & Gerbarg, 2009). Yoga and meditation assist in creating space for increased attention and awareness which has impacts on the ability to respond to stress without adverse psychological outcome (Mendelson et al., 2010), commonly referred to as resilience.

Yoga and Resilience

Yoga and meditation, when used as a response to personal life challenges, has been shown to provide necessary tools of strength and resilience which help to overcome obstacles. Despite

this observation, there is limited research on the use of yoga in dealing with children who have adverse experiences from underserved populations despite the preliminary evidence that supports emotional regulation and coping strategies (Mendelson et al., 2010). To further that, there is also limited research regarding yoga and building resilience altogether. However, yoga, in itself, enhances awareness and the attention to body movement and purposeful breathing (Santangelo White, 2012). Yoga uses poses and alignment to create a more mindful experience among its participants (Mendelson, et al., 2013), resulting in enhanced resilience, communication, problem solving, self-control, and management of impulses (Priyadarsini & Rohini, 2015). Yoga can be practiced in a variety of settings and each type performed targets that ranging from emotional, spiritual, and physical well-being (Sarkissian, 2012). Practicing yoga, particularly in the school setting can promote improved learning and student behavior (Mendelson, et al., 2013).

Yoga programs in schools. Saraswati (2006) contends that although many forms of alternative teaching methodologies have been implemented in the school setting, there has been an abundance of traditional teacher-centered approaches still being used around the world as the dominant method. Berger and Steinm (2009) acknowledges that yoga has begun to become incorporated into some school curricula throughout the United States as an effort to teach children more useful resources for coping. Children spend a significant amount of time at school, over eight hours a day, seven days a week for ten months. Teachers need to be trained on how to include mindfulness-based practices in their classroom, to further develop coping skills and mindfulness among their students. The school setting can be a beneficial place to help advance and mitigate adversity related to emotional, cognitive, and prosocial development through mindfulness skills (Mendelson, et al., 2013). While there is limited research on the integration of

school-based yoga (Eggleston, 2015), there is some foundation evidence to support its effectiveness.

Santangelo White (2012) notes that mindful movement with yoga has, been correlated with positive psychological outcomes in research with adults. Despite this gap in literature, there have been some studies regarding the benefits of yoga for specific concerns like childhood stress and emotional affect. Much of the mindfulness-based research speaks to programs developed for specific purposes with specific populations, often not with children and adolescents. Considering this limitation, there has been few studies that focus on mindfulness-based strategies with underserved, urban youth populations (Mendelson et al., 2010). Mindful movement through yoga also has very limited empirical research.

Lowry (2011) completed a survey of nine youth yoga programs with increasing well-being as the goal. In this study, the programs Be Yoga, Calming Kids, Kids Yoga Circle, Radiant Child Yoga, School District Yoga, Yoga 4 Teens, Yoga Child, Yoga Ed, and Youth Yoga Dharma were included. Despite the differences of each of these programs, Lowry (2011) noted that each of them equally engaged students across multiple dimensions of wellness, cultivated self-awareness, attention, and concentration, taught relaxation skills and addressed spiritual wellness by examining emotional states (p. iv). Outside of these evidence-based programs, there is also literature that asserts that educators have the ability to facilitate yoga in the classroom setting. This is done in part by recognizing behavioral signs of stress, regulation problems, emotional outbursts, and withdrawal (Thompson & Haskins, 2014).

There have been many other yoga programs designed to address emotional regulation among adolescents. Segal, Williams, and Teasdale (2002) developed Mindfulness Based Cognitive Group Psychotherapy (MBCT), which has proven to be effective in maintaining

depression. This program specifically explores mindful movement as a strategy to increase resilience and facilitate coping (Santangelo White, 2012). A second model, the Yoga-based Psychotherapy Group (YBPG) seeks to improve behavioral and emotional functioning in school-aged boys who reside in urban communities (Beltran et al., 2016). YBPG is unique in that it is a trauma-informed yoga therapy, using traditional elements of the practice to promote self-regulation and self-reflection while offering skills to enhance social learning through peer support (Beltran et al., 2016).

The Lineage Project in New York, New York and Youth Horizons in San Francisco, California also both utilize the Mindfulness-based Stress Reduction (MBSR) approach. The Lineage program is housed in schools compared to Youth Horizons which is for incarcerated youth. Despite, this difference, both of these programs target at-risk youth and teach classes that teach yoga, meditation, and are discussion-based where students

> "Learn positive ways of responding to stress other than repression or acting out. Learn how to respond rather than react to difficult events. Find calm and clarity through positive techniques rather than through drugs. Gain clarity of mind so that more conscious choices can be made, while learning to understand the consequences of all actions. Gain a better understanding of the mind and body through awareness-based classes that help youth live healthier lives" (Schoeberlein, Koffler, & Jha, 2005, p. 9).

These programs help youth among this population, specifically, to find compassion, forgiveness, and begin to live life in a more productive way.

It is difficult to discuss programs housed in school settings without mention of those that assist teachers in interacting with students who have experienced chronic adversity in a more compassionate way. A program worth noting is the Mind Body Medical Institute (MBMI) at Harvard University. This program coaches teachers to find improved methods of coping, relaxation, and awareness in an effort to reduce the emotional and behavioral effects of stress among their students. Techniques utilized in this program include "repetition of word, sound,

phrase, prayer" (mantras), "muscular activity" (kriyas or postures) and "passive disregard for everyday thoughts" (meditation) (Schoeberlein, Koffler, & Jha, 2005). Follow-up seminars from participants of this training have indicated that these approaches increase grade point average, increase self-esteem, decrease psychological distress and aggression, and enhance attendance and work habits. The success of this program, and those similar, offer evidence that meditation and yoga can increase academic performance and socio-emotional health among youth populations. Despite these highlighted programs, there is limited research on child and adolescents, as many of the current literature reflects studies completed with adults (Berger & Steinm 2009).

Children's brains have the ability to change and reorganize in response to new experiences; therefore, having healthy and consistent interactions with early childhood educators can greatly influence their brain development and their ability to engage successfully in the early childhood setting (Cole et al., 2013). These interactions start within the school setting and are enhanced through relationships and interactions. Roaten (2011) argued that those who work with children should not treat them like mini adults, and thus need to use alternative strategies that are appropriate for their developmental level (Schottelkorb & Lancaster, 2015; Prilleltensky, Nelson, & Peirson, 2001).

The basis of the educational system is to awaken and cultivate each person's ultimate truth, and the potential for yoga as a supplemental support seeks to encourage the true essence and creative capacity of children to help them flourish (Sarkissian, 2012). Yoga focuses on breathing and the incorporated poses help to strengthen the body, which brings together mindfulness and physical activity offering a specific benefit to adolescents (Mendelson et al., 2010). Adolescents from the inner city who participate in community programs involving yoga have improved self-perception, increased self-worth, and physical appearance (Berger & Steinm 2009) along with a

host of other age-specific responses. Children, particularly those exposed to many stressors and suffer from disorders, need a way to manage all related stress and anxiety, become encouraged to use all their muscles in positive ways, build energy and stamina, and manage their emotional and behavioral challenges (Abadi, Madgaonkar, & Venkatesan, 2008). Examples and rationale provided illustrate how yoga in schools can foster empowerment of adolescents by internalizing locus of control, contributing to positive self-image attitudes, for both females and increasingly male populations who are chronically exposed to mass media depictions that inevitably contribute to adverse self-worth issues (Sarkissian, 2012).

Adolescent Need for Intervention

As the popularity of yoga has increased in the last decade, literature on the subject has become more readily available, offering references and tools for relaxation and coping skills to decrease the stressors in academic and social arenas. As such, if yoga is used as an intervention specific for this population, it is important to discuss the developmental norms and challenges for this age group.

In adolescence, young people are beginning their journey of puberty, developing new cognitive skills and a clearer sense of personal and sexual identity, and developing a degree of emotional, personal, and financial independent from their parents (Christie & Viner, 2005). This independence creates their sense of personal identity, seeking exploration of what they do and do not like and what is or is not pleasing to them. Adolescence also marks a time where these dramatic physical growth and physiological changes guide the individual, cognitive, social, and contextual transitions, subsequently making this time ideal for study of the interactions of varying developmental systems (Smetana, Campione-Barr & Metzger, 2006). Based on this stage of self-

discovery and transition from childhood, it makes sense that developmentally appropriate responses are strengthened by targeted interventions.

Adolescents who engage in yoga have reported fewer negative behaviors like screaming and yelling, hitting others or throwing items when upset (Berger & Steinm 2009). The practice of yoga offers a unique tool for adolescents to dim the noise of their external stressors while strengthening their internal resources, which offers an effective method of empowerment and self-actualization in the face of conflicting external forces (Sarkissian, 2012). When children and adolescents feel positively about themselves, their environment and interpersonal relationships are subsequently enhanced. Building groups also helps to create a sense of community. Yoga thus is considered group therapy because of this sense of community being created.

Therapeutic groups. Group therapy, along with other factors as mentioned, help to increase the support for those who fit this population. For children and youth, this support system is ever more critical. Groups with children and adolescents are unique and the structure and group leaders must consider the developmental needs in the structure (DeLucia et al., 2013). Given the developmental needs of this population, incorporating these factors into treatment are essential. According to Swan, Schottelkorb & Lancaster (2015), incorporation of appropriate modalities led adolescent clients to explore themselves and others. Along with group structure, it becomes imperative to operate from a trauma-informed lens with children from disadvantaged populations. Trauma-informed treatment measures operate with an understanding of neurobiological, psychological, and behavioral symptoms that may be symptoms of experiencing adverse childhood events (Beltran et al., 2016).

Group psychotherapy has presented itself as a method to assist those who have chronic and/or acute psychological distress (DeLucia-Waack et al., 2013) which is particularly the case

for those who have experienced chronic adversity. Therapeutic groups are most beneficial as they help to normalize shared experiences (Coholic & Eys, 2016; Adams, Dominelli & Payne, 2009). By providing clinical group settings and allowing children to express themselves creatively, it is the hope that the children are positively impacted. Goodman (2005) acknowledges that children and youth tend to find challenges with effective communication without the inclusion of creative activities. The group format of performing mindfulness practices is the most beneficial because children with limited social and coping skills can engage with peer interaction(s) (Coholic & Eys, 2016). Group settings also facilitate interpersonal skills, encourage teamwork for a shared goal, and ameliorate feelings of isolation.

When considering the group format, the developmental needs of each participant are also imperative. Developmental characteristics of this population include limited attention span, low cognitive abilities and verbal skills, and developmental tasks in general (DeLucia-Waack et al., 2013). Other differences can include self-esteem, gender, perceived control, or available resources, which equally affect stressors and coping abilities (Santangelo White, 2012). This should all be considered when structuring group therapy with this particular population.

Conclusion

Yoga's effects need to be continuously researched to gain additional knowledge about personal, social, and academic concerns and bring yoga into the forefront of alternative methods for addressing issues that students and educators face daily (Sarkissian, 2012). This is especially the case for children from disadvantaged communities, where media influences, environmental factors, socio-economic factors, and cultural factors contribute to already stressful adolescent experiences. When incorporated into schools, these practices can promote health and wellbeing (Mendelson, et al., 2013). Educators should look beyond curricular teaching practices and

enhance traditional practices by using approaches like yoga which could supplement educational pedagogy with holistic programming that seeks to integrate the mind, body, and build spiritual capital (Arweck, Nesbitt, & Jackson, 2005; Saraswati, 2006).

The effectiveness of mindfulness-based practices with children has had little empirical exploration (Santangelo White, 2012) despite the discussed foundational studies. There is great potential for the use of mindfulness-based interventions to improve the function of self-regulation, stress, mood, and social-emotional development among adolescents who have adverse experiences (Mendelson et al., 2010). There is also increased potential for use of yoga to facilitate outcomes that increase overall well-being of youth in the school setting. Discovering and incorporating methods that address holistic child development in the educational setting is required, particularly in a way that surpasses current andragogy that maintains the purpose of only teaching cognitive curricular skills. When used as a technology, yoga has the potential to have profound impacts on adolescent development by supporting physical, emotional, and mental regulation and by enhancing spiritual capital (Sarkissian, 2012). Yoga can be directly applicable to life experiences, which can teach adolescents the power of overcoming challenges, adversity, behaviors, and limitations all related to adversity continuing to build spiritual capitol.

The presented research studies and literature offer evidence of yoga's positive effects on resiliency as evidence by reducing stress and increasing emotion regulation. Likewise, when used as an intervention, adolescent learning, creativity, empowerment, esteem, and self-actualization all increased among this population. There may be particular benefits for youth who live in urban, underserved populations as they typically have experienced social challenges related to poverty, violence, drugs, racism, and immigration. By infusing yoga practice into the school setting, students can be taught tools necessary to navigate the complexities of adolescent

development. Therefore, this study is significant in that it offers rationale for the opportunity to learn a technique that can integrated into the school day to reduce the physiological and psychological effects associated with school stress, furthermore empowering students.

Chapter Three: Methodology

This chapter explores the use of yoga to build resilience as a mindfulness-based intervention for adolescents who have experienced chronic adversity, particularly for students living in underserved communities (low SES). A mixed-methods study is presented using the Perceived Stress Scale (PSS) and the Positive Affect and Negative Affect Schedule (PANAS-C) as a pre-post methodology. In addition, semi-structured interviews and application of the spiritual capital theory is used to examine the effectiveness of yoga as an intervention for increased emotion regulation for underserved, minority school settings. Adolescents (n = 12) from low-income, urban high schools, participated in a four-week pilot yoga intervention that targeted increasing resilience as evidence by perceived stress and emotion regulation. The methods and procedures of this study are explained along with ethical considerations and limitations.

The purpose of this study was to explore the use of yoga to build resilience among adolescents who have experienced chronic adversity, particularly those who reside in underserved communities (low SES). Stress implicates a variety of disparities and as such, there is priority to focus on stress management and reduction to shrink the burden of disease and negative emotional states (Woodyard, 2011). A yogic approach is one way that can address this phenomenon. Through yoga, individuals can gain insight by integrating all facets of the mind, body, and spirit, which has been historically ignored in educational settings (Miller, 2009; Richards, 2009). Thus, the initial motivation for this study was to introduce the calming effects of yoga to adolescents within a specific population, who may have experienced chronic adversity. The skills presented in this pilot study can extend the focus of education, generating the ability to understand others in a more efficient way. These same skills can assist youth to connect with their inner selves, encouraging a level of unequalled understanding and awareness (Zohar & Marshall, 2004).

