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# The Effects of Yoga on Children's Self-Perceived Stress and Coping Abilities

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The Effects of Yoga on Children's Self-Perceived Stress and Coping Abilities

by

Holly Smith-Vogtmann

Thesis

Submitted to the Department of Health Promotion and Human Performance

Eastern Michigan University

In partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

in

Physical Education concentration in Pedagogy

Thesis Committee:

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June 11, 2009

Ypsilanti, Michigan

## Dedication

I dedicate this to my husband, Jeremy, and my wonderful family.

Their love and support always kept me going over the past years.

## Acknowledgements

This work was made possible by:

Dr. Roberta Faust, my graduate advisor: thank you for the numerous hours you spent with me.

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To my wonderful students who continue to teach me, as I teach them.

## Abstract

Stress is a problem for many children in our society. Previous research has shown how yoga can be used to help reduce stress levels. Twenty-seven fourth- and fifth-grade students from an urban elementary school participated in a three-week yoga unit during their physical education class, as a stress management unit. Using a repeated measures design, the participants' self-perceived stress level, stress coping skills, and perception of yoga was measured. The current study found no significant change in the participants' self-perceived stress level or stress coping skills after the yoga implementation. There was a significant change in student perceptions of yoga as both physical activity and for relaxation purposes. During the pre-test, 41.8 % of participants viewed yoga as both physical activity and relaxation; this number increased to 77.8% at the post-test six weeks later.

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## Chapter 1:

### Introduction and Background

#### Introduction

Children experience stress in their daily lives (Dumont & Provost, 1999). Internal and external sources can cause stress for children (Jewett & Peterson, 2003). Being away from home, worrying about peer relationships, worrying about school work, changing bodies, and fear of being different are some of the daily stressors in school-aged children. Some children have other stressors such as parents' divorce, moving to a new school, serious illness, or failure at school that causes more stress in their lives (Molgaard, 1996).

Coping with stress for children is sometimes done through crying or wishful thinking (Bagdi & Pfister, 2006). Other times children use bullying or other forms of aggressive behavior as a way to cope with stress (Konishi & Hymel, 2008). None of these behaviors help eliminate the stress from the child's life, but they may distract the child from the stress. Educators and families need to be aware of the stressors in children's lives and help children learn how to cope and manage them appropriately (Bagdi & Pfister, 2006).

Educational systems have tried to find new ways for children to learn how to cope with stress. Mindfulness-Based Stress Reduction has been used with children by educators to help children learn to cope with stress. Children describe how they feel during stress and learned coping skills through slow breathing (Saltzman, 2008). Tai-Chi, as an after-school program, has also been used with children to help them cope with stress. Stress management can be learned through relaxation as well as peer mentoring with feelings, trust, peer communications, problem-solving, and anger management

(Rollin, Arnold, Solomon, Rubin, & Holland, 2003). Relaxation Imagery Training has been shown to help students build higher self-esteem (Silvestri, Dantonio, & Eason, 1994).

Yoga is an ancient exercise from India that incorporates postures and breathing. Using proper breathing during postures can help quiet the mind and distress (Carrico, 1997). Yoga has been used with children in fitness programs because it is noncompetitive (Slawta, Bentley, Smith, Kelly, & Syman-Degler, 2008). Yoga has been recommended for physical education classes or classroom breaks. Yoga is a low impact exercise that incorporates strengthening, stretching, balance, and body alignment. Implementing yoga into a physical education program is consistent with the National Standards for Physical Education (Toscano & Clemete, 2008).

Asana Yoga research has been shown to decrease perceived stress among college students. Breathing rates and heart rate also decreased from the pre-to post-test during the Asana treatment (Wheeler & Wilkin, 2007). Physical relaxation has also been seen as an