Currently, these skills are not directly taught in traditional school settings, leaving students, particularly those who have experienced chronic adversity, to build these strategies independently. For this reason, this study helps to teach students who have experienced chronic adversity methods for decreasing perceived stress and increasing their ability to self-regulate.

The need to teach skills that extend beyond traditional curricula and address social problems, violence, and the lack of respect for one another and the environment (Sarkissian, 2012) are all components of spiritual capital. The current study examines the use of yoga along with relevant implications for integration of mindful yoga into educational systems to improve emotional regulation skills, particularly for students living in underserved communities (low SES). This study serves a two-fold mission by first attempting to examine the effectiveness of yoga as a positive intervention to reduce problematic behaviors in the classroom. The second mission is to examine the effectiveness of yoga on adolescent resilience as evidence by perceived stress and emotional affect regulation. These missions have guided the rationale of the research questions of this study.

Research Questions

The presented yoga program focuses on developing spiritual capital, which can lead to increased well-being and an ability to tolerate distressful emotions. Spiritual capital is, at its core, the wealth, and power that people gain by acting from a deep sense of meaning, values, and a sense of higher purpose (Zohar, 2010). When a person builds the skills required to access deeper meaning of their life experiences, spiritual capital is strengthened thereby enhancing quality of life. For children and adolescents who have experienced chronic adversity, they may question their existence and become hopeless in their circumstances. Spiritual capital reflects using tools that directly focus on finding purpose after adverse experiences which is shared among the target

population. Those whom participate in the program have the opportunity to develop the skills required to increase factors related to finding purpose from their experiences. These skills can subsequently assist in strengthening their life perspective, self-awareness and improved their sense of energy to live life fully and with genuine enjoyment (Woodyard, 2011).

The primary research questions being evaluated in this mixed methods study are: **(R1):** Does mindfulness-based yoga improve adolescents' perception of their ability to emotionally self-regulate; and **(R2):** How does mindfulness-based yoga improve adolescents' perception of their ability to self-regulate? As conceptualized for the purpose of this study, perceived stress is defined as "(a) actual environmental experiences, (b) subjective evaluations of the stressfulness of a situation, and (c) the affective, behavioral, or biological responses to environmental experiences or their subjective situation" (Cohen, Kessler, & Gordon, 1997, p.3). Emotional affect is defined as the emotions that were categorized as either positive (happy, strong, and calm) related to over stimulation or negative (sad, upset, and scared) which were associated with emotional distress (Laurent, Catanzaro, Joiner, Rudolph, Potter, Lambert, & Gathright, 1999). A pilot yoga program will be facilitated to evaluate the extent to which yoga programming can improve adolescent emotion regulation. The presented pilot yoga program focused on developing spiritual capital, which can lead to increased emotion regulation and diminished perceived stress among the prescribed population.

Benefits of Yoga

Yoga was chosen for the purpose of this study because of its inclusiveness of physical practices, breathing exercises, and meditation within each yoga session. Yoga integrates physical exercise with breath regulation and relaxation to aim to quiet the overactive mind, regulate emotions, and promote prosocial behaviors (Rashedi, Wajanakunakorn, & Hu, 2019). Based on

these benefits, during each session, participants were guided through kriyas and asanas (physical postures), pranayama (breath work), and meditation. The meditation segment was imperative as it helps to increase the ability to quiet the mind and learn how to navigate mental processes that lead to greater awareness. The body was first prepared by releasing tension, stress, and acknowledging held trauma, causing the body to repair, further allowing the mind to listen more intuitively.

In addition to meditation, the physical practice of yoga included movement through asanas or postures in a set sequence. In yoga, the set or kriya, is chosen by the instructor. Each kriya is an arrangement of traditional yoga poses that are designed and combined for a specific purpose. Given the variety of kriyas, it was imperative that the instructor outlined specific targets for participants' growth throughout the program. The kriyas selected directly targeted emotion regulation, mind calming, and attention. Based on the chosen kriyas, an eight-session pilot program was formulated for a virtual-based setting, given the limited physical constraints as a response to the COVID-19 pandemic. The yoga presented was developmentally appropriate for children. As such, the eight-session pilot yoga program that was created for this study was as follows in Table 1.

Table 1

Pilot Yoga Program Curriculum

Session	*Practice*	*Breakdown*	*Approx. Time*
1	1) Asana - "Postures of Yoga" 2) Pranayama- "Breath Practice" 3) Meditation - mindfulness and focus	1) a. Sun Salutations (A & B) b. Standing Posture c. Seated Postures 2) a. Savasana b. Basic Breath Awareness 3) a. Breath focus lead meditation b. questions	1) a. 5 minutes b. 10 minutes c. 10 minutes 2) a. 3 minutes, b. 5 minutes 3) a. 10 minutes b. 2-5 minutes
2	1) Asana - "Postures of Yoga" 2) Pranayama- "Breath Practice" 3) Meditation - mindfulness and focus	1) a. Sun Salutations (A & B) b. Standing Posture c. Seated Postures 2) a. Savasana b. Ujjayii Pranayama 3) a. Breath focus lead meditation b. questions	1) a. 5 minutes b. 10 minutes c. 10 minutes 2) a. 3 minutes, b. 5 minutes 3) a. 10 minutes b. 2-5 minutes
3	1) Asana - "Postures of Yoga" 2) Pranayama- "Breath Practice" 3) Meditation - mindfulness and focus	1) a. Sun Salutations (A & B) b. Standing Posture c. Seated Postures 2) a. Savasana b. Ujjayii Pranayama 3) a. Breath focus lead meditation b. questions	1) a. 5 minutes b. 10 minutes c. 10 minutes 2) a. 3 minutes, b. 5 minutes 3) a. 10 minutes b. 2-5 minutes
4	1) Asana - "Postures of Yoga" 2) Pranayama- "Breath Practice" 3) Meditation - mindfulness and focus	1) a. Sun Salutations (A & B) b. Standing Posture c. Seated Postures 2) a. Savasana b. Nadi Shodhana Pranayama 3) a. Breath focus lead meditation b. questions	1) a. 5 minutes b. 10 minutes c. 10 minutes 2) a. 3 minutes, b. 5 minutes 3) a. 10 minutes b. 2-5 minutes
5	1) Asana - "Postures of Yoga" 2) Pranayama- "Breath Practice" 3) Meditation - mindfulness and focus	1) a. Sun Salutations (A & B) b. Standing Posture c. Seated Postures 2) a. Savasana b. Nadi Shodhana Pranayama 3) a. Breath focus lead meditation b. questions	1) a. 5 minutes b. 10 minutes c. 10 minutes 2) a. 3 minutes, b. 5 minutes 3) a. 10 minutes b. 2-5 minutes
6	1) Asana - "Postures of Yoga" 2) Pranayama- "Breath Practice" 3) Meditation - mindfulness and focus	1) a. Sun Salutations (A & B) b. Standing Posture c. Seated Postures 2) a. Savasana b. Kumbhaka Pranayama 3) a. Breath focus lead meditation b. questions	1) a. 5 minutes b. 10 minutes c. 10 minutes 2) a. 3 minutes, b. 5 minutes 3) a. 10 minutes b. 2-5 minutes
7	1) Asana - "Postures of Yoga" 2) Pranayama- "Breath Practice" 3) Meditation - mindfulness and focus	1) a. Sun Salutations (A & B) b. Standing Posture c. Seated Postures 2) a. Savasana b. Kumbhaka Pranayama 3) a. Breath focus lead meditation b. questions	1) a. 5 minutes b. 10 minutes c. 10 minutes 2) a. 3 minutes, b. 5 minutes 3) a. 10 minutes b. 2-5 minutes

8	1) Asana - "Postures of Yoga" 2) Pranayama- "Breath Practice" 3) Meditation - mindfulness and focus	1) a. Sun Salutations (A & B) b. Standing Posture c. Seated Postures 2) a. Ujjayii Pranayama b. Nadi Shodhana Pranayama c. Kumbhaka Pranayama 3) a. Breath focus lead meditation b. questions	1) a. 5 minutes b. 10 minutes c. 10 minutes 2) a. 3 minutes, b. 3 minutes, c. 3 minutes 3) a. 10 minutes b. 2-5 minutes

The curriculum was custom created for this study to offer consistency and external validity by standardizing the program for the participants. There was one certified instructor who followed this curriculum for the duration of the program. Despite this constraint, the instructor had discretion and authority to make changes to timing and related activities based on group and technological needs.

Research Design

The 8-session pilot yoga program designed for this study was administered through a virtual platform, Zoom, and examined the effects of mindful yoga on adolescent perceived stress and emotional affect. This mixed-method approach utilized quantitative data from two selected measures that assessed perceived stress and the ability to regulate emotions before and after the intervention was employed. The qualitative component of this study articulated perceptions of the program from both students, their parents and the yoga instructor. All procedures adhered to the National Louis University Institutional Review Board protocol (IRB #ER00769).

Yoga instructor. The certified yoga teacher taught the classes for this study strictly through the virtual platform. The teacher was specifically certified through Sacred Space Yoga acquiring the 200-hour yoga certification. Although the yoga teacher was not specifically certified in working with adolescents, she is a certified instructor with more than seven years of teaching experience in schools and private studios. The yoga instructor was a certified yoga teacher, carrying the RYT200 credential. The instructor was selected from a local yoga studio, after

having responded to a listing via email. The instructor indicated experience working with children/adolescents. To ensure that described protocol was met, the selected yoga instructor agreed to sign a contract (see Appendix D) indicating the role of instructor and liability parameters.

Format of yoga lessons. Because of the variety of kriyas, to facilitate the process of measuring perceived stress and emotional affect, the series focused specifically on a different set of poses during each session. To simplify the effects and rationale for choosing the exercises, the pranayama (breathing exercise) used was the Ujjayii Pranayama. This breathing exercise is done by sitting in easy pose (legs crossed) on the floor mat with hands comfortably placed on the knees, hands in Gyan mudra (thumb and index finger touching) while inhaling deeply through the rolled tongue and exhaling through the nose. This pranayama is said to have a cooling, regulating, and detoxifying effect on the entire system while creating strength and vitality (Bhajan, 2003; Iyengar, 1979; Khalsa, 2006; Kaur, 2006).

Following the pranayama, students were directed through Sun Salutations, a kriya that can serve as an effective overall warm up exercise. The effectiveness of this kriya as a warmup is that in a few repetitions, the whole body is warmed and prepared for more in depth yoga practice. Surya Namaskara or Sun Salutations are a series of eleven postures conducted while moving fluidly from one posture, or asana, to the next and with each transition, breathing a steady inhale or exhale, the eyes at a certain angle, and the hands engaged in specific mudra (hand posture). This way, a variety of yogic elements are at work.

It begins in Samasthiti (standing straight), moving to arms stretching up, then Uttanasana (bending forward), continuing with straightening the back while keeping fingertips or palms of the hands on the floor, moving into a Chaturanga Dandasana (push up) position. Then, by bending

lower, back up while the lower body and legs remain touching the matt to Bhujangasana (cobra), then up to Adho Mukha Svanasana (triangle), finishing off with the three postures at the start in reverse, Uttanasana (forward bend), arms reaching and stretching up, and ending with standing position. This all occurs while the breath is synchronized to the flow of the postures. Given this verbal illustration, it is apparent that multiple muscle groups are engaged during this warmup sequence. Bhajan (2003) notes that this series is valuable as an exercise on its own since, "It increases cardiac activity and circulation, stretches and bends the spine, massages the inner organs, aids the digestive system, exercises the lungs, and oxygenates the blood" (p. 336).

Following the warmup, the next kriya that was introduced to the students was the Awakening Your Ten Bodies. This set consists of fifteen asanas (postures). As with all yoga exercises, it incorporates breathing throughout the kriya ending with Savasana (deep relaxation), a vital component of the yoga series. Deep relaxation is the time to allow the mind, body, and spirit to integrate the effects of the release of the tension created through the series. The rationale to begin the four-week, eight session pilot program with this kriya was to "awaken" the students to all the aspects of themselves, creating an immediate mind, body, spirit connection that would in establish a strong foundation for the rest of the program.

A unique aspect to this specific kriya is that after the postures, a meditation called Laya Yoga Meditation is incorporated to complete the integration of the aspects of the self. This meditation involves sitting on the mat in easy pose, arms extended comfortably resting on the knees, hands in Gyan mudra (thumb and index finger touching) while utilizing a chant that stimulates the energy in a spiral from the base of the spine up to the top of the head (Bhajan, 2003; Kaur, 2006; Khalsa, 1997).

Finally, the last part of the yoga class before the conclusion is the meditation. Throughout the program, Kirtan Kriya was utilized for the meditation component of the class. This meditation is believed to bring "mental balance to the individual psyche" (Bhajan, 2003, p. 425). Sitting in easy pose, eyes closed, focused inward, on the middle of the brow, with a straight spine, while wrists are resting comfortably on the knees, each finger is gently pressed against the thumb while chanting Sa Ta Na Ma. So that, Sa=Gyan mudra (index touching the thumb); Ta=Shuni mudra (middle finger touching the thumb); Na=Surya mudra (ring finger touching the thumb); and Ma=Buddhi mudra (pinky touching the thumb) are in rhythm with the chanting. The mantra or chant, along with the mudras, is said to create a powerful circuitry that represents the cycle of each component of our self from a finite cellular to a greater infinite cosmic level. According to Bhajan (2003), each mudra represents the totality and cycle of life. The purpose of using this particular meditation was to integrate and connect all aspects of the self in the most finite and infinite manner. In this way, everything from the largest glands and organs to the most subtle energetic aspects of the self could be integrated into one, a union that is yoga.

All yoga classes begin with the teacher chanting the "Adi" mantra to bring everyone together and to signal the beginning of the class. For the purposes of this pilot program within the study with adolescents, a theme was introduced at the beginning of each class to allow time for brief sharing of concepts related to attitude, understanding, and mindfulness. The beginning of class was also time for students to ask or address any questions or concerns that had arisen. The formula, and eventual curriculum, for the class structure, that was fixed, included the tune-in, postures and movement (kriyas), deep relaxation, breathing practice (pranayama), and meditation. The sequence differed slightly from class to class based on participant need and technological feasibility, but the components are stable and typically flow as follows:

Beginning class. The class began with a mantra. Chanting creates a sound current which serves as a form of energy that influences the mind and the physical body (Bhajan, 2003). In yoga, mantras are generally used during the meditation component of the class.

Breathing or pranayam. Control of Prana = life force and Ayam = expansion. In yoga philosophy, it is understood that the breath is life force. The practice of pranayama is the expansion of the life force within the practitioner. Therefore, breathing exercises were an integral component of the pilot yoga program (Bhajan, 2003). For example, Ujjayii Pranayama is a cooling breath. When practiced, the physical body is cooled and balanced. This breath-work required the practitioner to inhale through an open mouth with tongue rolled, and exhale through the nose (Khalsa, 2006). These motions were verbally and physically explained during the session.

Physical postures or kriya. Kriya = action. A kriya is a set of or sequence of postures, breath, and sound that are integrated to produce a specific state (Bhajan, 2003). For example, Sun Salutation is a sequence of postures and breathing performed by the practitioner. The whole of the sequence is called a kriya.

As noted earlier, in the first three weeks of the yoga classes, participants started the class with a cooling pranayam. Participants were instructed to log into the Zoom platform at the designated time for participation and asked to locate themselves in a spacious, and well-lit area. They sat on the floor and focused their cameras to show them with legs crossed or standing, a posture commonly known as easy pose, and inhaled through their rolled tongue, and exhaled through their nose for about three minutes, sometimes longer, depending on the class and the instructor's discretion. Then, Sun Salutations were conducted to warm up the body. These included a series of postures that started with the practitioner standing, then bending down from

the waist, then down to a push up position, flow to a cobra (head and shoulders up while the rest of the body horizontally resting on the mat), then to triangle or downward dog pose (hands and feet on mat creating a triangle) and then to standing again. This is repeated several times. After this sequence, another kriya is practiced. The kriyas took the majority of the class time.

Meditation. The class finished with a two to five-minute meditation. Meditations generally utilize a mudra, or hand and finger placement, with specific eye focus, sitting in a specific pose and consciously breathing or chanting. This provides closure for the group experience for the session and signals to the participants that class is over for the day.

Procedures

Authorizations from the parents and students were obtained to implement and evaluate the yoga program for four weeks with two sessions per week beginning June 2020 through July 2020 using the Zoom platform. Because of the nature of the study, there was one yoga session at a designated time and day where participants could log in for participation. The four-week program occurred two days per week. Male and female participants had co-ed classes to resemble the traditional classroom setting and allowing for comfort, openness, and concentration.

Recruitment. A convenience sample was utilized, allowing for pre-existing relationships to be the source for recruiting for the yoga program and study. An email blast to county School Counselors, parents, and personnel who work with adolescents were asked to distribute the flyer (see Appendix A). The recruitment of participants was based on the interest of the participant and accessibility of technology and a reliable internet connection. Recruitment for participants was also incentivized through an Amazon gift card. To obtain the gift card, participants had to complete all required sessions and pre-post assessments. After seeing the flyer, participants or parents reached out to the principal investigator sharing their interest in the study. Information

related to the class format, consent and assent forms were shared via email with participants and their parents. Once received, participants names were replaced with a numeric code and included on the roster for the pilot program. The principal investigator made the arrangements for the class participants, location, and schedule. Since only one class time was arranged, there was no separation of genders, ethnicity, or age. The class was open to both male and females in grades nine through twelve. The primary investigator explained assent and articulated that students had the choice to participate or not in the study. Only students who had parental consents and assents participated in the study (See Appendix B and C).

Participant consent. Students interested in the study who had access to a reliable computer and internet were given consent and assent forms. Forms were distributed via Google Forms and completed and captured electronically by participants. If further clarification was needed, the principal investigator offered a verbal explanation of the study via telephone to interested participants. Students were given a deadline to complete the electronically signed forms if they intended to provide consent for participation in the study. The consent and assent forms were subsequently logged by the principal investigator. As students return forms consenting participation, participant names were redacted and replaced with a numeric code.

Population and Sample Selection

Students. The total number of participants included 20 students (male = 3; female = 17). However only 12 (60%) completed both the pre and post surveys (N = 12) with 91.7% female and 8.3% male. The student participants were from a variety of settings, many within low socioeconomic neighborhoods in urban areas and 66.7% of them were eligible for free or reduced-lunch programs while the remaining 33.3% did not.

Intervention setting. The designated intervention setting was Zoom, a virtual platform used for online meetings. This platform allowed participants to be recorded and was most convenient given the restrictions of physical proximity.

Intervention demographics. The sample consisted of both male and female students conveniently recruited and selected that were in grades nine through twelve. The percentage demographics of the grades for actual study participants is as follows: Grade 9 = 41.7%; Grade 10= 8.3%; Grade 11= 25%; Grade 12= 25%. 0% of the class were Caucasian, 0% of the class were Latino, 8.3% of the class were Native American and 91.7% were African American. Ages of participants were varied and were as follows: 14= 25%; 15= 16.7%, 16= 8.3%, 17= 33.3%, and 18= 16.7%.

Data Collection

Baseline demographic data that included grade, gender, ethnicity, home language, age, and socioeconomic status (evidenced by free lunch status) were collected for each of the research participants. Along with this, the two measure questionnaires, the Perceived Stress Scale (PSS) and the Positive Affect and Negative Affect Schedule-Child (PANAS-C) (see Appendices E and F) were distributed electronically to all the participants prior to the first and last day of the yoga program. During the first class, the purpose of the study was explained to the participants. During the last class, participants were reminded of the purpose of the study and the directions for the questionnaires were restated and administered in the same manner. The principal investigator promptly addressed any questions about items on the surveys after the class had concluded. Depending on the reading level of participants, the amount of time completing the surveys lasted from 15 to 25 minutes as logged by the Google Forms platform.

Semi-structured interviews with the yoga teacher, five randomly selected students and their parent/guardian were conducted after the last day of the class. Students were asked to volunteer to be interviewed and were then randomly selected from the group of volunteers to speak with the research coordinator about their yoga class experience separately. Those who volunteered and were willing to participate in interviews were asterisked on the participant list/roll. Using the student code names, numbers was entered into an online number generator and five were selected. All interviews were conducted via Zoom and were recorded for later transcription. Each interview lasted no more than twenty minutes in duration.

Instrumentation. Surveys in the form of questionnaires and inventories were employed to measure the participants' perceived stress and emotional regulation, before the start of the yoga program and after. Semi-structured interviews were conducted to gain an understanding of the students' and parents' overall impression of the yoga program along with a sense of how they have learned to self-regulate emotions. The purpose for using these measures was to determine whether yoga could be a possible method for decreasing stress, regulating emotion, and increasing a sense of internal locus of control through the building of resilience. The following two scales, The Perceived Stress Scale and the Positive Affect and Negative Affect Schedule – Child Form (PANAS-C) (See Appendices E and F) were utilized to measure the effect of the yoga program on these dependent variables. These scales were chosen based on the appropriateness of answering the research questions as it relates to measuring emotional affect and perceived stress in children before and after a prescribed intervention. The research questions focused on the effectiveness of the yoga intervention; therefore, it was imperative to select instruments that had robust validity and allowed for the measurement of dependent variables both before and after the pilot program.

***Perceived stress*.** One of the instruments used was the Perceived Stress Scale (PSS), created by Cohen, Kessler & Gordon, 1997 (PSS). Stress is defined by the authors of the scale as:

> "Three broad traditions of assessing the role of stress in disease risk can be distinguished. The environmental tradition focuses on assessment of environmental events or experiences that are normatively (objectively) associated with substantial adaptive demands. The psychological tradition focuses on individuals' subjective evaluations of their abilities to cope with the demands posed by specific events or experiences. Finally, the biological tradition focuses on activation of specific physiological systems that have been repeatedly shown to be modulated by both psychologically and physically demanding conditions" (Cohen, Kessler, & Gordon, 1997, pp. 3-4).

The PSS, with a Cronbach's alpha of .68, is a 10-item questionnaire with a 5-point Likert scale of 0 (Never) to 4 (Very Often). This is a global measure of stress and has been viewed as a valid and reliable measure of stress in a national probability sample (Cohen and Williamson, 1988). The higher the score, the more the individual perceives themselves as being under psychological distress. The scale is administered to individuals through a written survey and all data is self-reported.

Sample questions for perceived stress include, (a) In the last month, how often have you felt nervous and "stressed"? (b) In the last month, how often have you felt that things were going your way? (c) In the last month, how often have you been able to control irritations in your life? The maximum score is 40 (most stressed) and the lowest score is 0 (no perceived stress). There are five responses for each question: 4=very often, 3=fairly often, 2=sometimes, 1=almost never, and 0= never (Cohen et al. 1983, Cohen et al. 1988). Perceived stress was measured using a point perceived stress scale that has been adopted from previous published scales measuring pain and those that measure effort.

The authors contend that stress is a perception of how an individual is able to cope with a given experience in relation to his or her environment. They note that,

> "When confronting environmental demands, people evaluate whether sufficient adaptive capacities are available to cope with them. If they find the environment demands taxing, perceive themselves as under stress" (Cohen, Kessler, and Gordon, 1997, p. 10).

Emotional affect. The second measure used in the study was the Positive Affect and Negative Affect Schedule – Child Form (PANAS-C) created by Hughes and Kendall (2009) as an extension of the creators of the PANAS-X developed by Drs. Watson and Clark of Notre Dame. The PANAS-C, with a Cronbach's alpha of .83 for Positive Affect and .90 for Negative Affect, is a 30-item inventory of 15 positive (e.g., excited, cheerful, proud, calm) and 15 negative effects (e.g., afraid, nervous, sad, upset). These affects were measured on a 5-point Likert scale of 1 (Very slightly or not at all) to 5 (Extremely). The 30-item PANAS-C, this derivative of Watson and Clark's original PANAS and PANAS-X, was developed using 707 students in grades four through eight in a self-reported inventory to measure internalized emotions (Laurent, Catanzaro, Joiner, Rudolph, Potter, Lambert, & Gathright, 1999). The PANAS-C was developed to attempt to differentiate the affective expressions of anxiety and depression in children. Based on a tripartite model, the measure suggests that high levels of negative affect are present in those with anxiety and depression, but high levels of positive affect are not shared between the two (Hughes & Kendall, 2009). Previous mood scales for children have been shown to reliably capture the former relationship but not the latter, and so the PANAS-C was created as a tool with better discriminant validity for child assessment.

The PANAS-C subscales have demonstrated adequate internal consistency, moderate convergent and discriminant validity (Hughes & Kendall, 2009). PANAS-C scores have shown high internal consistency (PA = .86-.90, NA = .84-.87) and the two scales have shown a small correlation, ranging from .12 to .23 (Sánchez-García et al., 2018 among emotional and behavioral difficulties in adolescence and the relationship with emotional well-being, affect, and academic

performance. Similar to the development of the original PANAS, the PANAS-C stemmed from terms of the PANAS-X and eliminated several terms with insufficient correlations between the term and the affective construct after preliminary analyses with a non-clinical sample of children (Hughes & Kendall, 2009).

***Interviews*.** Semi-structured interviews were conducted with the yoga teacher, five students and their parents. All interviews were conducted through the online platform, Zoom. Interviews were audio-recorded and handwritten notes were taken. Interviews were later transcribed through the Temi software and analyzed using coding through the Dedoose software. The yoga teacher was asked:

(a) Describe what did and did not work in terms of curriculum, class size, age groups, gender, and location.

(b) What differences, if any, did you perceive in the students?

(c) How would you improve on the administrative and procedural areas of the pilot program?, and

(d) What are your insights regarding incorporating yoga in the school setting?

Five randomly selected students from the sample were selected for semi structured interviews (Hatch, 2002; Maxwell, 2005). Sample interview items included:

(a) Tell me about your experience of the yoga class.

(b) What was your expectation of the yoga class before you started?

(c) What is your understanding now?

(d) If at all, how has yoga affected your personal and academic life?

In addition, the parents of the participants were asked:

(a) What differences if any, did you perceive in your student before and after the yoga

program?

(b) What are your insights regarding incorporating yoga in the school setting?

All interviews were conducted immediately following the four-week yoga program and voice recorded through Zoom for later transcription.

***Data cleaning*.** Once the coding and data entry for the PSS and the PANAS-C were completed, some items needed to be reversed in order to obtain valid results. For example, to obtain an accurate score for the PSS, four of the 10 items were reversed in accordance with the directions made by the authors of the scales (Cohen, Kessler, & Gordon, 1997). Six of the ten items were negatively stated while 4 were positively stated and therefore were reversed to indicate stress. Table 2 displays the positively stated reversed items for the PSS.

Table 2

Perceived Stress Scale Reversed Items

Item Number	PSS Statement
4	In the last month, how often have you felt confident about your ability to handle your personal problems?
5	In the last month, how often have you felt that things were going your way?
7	In the last month, how often have you been able to control irritations in your life?
8	In the last month, how often have you felt that you were on top of things?

For the PANAS-C, a composite sum was calculated for each of the positive and negative effects. Although the participants responded to thirty items, a composite sum for 12 positive affect items, and 15 negative affect items were calculated in accordance with the authors' guidelines (Laurent, Catanzaro, Joiner, Rudolph, Potter, Lambert, & Gathright, 1999). See Table 3 for the list of positive and negative affect items.

Table 3

PANAS-C Scored Items

Positive Affect	***Negative Affect***
Interested	Sad
Excited	Frightened
Happy	Ashamed
Strong	Upset
Energetic	Nervous
Calm	Guilty
Cheerful	Scared
Active	Miserable
Proud	Jittery
Joyful	Afraid
Delighted	Lonely
Lively	Mad
	Disgusted
	Blue
	Gloomy

Data Analysis Procedures

The research questions guiding this mixed methods study were: **(R1):** Does mindfulness-based yoga improve adolescents' perception of their ability to emotionally self-regulate; and **(R2):** How does mindfulness-based yoga improve adolescents' perception of their ability to self-regulate? Both qualitative and quantitative data were collected to address the two research questions of this study. Based on this research design, the hypothesis was that participants' ability to self-regulate emotionally would increase after exposure to mindful yoga practices.

Qualitatively, this study questioned if mindfulness-based yoga in school affects adolescents' perception of their ability to emotionally self-regulate and qualitatively asks how does mindfulness-based yoga improve adolescents' perception of their ability to self-regulate? Participant interviews were audio-recorded and transcribed. To analyze the data, the

Interpretative Phenomenological Analysis (IPA) was used. IPA involves close reading and re-reading of the text to gain an understanding of the experiences of participants. Notes of any thoughts, observations, and reflections that occurred were taken and included in the interpretation. The IPA is a cyclical process where the researcher proceeds through several iterative stages:

Stage 1: first encounter with the text

Stage 2: preliminary themes identified

Stage 3: grouping themes together as clusters

Stage 4: tabulating themes in a summary table

A thematic content analysis was also performed to encode all qualitative information and find meaning in the data. The codes were created through examining repetition in the material using the program Dedoose. Dedoose is a web application for managing, analyzing, and presenting qualitative and mixed method research data (Salmona, Lieber, & Kaczynski, 2019). Thematic codes were guided by the Colaizzi (1978) method of phenomenological data analysis, which is a seven-step process that provides an in-depth description of the phenomenon experienced by the participants. These steps included:

1. The data from the interviews of each participant were read to acquire a sense of the whole.
2. Significant statements and phrases were extracted from each participant's data as it pertains to the experienced phenomenon.
3. Meanings are formulated from the collected statements.
4. The meanings were organized into themes, and these themes are then clustered into theme categories.
5. The themed categories were integrated into a comprehensive description of the participant's experience.
6. All data gathered from participants were combined to formulate the essential structure of the phenomenon among all participants.
7. Validation was sought from the participants in the study by having them review the results and compare it to their experience. The participants provided feedback as to whether the data accurately reflected their experience.

Thematic codes emerged organically through examination of major themes, patterns and indicators that participants expressed as occurring throughout their experience of participating in the yoga program in interviews. Related patterns were analyzed, organized and interpreted and a content analysis involving the transcription of the interviews also helped to analyze data.

The quantitative data examined the translation of the effects of the yoga class in the participants' personal overall well-being. Participants names were gathered, and later redacted, on the questionnaires for matching purposes. Identity was kept confidential to the extent provided by law. Names were replaced with surname abbreviations to keep track of pre and post quantitative data. Results were reported in the form of group data to ensure participant confidentiality. The quantitative data was collected and inputted into SPSS and cleaned. The PANAS-C was separated into positive and negative affect and analysis was conducted for each assessment. A repeated measure analysis of variance (ANOVA) was facilitated by using SPSS (version 26) software to examine the differences at baseline to compare the group's pre- and post-intervention for each of the three measures (PSS, PANAS-C Positive, and PANAS-C Negative) and analyzed with a paired samples t-test to evaluate changes over time.

Trustworthiness

To ensure reliability and trustworthiness of the data and enhance the internal validity, several additional strategies were employed. These methods included: (a) triangulation of data sources, (b) researcher field notes, and (c) a methodological log. To begin triangulation of the data sources, interviewees were contacted via email once the transcriptions were completed. Each participant and parent interviewed were asked to read the transcription to ensure that their experiences and voices were accurately captured by the principal investigator. This was also a necessary component of the thematic content analysis process. Step seven of the IPA process

reflects validating the information that was gained from the participants in the study by having them review the results and compare it to their experience. In this step, participants were instructed to provide feedback as to whether the data accurately reflected their experience during the pilot program. Once the transcription was approved, the participants were instructed to email their confirmation and/or any necessary changes to be made.

The next strategy employed was the use of researcher field notes. Throughout the yoga sessions and the interviews, notes were recorded and maintained by the principal investigator. Notes of the yoga sessions included observations related to how students engaged with the instructor and any questions or concerns that were raised. Notes during the interviews included logistics (date, time, setting) of each interview, as well as, any discrepancies that the transcription alone may not have accounted for. Paraphrased responses were also written by the principal researcher to ensure that all points and topics were recorded during the interview.

Lastly, a methodological log was kept to provide an audit trail and document the process for making important decisions, processes, and reflections throughout data collection and analysis. Documents related to original data and interviews along with information that was coded and inputted into software were all kept and maintained. All email correspondence and recorded interviews were logged with date and time stamp information to provide reliable documentation of this research study. These time stamped documents all provide an audit trail of the methods and subsequent decisions and findings.

Each of these strategies contribute to the overall reliability and trustworthiness of this mixed methods, pilot program. Lincoln and Guba (1985) define trustworthiness under the broad umbrella of qualitative research reflecting that in academic scholarship, there must be confidence in the research findings. To further this idea of trustworthiness, Lincoln and Guba (1985) suggest

that to establish credibility, transferability, dependability, and confirmability, there are certain requirements and processes to take place. Credibility can be established through specific credibility activities of engagement, peer debriefing, member checks. Transferability is facilitated by rich descriptions of the environment, which help to gain contextual information and assist in determining if the findings are transferable to their situation. Dependability and confirmability are both established by an audit trail, which offers sufficient information for replication of the study and rationale for decisions made. As noted, each of these components were addressed and accounted for in this study, therefore, building the trustworthiness.

Ethical Considerations

Because yoga is a physical exercise, there was potential risk of physical harm to participants. In the event of undue physical harm, parent/guardians were notified via phone (if not physically in the room) and the incident would have been logged by the principal researcher. Additionally, there was some emotional and social risk associated with learning a new technique, like yoga, and topics that may have triggered trauma and/or other adverse experiences. (As developmentally appropriate, adolescents can become easily agitated and frustrated because they are not performing at the same level as their peers or through personal expectations.) Likewise, the curriculum of the pilot program facilitated participants through guided meditation which may have triggered repressed trauma(s). To mitigate these concerns, parents and participants were given local counseling resources if they experienced any overwhelming social or emotional experiences. Because the targeted population were minors, both informed consent and participant assent were also obtained which included supplemental resources and agencies. Participant names were redacted from all collected measures and interviews, as well. Lastly, the contracted yoga

instructor signed a written contractual agreement to ensure and articulate limitations of services, ethical adherence, and liability for her role in this study.

Limitations and Delimitations

A noted limitation of this study was that interviews were conducted virtually. The classroom setting may have been more ideal for students, allowing them more focus and structure compared to uncontrolled settings comparable to online. Hosting this pilot program in-person could not occur due to the health risks and concerns of the COVID-19 pandemic. As a response to these limitations, the pilot program and all related interviews had to be conducted virtually to abide by the social distancing guidelines. Despite these limitations, having to conduct interviews and the pilot program in an alternative setting increased different emotions and participation levels which contributed to students' varying responses.

A second limitation of this study was that a convenience sample had to be used due to limited physical constraints, also as a result of the COVID-19 pandemic. The use of this sampling technique limits the generalizability to other populations. Additionally, perceived stress was examined as a measure of stress for high school students, and many researchers assert that using a clinical measure of stress, like cortisol levels, are viewed as more reliable and valid than completing a short questionnaire that measures perceived stress. Because this study occurred in a virtual setting, there was not an ethical method for collecting the cortisol level of the students to accurately obtained the pre and post stress levels among participants.

Given the four-week time frame of the study, it is difficult to generate a comprehensive and thorough assessment of the results and of the curriculum on students as a result of their age-related growth and development. As such, maturation was also a limitation of the study. To further this, effects of the prescribed curriculum could be attributed to external factors beyond the

yoga program parallel to prior knowledge and experience in yoga or influences in the participants' lives. These external threats could limit the validity of the study. Time arose as an additional limitation of this pilot study as most who practice yoga feel its effects almost immediately, however the long-term effects on attitude, behavior, and awareness, often take longer than the four-week time frame of this study. Lastly, this particular study did not offer comparison to a control group to examine if the effects of yoga were exclusive to the prescribed yoga program compared to another type of exercise or to another form of yoga practice. As such, this limits the generalizability of this study.

Delimitations, or further restrictions, of this study can be attributed to the convenience sampling of the participants. The participant site was chosen based on a pre-existing relationship with the researcher, and therefore, a random sampling of schools was not conducted. This study was further delimited as a result of the program only being offered to schools in urban communities with low socioeconomic, ethnic, and urban populations located in a North Floridian city. In an effort to maximize participant comfort and focus, the researcher did not delimit the class population to gender specific groups. In addition, and due to budget constraints, the school chosen did not offer separate male and female yoga classes and all classes throughout the eight-week program were taught by one, certified instructor.

Chapter Four: Results

Yoga has the potential to empower underserved children chronically exposed to adversity by teaching them tools to become aware of the triggers that cause them emotional anguish and a leading sense of perseverance in the face of future challenges. Because stress implicates a variety of disparities, the priority should be to focus on stress management and reduction to shrink the burden of disease and negative emotional states (Woodyard, 2011). A yogic approach is one way that can address this social phenomenon. Youth developmentally express their emotions externally, as a coping strategy, and there is rationale to support a physically based treatment, like yoga, as an intervention for this population (Beltran et al., 2016). Incorporating a holistic program like that of yoga in schools, is essential to providing tools that allow for adolescents to manage and alleviate stress, so that they are better able to manage the emotional, mental, and physical demands of their social, familial, and academic lives.

For the purposes of this study, a pilot yoga program for adolescents, who attend urban city and Title 1 schools, was chosen because of the holistic approach in yoga practice. In each class, kriyas and asanas (physical postures), pranayama (breath work), and meditation were practiced to unite all components of the self (body, mind, and spirit) in order to achieve a self-actualized state of well-being, build spiritual capital, and an overall sense of purpose and meaning in the participants' lives. Uniting all components of oneself transpired, while simultaneously empowering the student participants, by internalizing their locus of control, in order to alleviate stress, regulate emotions, and thereby increase resilience. The research questions being explored in this study were: **(R1):** Does mindfulness-based yoga improve adolescents' perception of their ability to emotionally self-regulate; and **(R2):** How does mindfulness-based yoga improve adolescents' perception of their ability to self-regulate?

Based on this foundation, this study was conducted virtually for students who attend urban, city public schools with a majority of low SES populations, as evidenced by Free or Reduced-lunch status. The effects of the yoga program on stress and emotional affect are presented in this chapter with the results of a mixed-method approach. The qualitative findings from this study examined the overall effectiveness of the yoga program on adolescent well-being, while the quantitative findings analyzed the extent to which the program was effective in strengthening resilience as evidenced by decreasing stress and the regulation of emotions.

Descriptive Data

The study was conducted virtually, conveniently gathering students from responses collected via social media, and those selected were in grades nine through twelve. The total number of participants included 20 students (male = 3; female = 17). Of the 20 participants, 12 completed the pre and post measures (N = 12). Among the 12 (60%) participants who completed the pre and post measures, 91.7% female and 8.3% male.

The ethnicities of the sample participants included 0% of the class were Caucasian, 0% of Latino, 8.3% Native American and 91.7% African American. The percentage demographics of the grades for actual study participants is as follows: Grade 9 = 41.7%; Grade 10= 8.3%; Grade 11= 25%; Grade 12= 25%. Ages of participants were varied and were as follows: 14= 25%; 15= 16.7%, 16= 8.3%, 17= 33.3%, and 18= 16.7%. The student participants were from a variety of settings, many within low socioeconomic neighborhoods in urban areas and, 66.7% of them were eligible for free or reduced-lunch programs while the remaining 33.3% were not. The breakdown of all demographics in actual number of participants and percentages are presented below (see Table 4).

Table 4

Participant Demographics

Characteristic	Participants (N=12)	
Current Grade	n	Percentage
9	5	41.7%
10	1	8.3%
11	3	25%
12	3	25%
Gender		
Male	1	8.3%
Female	11	91.7%
Ethnicity		
Native American	1	8.3%
African American	11	91.7%
Current Age		
14	3	25%
15	2	16.7%
16	1	8.3%
17	4	33.3%
18	2	16.7%
Free/Reduced Lunch		
Yes	8	66.7%
No	4	33.3%

Data Analysis Procedures

Both qualitative and quantitative data were collected to address the two research questions of this study. Based on this research design, the hypothesis was that participants' ability to self-regulate emotionally would increase after exposure to mindful yoga practices. Qualitatively, this study questioned if mindfulness-based yoga in school affects adolescents' perception of their ability to emotionally self-regulate; and how does mindfulness-based yoga improve adolescents' perception of ability to self-regulate? Participant interviews were audio-recorded and transcribed by the researcher. To analyze the data, the Interpretative Phenomenological Analysis (IPA) was used. Notes of any thoughts, observations, and reflections that occurred were taken and included in the interpretation. A thematic content analysis was also performed

to encode all qualitative information and find meaning in the data. The codes were created through examining repetition in the material (Miles & Huberman, 1994) using the program Dedoose.

Thematic codes were guided by the Colaizzi (1978) method of phenomenological data analysis, and codes emerged organically through examining major themes, patterns, and indicators that participants expressed as occurring throughout their experience of participating in the yoga program in interviews. Related patterns were analyzed, organized, and interpreted, and a content analysis involving the transcription of the interviews also helped to analyze data.

The quantitative data examined the translation of the effects of the yoga class in the participants' personal overall well-being. Participants names were gathered, and later redacted, on the questionnaires for matching purposes. Identity was kept confidential with names being replaced with surname abbreviations to keep track of pre and post quantitative data. Results were reported in the form of group data to ensure participant confidentiality. The quantitative data was collected and inputted into SPSS and cleaned. The PANAS-C was separated into positive and negative affect and analysis was conducted for each assessment. A repeated measure analysis of variance (ANOVA) was facilitated by using SPSS (version 26) software to examine the differences at baseline to compare participants at pre- and post-intervention for each of the three measures (PSS, PANAS-C Positive, and PANAS-C Negative) and analyzed with a paired samples t-test to evaluate changes over time.

Results

Qualitative

For the qualitative component of the study, four to seventeen-minute informal interviews were conducted with five randomly selected students from the sample of students (N = 20) who

participated in the study. Additionally, the yoga teacher, and five parents/guardians (0 male and 5 female) were interviewed to explore possibilities of the program's overall effectiveness. The schedule of participant interviews is illustrated in Table 5. The average length of interview conducted was 9.26 minutes.

Table 5

Interview Schedule

Participant Identifier	Date/Time	Duration
1002 & Mom	7/8 12:30p EST	17.13 min.
1001 & Mom	7/11 10:15a EST	6.0 min
1012	7/11 1:19p EST	4.29 min
1012 Mom	7/9 10:30a EST	4.03 min
1008 & Mom	7/8 4:30p EST	8.20 min
1009 & Mom	7/9 5:00p EST	6.18 min
Yoga Teacher	7/11 12:53p EST	16.19 min

Based on the Interpretative Phenomenological Analysis (IPA), the codes for the student participants focused on overall wellbeing, application of the yoga principles outside of the yoga class, general understanding of the yoga principles, and likeness/impressions towards yoga practice. The students' parent/guardian responses were coded for overall impressions related to observable changes in their child that could be strictly attributed to participation in the four-week yoga program and likeness/impressions towards the use of yoga practice in the school setting. The yoga instructor's responses were analytically coded for impressions of the course and pilot curriculum, effectiveness of the developed curriculum, participant attitudes towards yoga practice, along with any observable changes in participants related to emotional and/or physical well-being, and likeness/impressions towards the use of yoga practice in the school setting. All emerged codes and their related frequencies can be found in Appendix H.

Participant well-being. An additional theme that emerged throughout the participant interviews was their overall well-being. Instances of calming, concentration, and increased focus,

pain management and impulse control were all mentioned throughout the interviews. While these commonalities were present, each interviewed participant noted varying mediums for achieving said results. In one instance, participant 1009 noted that the breathing activities helped her to "manifest and procrastinate less" while a contrasting male participant, 1002, noted that his "back hurt less because of certain poses in yoga overall." A different participant, 1001, mentioned that she already exercised regularly, but yoga would be a great addition to her regiment. This sentiment was echoed by another female participant, 1012, who shared that she could "do some things [she] couldn't do before starting yoga and could do now more with [her] knees." A variety of responses indicated that their experiences were beneficial to their well-being, and many were direct in their application of the skills and techniques outside of the yoga class.

Yoga applicability. In addition to participants' indication of how yoga impacted their wellbeing, many shared how the yoga techniques could be applied in other settings, for instance in their personal life outside of school. When directly asked "how has the yoga affected your personal and academic life," several participants indicated that participation in the yoga program helped to increase resilience as evidenced by reduced stress and increased emotional affect. A few students expressed how using the breathing and meditation techniques helped to regulate their emotions, and strengthen their resilience as it pertains to greater self-control and calming effects, which resulted in less stress during their summer jobs/activities and online coursework. For example, male participant 1002 shared his ability to maintain focus in his online classes which was directly impacted by his participation in the yoga program. He stated that "I haven't been in an F range since doing this." This was an indication that the techniques in mindful yoga helped to regulate his emotions and concentration as he worked through his assignments. His mom even

added that, “He's a fiery spirit, and we have noticed that he has been more calm, self-aware, and intentional.”

Other participants noted similar feelings. One female participant, 1009, expressed a her experience, sharing that, “it was a good experience, and I felt like it was calming after my youth apprenticeship program.” She specifically noted how the breathing and meditation exercises helped her to visualize being successful and released thoughts of procrastination. She offered, “it was this one exercise where we did towards the end, where you would breathe in all positivity and let out all negativity.” This student specified her shift in behavior to better regulate her emotions specifically to this exercise in particular as it helped her to become more productive during her week and procrastinate significantly less than normal. This increased ability to regulate her thoughts helped her to withstand the external stressors of her apprenticeship which was directly impacted by her participation in the yoga program.

Participant understanding. Another emerging theme reflected participant understanding of the yoga concepts. Overall, participants understanding of yoga was expressed through statements of increased comfortability and decreased hesitation throughout the program. One twelfth grade student, participant 1012, indicated that, “Yoga is good because it helps you focus on one thing.” A ninth-grade female student, participant 1001 also shared that “while doing yoga, you are supposed to have a clear mind and clear thoughts.” Additional insights shared mentioned that certain yoga poses offers a brain break during strenuous activities. One participant, 1008, shared that, “getting into the mountain pose, or whatever, helps to just to kind of shift my thinking.” This comment mentions not only specific applicability of yoga technique, but how yoga with the inclusion of meditation, impacted her experience.

Other participants indicated an increased understanding of mindfulness and meditation. A ninth-grade female student, participant 1008 shared that yoga helped to decrease her stress after one exercise that included a guided meditation. A different female student, participant 1009, also noted that, "having to envision and see things and set goals was very helpful." She added to this statement that "at the end, I felt somewhat peaceful and better about my life." Across the interviews, students expressed that yoga was grounded in the idea that allowed more focus of thought, creating a clear mind. Participant 1001, who was a female, specifically stated that "it was focusing, and in practice, you're thinking your mind is maybe calm, and you're thinking about goals and stuff like that."

Impressions of yoga. Overall, the impressions of the student participants were positive of the pilot yoga program. Those whom were interviewed expressed likeness and positive impressions of yoga. When directed to respond to the statement, "Tell me about your experience of the yoga class," students shared their interpretation of specific techniques and poses that they had learned over the course of the yoga program. One eleventh grade male participant, 1002, noted that, "the breathing…Ujjayii breath, or something like that, where you hold one nostril at a time and breathe in and out to detoxify your lungs and stuff like that was cool." A ninth-grade female student, 1008, shared "it was a lot of breathing and envisioning exercises in my head." One tenth grade student, 1001, offered her perspective of yoga, as well. She shared that "yoga is a type of art for just calming yourself down, tied with exercise."

Others who were interviewed felt that despite the level of difficulty, the yoga program was still enjoyable. One tenth grade female student, 1009, offered that, "I did have some challenges with yoga because it was different activities that I've never done before, but at the end of the day, it was something different, and I did enjoy it, and it was calming." This idea also emerged among

other participants. One female noted that she "thought it would be easier" while a different student stated, "I thought it was going to be more easier, but I knew it was going to be calming." The male participant, 1002, noted specifically that "trying to balance doing the poses balancing was difficult, but doable."

Students seemed to have preset expectations of yoga prior to beginning the program. These assumptions ultimately impacted their impressions of participating. This effect was noted by student participant 1012, who shared "yoga is very different from what I thought or what they perceive on like a social media or like an everyday TV. Similarly, another female student, participant 1001, echoed by stating "it was like what I see on TV like all that extra stuff, but I could actually do it." These statements indicate that despite initial challenges, participants grew in likeness and affinity towards the practice of yoga over time. Summarizing each of these statements, there were a variety of examples and indications of yoga's potential to influence factors related to overall well-being. These indications could lead to academic, personal, and social success presented throughout the student interviews.

Parent/Guardians. The parent/guardian interviews expressed succinct themes that reflected observable changes within their child and insights related to including yoga within the school environment. When asked, "What differences if any, did you perceive in the students after the classes?", the parents/guardians indicated increased focus and attention in both academic and personal tasks as well as increased excitement about participation in the program. One parent expressed her daughter's excitement by sharing that she "did not think she would appreciate yoga because of her age, but could tell there was appreciation there because she wanted to engage every time." Another parent indicated that her son was "more in tuned with his courses when it was time to get started. He was ready to get up and go without having to drag him." Other

impressions and likenesses of the yoga practice reflected increased confidence as the participants continued to build on their knowledge of the practice across the eight sessions. A different parent shared that "during the first session, her child was weary of the exercises, but over time she became less afraid to try new things." In general, the parents' insights were aligned with the participants' experiences.

When directly asked, "What are your insights regarding incorporating yoga in the school setting?", many responses reflected the need to offer yoga as an elective course during the school day. By providing yoga as a class, the practice could be offered as a supplement to traditional coursework and serve as a mental restart for students. Having this as an elective course could also prove helpful for students taking several Advanced Placement (AP) courses or to support reducing anxiety related to state assessments. One parent offered insights related to how she has used yogic techniques in her own classroom to offer brain breaks to students who were becoming restless and anxious during lessons. Another parent also directly shared that "yoga within the school setting could serve as a reconnection to relax and shut down anxiousness to get back on track." Extending this idea further, one parent indicated that not only should yoga be integrated into school settings, there should be a requirement for athletes who have recently had surgery or are in rehabilitation for their injuries. In referencing her own daughter's experience, this parent expressed that "yoga would play a huge part in getting athletes to become more confident, more flexible, and trusting of their body parts that was injured to kind of help them get through recovery." As a collective whole, parent/guardian expressed favorable impressions of the yoga program and its continued use in the school setting.

Yoga teacher. The yoga teacher interview presented a plethora of themes and interrelating observations. The recurring themes focused on observable changes of the participants, logistical

impressions of the curriculum and its implementation, overall effectiveness of the program, and implications for use of yoga within the school setting. When asked, "Describe what did and did not work in terms of curriculum, class size, age groups, and location," the instructor articulated that as a whole "more things worked than did not during the yoga program." Responses specified that the participants consistently attended, communication for participation and attending sessions was adequate, and there were reasonable accommodations surrounding the use of technology. To emphasize the effectiveness, the instructor offered that the "use of technology was a great adaptation with all things considered." Despite largely favorable commentary, some improvements were provided.

In particular, the yoga instructor shared that having more male participants would increase awareness of the practice, as well as, extending the length of the program overall. An additional suggestion was to record all sessions and post to a supplemental website for participants and/or consumers for continued and later use. The instructor did not indicate any need to deviate from the established curriculum and used the allotted time efficiently for each session. Throughout the sessions, participants remained engaged in the poses and meditation as evidenced by their screen sharing during each session.

When asked "What differences if any, did you perceive in the students after the classes?", the instructor shared that she "definitely saw growth." Participants grew in comfortability as the program continued allowing them to explore more poses and apply yogic concepts in a more intentional way. Likewise, participants grew more comfortable and willing to participate, in turn, causing "more smiles, happiness, and gratitude for themselves." When directly asked "What are your insights regarding incorporating yoga in the school setting?", the yoga instructor noted that it "should be mandatory, similar to how students have to do the Pledge of Allegiance." Exerting

physical energy, particularly through yoga, can assist with reducing anxiety and tension specifically because it forces students to "utilize their breath, calm down, and relax themselves to get through the practice." By beginning the school day with ten minutes of guided practice (yoga and/or meditation), students would be given the opportunity to release tension and build collective, unspoken energy amongst their classmates, ultimately impacting their attitudes. This statement articulates not only the impact that yoga can have on student wellbeing but the overall necessity for its inclusion in the school environment.

Quantitative

For the quantitative component of this study, a paired-samples t-test was conducted to determine whether there were any significant changes in the students' stress and emotional affect levels after the prescribed yoga intervention. This analytical test, in particular, is useful to ascertain if the means of the two administered measurements are significantly different. Overall, the results indicated a trend towards significant differences in the measures but was not statistically different. The following section presents the quantitative results for each measure (see Table 6).

Table 6

Paired Samples t-Test Results

Variables	Pretest M	SD	Post-test M	SD	t
Perceived Stress	17.58	3.370	15.50	4.583	.114*
Positive Emotional Affect	39.25	10.515	42.25	8.001	.276*
Negative Emotional Affect	30.75	9.265	25.25	8.740	.029*

*p< .05

Perceived Stress

The scores on the Perceived Stress Scale (PSS) could range up to 40 with higher scores indicating greater perceived stress. There was not a statistically significant difference from pre to post yoga program despite the decrease in participants' perceived stress ($t(11) = .114$; $p > .05$). Overall, participants scored higher before the yoga program on the perceived stress measure ($M = 17.58$, $SD = 3.370$) but decreased once the program concluded ($M = 15.50$, $SD = 4.583$).

Positive Affect

The scores on the Positive Affect and Negative Affect Schedule – Child Form (PANAS-C) could range from 10 to 50 on both the positive affect and negative affect scales, with higher scores indicating more positive or negative emotional affect. Positive affect was not statistically significant although the scores increased from before to after the yoga program ($t(11) = .276$; $p > .05$). Despite this trend, students scored lower before the yoga program on positive affect ($M = 39.25$, $SD = 10.515$) and trended towards significant increase after the program ($M = 42.25$, $SD = 8.001$).

Negative Affect

There was a statistically significant difference from pre to post yoga program for negative affect ($t(11) = .029$; $p < .05$] experienced by the participants. Overall, the students scored higher before the yoga program ($M = 30.75$, $SD = 9.265$) and significantly decreased after the program ($M = 25.25$, $SD = 8.740$) indicating a reduction in negative affect.

Summary

This chapter presented qualitative and quantitative data gathered from five students, five guardians, and one yoga teacher, to determine the extent to which yoga practice in Title 1 schools affects adolescent resilience as evidenced by perceived stress, and positive and negative affect.

Although the findings did not present statistical significance in stress and positive affect, there was statistically significant difference in reduction of negative affect. Amongst these quantitative findings, the qualitative data offered exploration of how effective the created yoga pilot program curriculum was for minority adolescents within Title 1 schools (low SES/urban settings) in regard to their well-being, emotional regulation, resilience, focus and concentration, and overall likeness towards yoga. In the subsequent chapter, implications of the presented findings are discussed to establish rationale for the inclusion of yoga programs, similar to this one, in the school setting. Along with this, the potential to positively and purposefully impact students within other Title 1 schools is also explored. Building upon these foundational implications, recommendations for future research are shared.

Chapter Five: Discussion

Introduction

The purpose of this mixed methods, phenomenological study was to explore the use of yoga to build resilience as a mindfulness-based intervention for children who have experienced chronic adversity, particularly for students living in underserved communities (low SES). This chapter includes a discussion of major findings related to the literature review on the practice of yoga and mindfulness for stress reduction, emotion regulation, and resilience building. Also included in this discussion are implications that may be useful for integration of mindful yoga into the school setting. This chapter concludes with a discussion of the limitations of the study, areas for future research, and a brief summary.

This chapter contains discussion and future research possibilities to help answer the research questions: **(R1):** Does mindfulness-based yoga improve adolescents' perception of their ability to emotionally self-regulate; and **(R2):** How does mindfulness-based yoga improve adolescents' perception of their ability to self-regulate? To address each of these research questions, a pilot yoga program was created specifically for the school setting. The theoretical framework applied to this study was founded on the idea of spiritual capitol, which supports the practice of yoga in underserved, minority school settings.

Summary of the Study

For the purpose of this study, a pilot yoga program for adolescents who attend urban city, Title 1 schools were chosen because of the holistic approach in yoga practice. In each class, kriyas and asanas (physical postures), pranayama (breath work), and meditation were practiced to unite all components of the self (body, mind, and spirit) in order to achieve a self-actualized state of

well-being, build spiritual capital, and gain an overall sense of purpose and meaning in the participants' lives.

Spiritual capital focuses on building that extend beyond traditional curriculum and addresses social problems, violence, and the lack of respect for one another and the environment (Sarkissian, 2012). The current study examines the use and integration of mindful yoga into educational systems to improve emotional regulation skills, particularly for students living in underserved communities. This study serves a two-fold mission. First, it attempts to examine the effectiveness of yoga as a positive intervention to reduce problematic behaviors in the classroom. Secondly, the study seeks to examine the effectiveness of yoga on adolescent resilience as evidence by perceived stress and emotional affect regulation.

Summary of Findings and Conclusion

Both qualitative and quantitative data were collected to address the two research questions of this study. Based on this research design, the hypothesis was that participants' ability to self-regulate emotionally would increase after exposure to mindful yoga practices. Multiple methods of collecting information were employed. Qualitatively, this study questioned if mindfulness-based yoga improve adolescents' perception of their ability to emotionally self-regulate, and qualitatively asks how does mindfulness-based yoga improve adolescents' perception of their ability to self-regulate?

Qualitative Findings

For the qualitative component of this study, an Interpretative Phenomenological Analysis (IPA) was completed. The emergent student themes emphasized overall wellbeing, application of the yoga principles outside of the yoga class, general understanding of the yoga principles, and likeness/impressions towards yoga practice. The students' parent/guardian responses uncovered

themes relevant to impressions related to observable changes in their child that could be strictly attributed to participation in the four-week yoga program and likeness/impressions towards the use of yoga practice in the school setting. Lastly, the themes from the yoga instructor's responses included impressions of the course and pilot curriculum, effectiveness of the developed curriculum, participant attitudes towards yoga practice, any observable changes in participants related to emotional and/or physical well-being, and likeness/impressions towards the use of yoga practice in the school setting.

The questions in the interview were all open-ended and offered participants an opportunity to share their insights regarding their yoga experiences and perceptions freely. Because the interviews were semi-structured and informal, participants gave authentic responses truly characterizing and expressing their perceptions. While a strength, the structure of these interviews also caused some to be short in length with limited answers. This could also have been attributed to age, maturity, and the ability to articulate changes in awareness, emotions, and behaviors. An additional limitation to these interviews was the way in which students were selected. Students were asked to volunteer if interested in being interviewed and subsequently entered into a pool. From this pool of volunteers, an online number generator was used to ensure that selected interviewees were randomly selected. Having this randomization may have excluded participants with contrasting insights or perceptions of the pilot yoga program.

Quantitative Findings

The quantitative data examined the translation of the effects of the yoga class in the participants' personal overall well-being. To measure participant perceived stress and ability to emotionally regulate, the Positive and Negative Affect Scale for Children (PANAS-C) was separated into positive and negative affect and analysis was conducted for each assessment. A

repeated measure analysis of variance (ANOVA) was facilitated by using SPSS (version 26) software to examine the differences at baseline to compare the group's pre- and post-intervention for each of the three measures (PSS, PANAS-C Positive, and PANAS-C Negative) and analyzed with a paired samples t-test to evaluate changes in the students' stress and emotional affect levels after the prescribed yoga intervention. Overall, the results indicated a trend toward significant differences in the measures but was not statistically different.

Both of these measures (PSS and PANAS-C) were administered before and after the pilot yoga program. Students were instructed to have the pre-test measure completed prior to the start of the classes and to complete the post-test measure immediately following the last class. Names were tracked and compared for completion on a working document to ensure that participants completed both measures. On average, students spent about fifteen minutes to complete the online measurements which was recorded through the Google Forms application. No students indicated needing assistance with completing these items either before or after the program. This could have also been attributed to the method that students completed these measurements. Both assessments were facilitated online, at home, with students due to limited physical contact. As a result, assessments were not directly completed in front of the primary researcher, limiting the ability to ask clarifying questions. Despite this, no student(s) reached out to communicate difficulty in comprehension; therefore, the students' abilities in reading and comprehension were not present limitations in this study.

Perceived Stress. There was not statistical significance in the difference of scores difference from pre to post yoga program despite the decrease in participants' perceived stress. Overall, participants scored higher before the yoga program on the perceived stress measure but decreased once the program concluded. This trend towards the reduction in perceived stress

sheds some light into the idea that the use of yoga can be impactful for the targeted population. Targeting perceived stress is crucial for this population in particular because prolonged exposure to stress can become toxic as there is often a lack of resources and skills necessary to manage these circumstances effectively, which creates possible permanent adverse effects on their brain development (U.S. Department of Health & Human Services, 2003). As noted in the literature review, stress that is caused by an emotional response to any situation directly influences the physiological health of children over time. To build the skills and resources necessary, the mind, body, and spirit connection is an important consideration for schools as they can implement programs that create a holistic approach to education. This is an important consideration given the research that shows how childhood stress has physiological repercussions that can lead to possible disease and impaired academic performance (Sarkissian, 2012). For children who are exposed to and experience emotional dysregulation, yoga serves as a powerful intervention to address emotional and behavioral consequences of exposure (Beltran et al., 2016). Yoga can likewise serve as a tool that can assist in alleviating stressors and offer life-long tools that can be utilized when facing the demands in personal and social environments (Sarkissian, 2012).

Emotion Regulation. Positive affect was not statistically significant although the scores increased from before to after the yoga program. Despite this trend, students scored lower before the yoga program on positive affect and trended towards significant increase after the program. There was a statistically significant difference, from pre to post yoga program, for negative affect experienced by the participants. Overall, the students scored higher before the yoga program and significantly decreased after the program, indicating a reduction in negative affect.

The results of this study indicated that this pilot yoga program was effective in reducing negative affect among participants. This result is impactful as the literature supports that

childhood stress has been proven to have profound impacts on the emotional, behavioral, cognitive, social, and physical functioning of children. One of the most detrimental consequences of prolonged stress on children and adolescents is their inability to appropriately regulate their emotions (Mendelson et al., 2010; Sarkissian, 2012). Children who experience adversity may show increased symptomology for symptoms of Post-Traumatic Stress Disorder (PTSD) or related behavior or depressive disorders like anxiety and phobias (Beltran et al., 2016). As this inability continuously grows among neighborhoods of impoverished communities, emotional distress subsequently increases (Michalsen et al., 2005). According to the National Research Council and Institute of Medicine (2009), youth need skills relevant to regulating stress responses and subsequent emotional states. Providing regulation interventions similar to yoga can help to modify stress responses and decrease the risk of problematic behaviors for youth in disadvantaged communities (Mendelson et al., 2010).

Youth in low-resource communities are more likely to experience chronic and acute stress that is strongly associated with poverty and violence (Mendelson et al., 2013). Often, children who have experienced adversity express their emotions with aggression, anxiety, fear, may have developmental delays, and/or the inability to form meaningful relationships (Dozier et al., 2006). These challenges, if not attended to, can become continuous stressful and traumatizing factors for adolescents within these environments and further perpetuate their mental, physical, and emotional strain causing psychological and physical damage related to sickness, and emotional instability (Lance, 2011; Sarkissian, 2012). According to Maslow (1968), those who are in a constant state of survival to meet their basic needs of safety are more likely to have diminished creativity and vitality causing loss of life's meaning and purpose. Thus, when children are

exposed to prolonged, chronic adversity as a result of familial and environmental circumstances, their higher-level functions such as creativity and cognitive ability are compromised.

Yoga is fundamentally rooted in its power to alleviate stress, which can serve as a benefit to students within Title 1 schools who have a majority of minority students (which was the population of students investigated in this study). Implementation of yoga that incorporates mindfulness in low SES school settings can offer effective tools and strategies to students that could help to diminish stress and maximize cognitive and creative capacities. Long term, the incorporation of this practice could empower and equip children and adolescents to face the demands and challenges in their lives head on. Literature supports the notion that stress that is caused by an emotional response to any situation directly influences the physiological health of children over time. To build the skills and resources necessary, the mind, body, and spirit connection is an important consideration for schools as they can implement programs that create a holistic approach to education. This is an important consideration given the research that shows how childhood stress has physiological repercussions that can lead to possible disease and impaired academic performance (Sarkissian, 2012).

Based on the holistic approach to yoga as an intervention in school settings, there is also potential that implementation of this practice can help children and adolescent to make healthier choices, impacting their overall wellbeing. Yoga contributes to the full development of a person, allowing room for other processes to transpire. By confronting stress and latent trauma through practice, children can grow in creativity, meaningfulness, self-sufficiency, authenticity, vitality, and self-actualization which are all facets of their vital essence (Bhajan, 2003; Maslow, 1968; Saraswati, 2006; Zohar & Marshall, 2004; Zohar, 2010). Gaining access to this essence of oneself allows students to build their spiritual capital and maximize their full human potential, which is

often overlooked in traditional pedagogical approaches (Bhajan, 2003; Saraswati, 2006; Zohar, 2010). As such, programs and interventions that directly target the facets of vital essence are essential to the healthy development of children and adolescents, particularly those exposed to chronic adversity. Incorporating yoga into the daily school setting can address this need.

Beyond the decreased creativity and vitality of students exposed to prolonged stress are the impacts of limited emotion regulation. This inability to control varying emotional states can be detrimental for adolescents. A vast array of literature strengthens the notion that children with symptoms of anxiety and depression exhibit limited emotional awareness and subsequently are unable to differentiate between experienced states with appropriate descriptions (Kim & Cicchetti, 2010; Price, 2008). Yoga also has influence that helps adolescents to become aware of fluctuating emotional states in an effort to control them. Teaching children yoga can develop a plethora of positive skills and behaviors like increased emotion regulation and self-esteem, reduction of mood and anxiety disorders, distress and blood pressure (Mendelson et al., 2010). Being able to emotionally regulate feelings can subsequently lead to improved social skills, which then affects self-confidence (Coholic & Eys, 2016). Increased awareness of one's feelings and emotions can also lead to better coping and resilience in children (Schonert-Reichl & Lawlor, 2010).

The results of the current study indicated that the yoga program was successful in significantly decreasing negative affect. Although not significant, findings indicated the program did slightly increase positive affect. It can be speculated based on these trends that while the participants engaged in yoga, their level of awareness increased becoming more aware of their emotions, whether positive or negative (Bhajan, 2003; Krishna, 2006). It can also be argued that as participants grew in awareness, they allowed for their emotions, whether positive or negative to

surface. Based on these speculations, the participants seemed to have become more capable, based on interview feedback, in handling and managing their emotions through any situation. To overcome stress and emotion dysregulation, children must have skills and tools that foster methods of perseverance, which yoga addresses.

While it is not directly measured in this study, resilience is discussed in this context as if offers insight into coping mechanisms specific to this population. Yoga philosophy attributes a great deal of stress to the fluctuations of the mind, swaying to and from general likes and dislikes, thoughts of the future, worries, or burdens of the past (Michalsen, et al, 2005; Brown & Gerbarg, 2009). Yoga helps to quiet these fluctuations and bring a person to their inner most peacefully conscious state. Many people practice yoga as a physiological release while others practice to connect to the deep, inner realm and psyche through the integration of postures, breathing, and meditation, which helps to quiet the mind (Lowry, 2011). This is accomplished primarily through mindfulness practices like meditation.

The overarching goal of mindfulness practices is to improve concentration and attention, become aware of one's own consciousness, gain self-knowledge, and improve empathy and compassion (Greenberg & Harris, 2012). Programs that use mindfulness as a foundation can further serve as a buffer to chronic stress (Mendelson et al., 2013). If childhood adversity is not appropriately addressed, it can result in aggression, anxiety, fear, poor social skills (Dozier et al., 2006) or even negatively impact the biological stress response system (Feagans Gould et al., 2012). Mindfulness-based approaches similar to yoga and meditation have the potential to regulate the emotions of adolescents continuously exposed to stressors (Mendelson et al., 2010). Yoga has demonstrated many of the same positive effects mindfulness practices have (Brown & Gerbarg, 2009). As such, yoga has enhanced the development of resilience, although the research

is limited in this regard. The effects of yoga supplement the understanding of self-repair and the use of self-regulatory systems which increase longevity, resilience, and the overall quality of life (Brown & Gerbarg, 2009). Yoga and meditation assist in creating space for increased attention and awareness which has impacts on the ability to respond to stress without adverse psychological outcome (Mendelson et al., 2010), thereby building resilience.

Resilience. There is ample literature and research that highlight the relationship among childhood adversity and trauma, and affect dysregulation which can all lead to psychological and physiological disorders. Yet, many children are able to thrive and flourish under strenuous and tumultuous circumstances, developing into contributing members of society. Resilience of children has been shown to be strengthened by the child, their familial support, and their social environment (Sarkissian, 2017). Resilience has been thought to be integral in biological and psychological factors that make up a person's capacity to cope when faced with adversity (Hoge, Austin, & Pollack, 2007; Price, 2008; Ungar, 2011). However, the defining factor of resilience is reflected in intrinsic control and motivation. Studies have shown that those who had some control over their circumstances were more resilient than those who became captive to life's adverse events (Mehzabin et al., 2011).

Despite limited statistical significance, the participants expressed positive experiences, increased emotion regulation, and reduced stress. These are significant outcomes for adolescents who have experienced chronic adversity to build resilience. For example, an indicator of increased resilience could be derived from a student's parent who stated, "He's a fiery spirit and we have noticed that he has been more calm, self-aware and intentional." This statement offers insight to how his behavior has changed as a result of gaining the ability to control his impulses and energy by becoming more mindful and aware. This parent directly attributed his ability to

participation in this study. Additionally, another student shared that "it was a good experience, and I felt like it was calming after my youth apprenticeship program," sharing how participation in the program helped to combat stressful activities in life.

Given the historical tendency of youth to express their emotions externally as a coping strategy, there is rationale to support a physically based treatment, like yoga, as an intervention for this population (Beltran et al., 2016). Yoga has the potential to empower underserved children chronically exposed to adversity by teaching them tools to become aware of the triggers that cause them emotional anguish in the face of future challenges. Despite the limited statistical significance of this study, the trends do indicate that this pilot study could be effective with increased sample size and reduced limitations.

The presented research studies and literature offer evidence of yoga's positive effects on resilience as evidenced by reducing stress and increasing emotion regulation. Likewise, when used as an intervention, literature supports that adolescent learning, creativity, empowerment, esteem, and self-actualization all increased among this population. There may be particular benefits for youth who live in urban, underserved populations as they typically have experienced social challenges related to poverty, violence, drugs, racism, and immigration. By infusing yoga practice into the school setting, students can be taught tools necessary to navigate the complexities of adolescent development. Therefore, this study is significant in that it offers rationale for the opportunity to learn a technique that can be integrated into the school day to reduce the physiological and psychological effects associated with school stress, furthermore empowering students.

Implications

Based on the limited statistical significance of both the Perceived Stress Scale and the Positive Affect Scale, there are several limitations that were presented. One major limitation of this study was the use of a convenience sample allowing participants to only be gathered through limited means of advertisement. The small sample size of participants limits the generalizability of this study. This small sample could have also accounted for limited statistical significance among the two previously described measures. Additionally, perceived stress was examined as a measure of stress for high school students, and many researchers assert that using a clinical measure of stress, like cortisol levels, are reviewed as more reliable and valid than completing a short questionnaire that measures perceived stress. Due to the nationwide limitations of the COVID-19 pandemic, participants were limited to virtual interactions only; therefore, the self-report measures were the only means of collecting information related to perceived stress levels before and after the intervention.

A second noted limitation of this study, as mentioned, was the influence and impact of COVID-19. With no-contact orders in place throughout the nation, interviews also had to be conducted virtually. These interviews may have allowed for more time, information gathering and comfortability had they occurred face-to-face in the traditional school environment. The school setting may have been more ideal for students, allowing them more focus and structure compared to uncontrolled settings like Zoom. Despite this limitation, having conducted interviews in an alternative setting could have also increased the variety of presented emotions and experiences because students had already become accustomed to this same online learning environment. With regard to these explained limitations, the presented findings provide opportunities for future and continued investigation.

Although students and parents of this study did not mention this directly, there may be a presented limitation of the use of yoga in schools based on preconceived notions of the practice. This controversy of the practice may limit future participation in schools for those with limited understanding. To mitigate this concern, this curriculum in particular was outlined and presented in a way that explains each concept and component. Meditation was clearly described to all participants to limit confusion and gain understanding of its purpose.

Recommendations

Based on the presented findings and limitations of this study, it is recommended that future studies include each of these dependent variables (stress and emotion regulation) compared between a yoga group and a control group. It would be beneficial to examine this pilot yoga curriculum against traditional exercise classes that are traditionally offered in schools, similar to dance and gym. In addition, there may be room to examine the specific effects of meditation use among this targeted population. Mindfulness enhances awareness of thoughts and feelings, as they are experienced in the present moment (Santangelo White, 2012) and teaching mindfulness-based skills like meditation can aid children in building resilience, and can potentially affect emotion-regulation, and self-esteem (Coholic & Eys, 2016). By deducing meditation practices offered specifically in this pilot program to students, its effects can be measured and further generalized for practice and use in school settings as it has become increasingly popular. By generalizing meditation in school settings, it could also be worthwhile to examine if, when included with traditional physical education classes like dance and gym, it had the same impact on students.

Additionally, there could be many advantages to conducting a thorough qualitative yoga study that offers classes for an extended period of time. The yoga instructor also noted that

offering classes for a longer period of time could help students gain a deeper understanding of yoga practice and its applicability to their lives in a more conceptual way. A longitudinal yoga design using this curriculum in particular could help to gain understanding of the effects on the physical, mental, and spiritual development on adolescents who have been chronically exposed to adversity. For example, conducting a year-long qualitative design would allow for a more robust opportunity for researchers to examine the multitude of effects that yoga has specific to building spiritual capital. This could be enhanced by gaining the perspectives of not only the parents of the student participants but also the classroom teachers and their academic outcomes. Each of these would add to the literature in support of incorporating yoga into the school setting.

Yoga's effects need to be continuously researched to gain additional knowledge about personal, social, and academic concerns and bring yoga into the forefront of alternative methods for addressing issues that students and educators face daily (Sarkissian, 2012). This is even more so the case for children from disadvantaged communities, where media influences, environmental factors, socio-economic factors, and cultural factors contribute to already stressful adolescent experiences. When incorporated into schools, these practices can promote health and wellbeing (Mendelson, et al., 2013). Educators should look beyond curricular teaching practices and enhance old practices by using approaches like yoga that could supplement educational pedagogy with holistic programming that seeks to integrate the mind, body, and build their spiritual capital (Arweck, Nesbitt, & Jackson, 2005; Saraswati, 2006).

The use of yoga programs in school may provide a plethora of benefits to students to include alleviation of stress, increased regulation of emotions, and strengthened resilience for urban school settings where a majority of students reside in low SES communities. The presented yoga program focused on developing spiritual capital, which can lead to increased well-being and

an ability to tolerate distressful emotions. Those whom participate in the program had the opportunity to develop the skills required to increase these factors and based on the presented results of the study, this can be applied on a larger scale in other low-income schools.

Recommendations for Future Practice

"The efficacy of mindfulness-based practices with children has had little empirical exploration" (Santangelo White, 2012, p. 46). There is great potential for the use of mindfulness-based interventions to improve the function of self-regulation, stress, mood, and social-emotional development among adolescents who have adverse experiences (Mendelson, Greenberg, Dariotis, Gould, Rhoades & Leaf, 2010). There is great potential for use of this intervention to facilitate outcomes that increase overall well-being of youth in the school setting. Discovering and incorporating methods that address holistic child development in the educational setting is required, particularly in a way that surpasses current andragogy that maintains the purpose of only teaching cognitive curricular skills. When used as a technology, yoga has the potential to have profound impacts on adolescent development by supporting physical, emotional, and mental regulation and secondly, by enhancing spiritual capital (Sarkissian, 2012). Yoga can be directly applicable to life experiences, which can teach adolescents the power of overcoming challenges, adversity, behaviors, and limitations all related to adversity.

Conclusion

Resilience speaks to positive adaptations to maintaining mental health, despite adverse experiences (Herrman et al., 2011). Resilient people respond to life's challenges with courage and emotional stamina, even when they are afraid. Even though we have no control over many events in our life, we can control how we respond to these events, and can choose to do so with resilience (Wagnild, 2010, p. 1). Understanding resilience and how to build it for the betterment

of this population is essential to the way they maneuver through the world. Children and adolescents need a multitude of coping strategies to effectively manage their stress and build resilience (Santangelo White, 2012). Resilience can provide a useful framework for prevention of maladaptive behaviors and encouragement of positive youth development (Brooks, 2006). When appropriately modeled, resilience can appear to be a sense of strength for children and adolescents from all populations. Children who are resilient often excel academically, can maintain positive interpersonal relationships, have limited emotional and behavioral issues, and are socially competent (Herrman, Stewart, Diaz-Granados, Berger, Jackson & Yuen, 2011). The types of interventions that are used with this population is almost more important than understanding the adversity that they have experienced.

The presented pilot yoga program offered a unique opportunity for adolescents who are exposed and experience chronic adversity to engage and build skills that contribute to advancement and ultimately helps to level the playing field. In doing so, these targeted students, who are subjected to increased adverse childhood experiences like poverty, violence, and abuse, are given tools and skills that assist with building resilience as evidenced by reducing stress and increasing emotion regulation. Yoga programs can provide the opportunity to extend traditional pedagogical approaches and shift them to more holistic approaches to educate not only the mind, but the body and the spirit as well. In turn, students are taught in whole and become empowered to maximize their fullest human potential, so that true development can occur in the educational setting. Saraswati (2006) and Arweck et al. (2005) both offer that there is a worldwide need for pedagogy that extends beyond skills for human beings as we are increasingly concerned and affected by social problems, violence, and lack respect for each other and the environment. It is

for this reason that continued review and examination of the current state education curriculums occur to add in alternative programming that extends current, traditional approaches.

Zohar and Marshall (2004) define spiritual capital as the gateway that allows humans to gain access to understanding and helps make life's purpose clearer. Without spiritual clarity, there is a limited understanding of life's purpose, which can foster feelings of anguish and hopelessness. Spiritual intelligence guides thinking and decision-making processes, and the things that we think are worthwhile to do. The spirit speaks to the intelligence used to access our deepest meanings, values, purposes, and highest motivations (Zohar & Marshall, 2004, p. 3). Therefore, the spirit is what helps people to make purpose of their experiences. Traditional pedagogy, and the school setting in general, often ignore the tools and lessons that are required for children and adolescents to develop this spiritual capital which contribute to becoming positive, contributing members of society. By disregarding the importance of building spiritual capital in children, there is blatant disregard for how these students make sense of the world and their place in it. For the purpose of this study, spiritual capital was combined with the practice of mindful yoga to strengthen the link between schools and what/how children are taught. The need, as presented, is to contribute to building spiritual capital in schools, defined by Zohar and Marshall (2004), to promote children into healthy, thriving adults. To solve this need, the solution is to incorporate yoga into the school setting.

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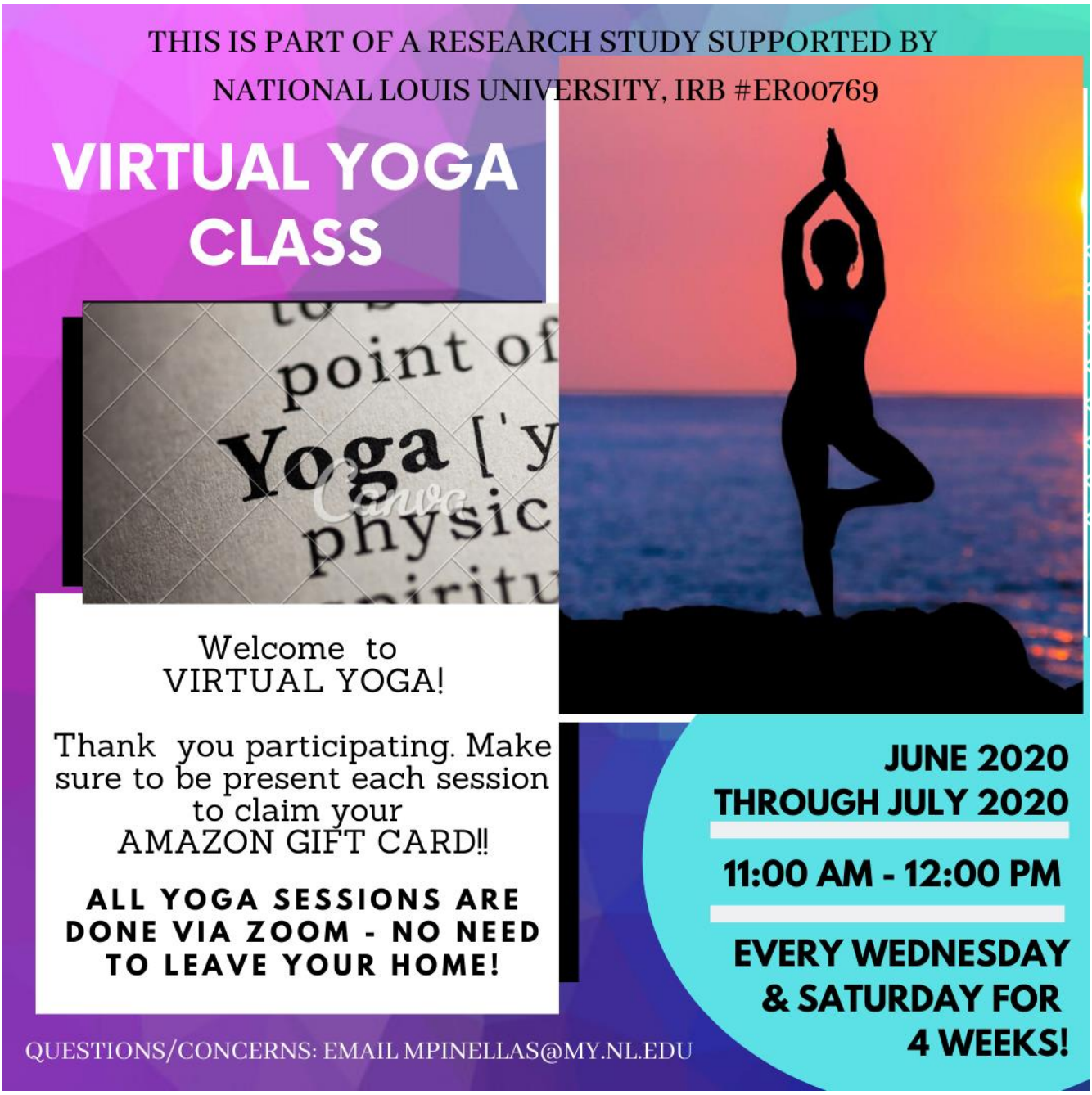
Appendix A: Recruitment Flyer



Appendix B: Letter of Parental Consent

Dear Parent(s),

I am a graduate student in the Department of Counselor Education at National Louis University under the supervision of Dr. Caroline Perjessy. I am conducting research on the effectiveness of a yoga-based counseling intervention for students designed to help teachers provide more effective interventions, so we are asking all of the students in your child's class to participate. The purpose of this is to evaluate the effectiveness of a yoga-based counseling and guidance intervention designed to improve the emotional regulation of students in a Title 1 school.

Students will participate in weekly 50-minute yoga based-counseling sessions for eight weeks that consist of hands-on activities to teach emotional regulation, coping, and mindfulness virtually. The proposed timeline for starting the activities is the middle of April through the end of the school year. Yoga classes will be taught by a Certified Yoga Instructor and carried out through a virtual platform, Zoom, under my direct supervision. Should participants experience any physical harm during these yoga activities, you will be notified immediately. Incidents will also be logged and filed by myself as the principal investigator of the study. Before and after the sessions students will complete a series of assessment tests designed to determine the effectiveness of the yoga based-counseling intervention including the Positive Affect and Negative Affect Schedule – Child Form (PANAS-C) and the Perceived Stress Scale.

Although your child will be asked to provide their names on the questionnaires for matching purposes, their identity will be kept confidential to the extent provided by law. Names will be replaced with code numbers. Results will only be reported in the form of group data. Participation or non-participation in this study will not affect your child's grades or replacement in any programs. Please sign the form below to indicate your desire to participate.

You and your child have the right to withdraw from this study at any time without consequences. No compensation is offered for participation. Group results of this study will be available in June 2020 upon request. If you have any questions about this research protocol, please contact me by email at mpinellas@my.nl.edu, or my faculty supervisor, Dr. Caroline Perjessy by email at cperjessy@nl.edu. Should you have questions regarding your rights as a participant in research, please contact the National Institutional Review Board Chair, Dr. Shaunti Knauth, or Co-Chair, Dr. Kathleen Cornett via email at IRRBMailbox@nl.edu.

_____

Researcher Signature Date
Mrs. Michele Pinellas

I GIVE consent for my child (print child's name here) _____ to participate in the yoga based-counseling intervention. I have received a copy of this description.

_____

Signature of child's parent or guardian / Date

I DO NOT GIVE consent for my child (print child's name here)

_____

to participate in the yoga based-counseling intervention. I have received a copy of this description.

_____

Signature of child's parent or guardian / Date

Appendix C: Letter of Student Assent

For adolescents 13-17 years old

What is this study about?
Mrs. Pinellas, the School Counselor, is doing a research study. The study will test if yoga is a useful intervention in school settings. Yoga is a physical activity that helps to reduce stress and control emotions.

What will happen if you decide you might want to be in this research study?
First, your parents will be asked if they give their permission for you to be in this study. If your parents don't agree, you cannot be in the study. If your parents do agree, and you agree too, here's what will happen next:

Before you begin the study:

1. The study researcher will ask you questions about your understanding of yoga.

2. You will be asked to complete three questionnaires about stress, your emotions, and how you handle difficult situations.

During the study:

3. During the 8 weeks of the study, you will need to be present and participate in yoga sessions, once per week. Each session will last 50 minutes.

When the study ends:

4. You and your parents will be able to find out whether yoga helped you to better manage your emotions.

Will any parts of this study hurt or have other risks?
Because yoga is a physical exercise, there is the potential risk of physical harm. Should you get hurt, your parent/guardian will be notified. The incident will also be logged by myself.

There is some emotional and social risk associated with learning a new technique. You may become frustrated because yoga is new to you and you are not performing at the same level as your peers.

You may have side effects from participating in yoga, as this is a new exercise. If you feel any side effects, you should tell your parents or the study researcher about this right away.

What if you have questions?
You can ask Mrs. Pinellas any questions you have about the study. You can ask your questions now or later, any time you like. You can also ask your parents to ask questions for you.

What are your choices?
If your parents agree, you can be in this study if you want to. But you don't have to be in it if you don't want to. Nobody will get mad at you if you don't want to do this.
If you decide to be in the study now and you change your mind later, that's okay, too.

You just have to tell Mrs. Pinellas as soon as you change your mind, and you will be taken out of the study.

****

If you don't want to be in this study, just say so, and don't sign this form.

If you want to be in this study, please sign your name below.
If you sign here, it means you agree to participate in this study.
Mrs. Pinellas will give you a copy of this form to keep.

_____ _____ _____
Adolescent's Signature Date Age

_____
Adolescent's Name (print)

Mrs. Michele Pinellas _____ _____
Signature of Person Conducting Assent Discussion Date

_Mrs. Michele Pinellas_____
Name of Person Conducting Assent Discussion (print)

Appendix D: Yoga Teacher Contract

Terms and Projected Duration of Contract

This agreement serves as a contractual obligation between **_X_** Michele Pinellas, referred to as Researcher, and **_Kendyl Bressant___**, referred to as Yoga Instructor. This contract is effective **_June 13, 2020_____** and the frequency of yoga sessions shall be **Weekly_** lasting for **__50__** minutes. The term of this contract expires on **_August 1, 2020_____**.

Both parties agree that Yoga Instructor is not an employee, agent, or partner. Nothing in this Agreement shall be interpreted or construed as creating or establishing the relationship of employer and employee between Michele Pinellas and Yoga Instructor or any employee or agent of Yoga Instructor.

Purpose of Study

This study serves the primary purpose of examining the use of yoga programs in school, which can provide a plethora of benefits to students to include alleviation of stress, increased regulation of emotions, and strengthened resilience for urban schools with a majority of students coming from low SES communities.

Requirements

RYT200
Experience working with children/adolescents desired
Must carry own liability insurance

Overview of Research Study Process

The yoga sessions will be one clock hour of yoga weekly for 4 weeks total. Participants of the study will be given informed consent and assent for participation. The sessions will begin on _6/13/2020_____ and conclude on _7/8/2020_____.

Yoga Instructor agrees to start and end each class according to that schedule. Yoga Instructor shall be present for 15 minutes prior to the start of each class and up to 15 minutes after the end of each class.

Method of Providing Services

Yoga Instructor will conduct themselves and their classes in a manner consistent with commonly accepted professional standards. Procedures and policies governing the conduct of classes are maintained and available to Yoga Instructor. Yoga Instructor agrees to comply with these procedures, which may be updated at any time. The Researcher will notify Yoga Instructor of any changes made to these procedures.

The nature of the services provided by Yoga Instructor requires that they be performed virtually via Zoom. Yoga Instructor understands that they may not touch or adjust participants because they are minors, regardless of verbal assent. Researcher agrees to furnish space and equipment as provided under the terms of this Agreement.

Confidentiality and Privileged Communication

The participants will be informed that the Yoga Instructor and Researcher will keep the client's confidentiality. Exceptions to confidentiality and privileged communication include harm to self or others is threatened, suspected abuse of elders, children or disabled persons, and instances when the court compels the professional to testify and break confidentiality.

Researcher is responsible for the actions of Yoga Instructor as well as the welfare of each participant. Should the Researcher determine that the Yoga Instructor is impaired and may harm participants, immediate intervention shall occur to include contacting the employing agency, site Researcher, and/or participants. If Yoga Instructor is suspected of engaging in unethical or illegal behavior, Researcher has the authority to breach confidentiality and report the Yoga Instructor to their employer.

Guidelines for Responding to Emergencies

In the event of an emergency, _____ should be contacted at the

following phone number(s): _____ (Cell)

_____ (Work)

_____ (Relationship to Yoga Instructor)

Payment for Services

Researcher agrees to pay the Yoga Instructor $500.00 for workshops. Payment for services will be made by Researcher's financial institution, to the address shown in this agreement, or by direct deposit, to Yoga Instructors bank account as given in this agreement, as elected by Yoga Instructor.

Researcher is authorized to deduct any amount owing on Yoga Instructor's account with Researcher from Yoga Instructor's payment. This includes any penalties or fees assessed for non-compliance with the terms of this contract and purchases on Yoga Instructor's account with Researcher.

Failure of Yoga Instructor to conduct a class as scheduled is cause for material damage to Researcher and its members, participants, or students. Yoga Instructor agrees that in the event of Yoga Instructor's failure to conduct a class as scheduled, Yoga Instructor will pay to Researcher the sum of $100.00 per occurrence, and further authorizes Researcher to deduct such damages from any invoiced charges due to Yoga Instructor.

No Employee Benefits

Yoga Instructor understands that, as an Independent Yoga Instructor, is not entitled to any benefits typically associated with an employee, such as medical, sick or vacation benefits. If Yoga Instructor wishes to have similar kinds of benefits, it must purchase them separately and independently of this relationship.

Proprietary Information and Intellectual Property

Yoga Instructor agrees that all materials prepared on behalf of Researcher is the sole property of Researcher and shall be surrendered to Researcher upon demand. All client information and communications among Researcher associates and Yoga Instructors related to Researcher are confidential and to be used solely for the purpose of Researcher and shall not be conveyed, transferred, or shared with any other person or business. Yoga Instructor hereby agrees that Researcher may take photographs and video and other imagery for the purpose of promoting the services of Yoga Instructor and/or Researcher and that Yoga Instructor waives all rights to these images and gives Researcher the exclusive rights to own and use them.

Place of Work

Researcher agrees to comply with all reasonable requests of Yoga Instructor, and to provide access to all pertinent services, facilities, and documents reasonably necessary for Yoga Instructor to provide services under this contract. Researcher agrees to furnish space or premises, under the terms of this contract, for use by Yoga Instructor while providing contracted services.

Ethical Adherence

Yoga Instructor agrees to indemnify and hold Researcher and its owners and agents harmless against any and all liability imposed or claimed, including attorney's fees and other legal expenses, arising directly or indirectly from any act or failure of Yoga Instructor or Yoga Instructor's assistants or substitutes. This includes all claims relating to the injury or death of any person or damage to any property. Yoga Instructor is responsible for maintaining at all times its own liability insurance in a minimum amount of $500,000.00 to cover any such claims and is required by this Agreement to provide evidence to Researcher of the coverage described in this paragraph.

Malpractice/ liability insurance will be arranged by Yoga Instructor: Yes_____No_____
Date proof provided, with copy to researcher _____

Any questions, concerns or complaints that you may have about this study can be answered by the primary investigator, Michele Pinellas via email at mpinellas@my.nl.edu or my faculty chair, Dr. Caroline Perjessy via email at cperjessy@nl.edu.

Should you have questions regarding your rights in research, questions, concerns or complaints and wish to speak with someone who is not a member of the research team, you should contact (anonymously, if you wish) the National Louis Institutional Review Board, IRRBMailbox@nl.edu.

Both parties will need to sign this document if all questions have been answered and all parties involved agree on the terms.

Yoga Instructor Signature	Date
Primary Researcher Signature	Date

This agreement is subject to revision at any time, upon the request of either the Yoga Instructor or the Researcher.

Appendix E: Perceived Stress Scale (PSS)

PSS

Name:_____ Date:_____

The questions in this scale ask you about your feelings and thoughts during the last month.
In each case, you will be asked to indicate by circling how often you felt or thought a certain way.

	Never = 0	Almost Never = 1	Some-times = 2	Fairly Often = 3	Very Often = 4
1. In the last month, how often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
2. In the last month, how often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
3. In the last month, how often have you felt nervous and "stressed"?	0	1	2	3	4
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0	1	2	3	4
5. In the last month, how often have you felt that things were going your way?	0	1	2	3	4
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	0	1	2	3	4
7. In the last month, how often have you been able to control irritations in your life?	0	1	2	3	4
8. In the last month, how often have you felt that you were on top of things?	0	1	2	3	4
9. In the last month, how often have you been angered because of things that were outside of your control?	0	1	2	3	4
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

Appendix F: The Positive Affect and Negative Affect Schedule-Child (PANAS-C)

PANAS-C

Name:_____ Date:_____

This scale consists of a number of words that describe different feelings and emotions.
Read each item and then circle the appropriate answer next to that word.
Indicate to what extent you have felt this way during the past few weeks.

Feeling or emotion	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Interested	1	2	3	4	5
Sad	1	2	3	4	5
Frightened	1	2	3	4	5
Alert	1	2	3	4	5
Excited	1	2	3	4	5
Ashamed	1	2	3	4	5
Upset	1	2	3	4	5
Happy	1	2	3	4	5
Strong	1	2	3	4	5
Nervous	1	2	3	4	5
Guilty	1	2	3	4	5
Energetic	1	2	3	4	5
Scared	1	2	3	4	5
Calm	1	2	3	4	5
Miserable	1	2	3	4	5
Jittery	1	2	3	4	5
Cheerful	1	2	3	4	5
Active	1	2	3	4	5
Proud	1	2	3	4	5
Afraid	1	2	3	4	5
Joyful	1	2	3	4	5
Lonely	1	2	3	4	5
Mad	1	2	3	4	5
Fearless	1	2	3	4	5
Disgusted	1	2	3	4	5
Delighted	1	2	3	4	5
Blue	1	2	3	4	5
Daring	1	2	3	4	5
Gloomy	1	2	3	4	5
Lively	1	2	3	4	5

Appendix G: Interview Questions

Student:

a) Tell me about your experience of the yoga class.

b) What was your expectation of the yoga class before you started?

c) What is your understanding now?

d) If at all, how has the yoga affected your personal and academic life?

Parent/Guardians:

a) What differences if any, did you perceive in the students after the classes?

b) What are your insights regarding incorporating yoga in the school setting?

Yoga Teacher:

a) Describe what did and did not work in terms of curriculum, class size, age groups, gender, and location.

b) What differences if any, did you perceive in the students after the classes?

c) How would you improve on the administrative and procedural areas?

d) What are your insights regarding incorporating yoga in the school setting?

Appendix H: Emergent Code Occurrences

Media \ Codes	Parent/Guardian	Changes in child	Likeness/impressions	Students	Impressions of yoga	Participant Understanding	Participant wellbeing	Yoga Applicability	Yoga Teacher	Effectiveness of developed	Impressions of course and	Observable changes in	Participant	Totals
TJ Interview Transcript.docx					6	4	5	7						22
TH Interview Transcript.docx		4	5		7	6	4	5						31
NF Interview Transcript.docx		3	3		11	5	4	6						32
Ms.Teresa Interview Transcript.docx		8	5											13
KR Interview Transcript.docx		4	11		10	5	7	10						47
KB Interview Transcript.docx										17	14	11	13	55
AW Interview Transcript.docx		4	6		4	3	2	3						22
Totals		23	30		38	23	22	31		17	14	11	13	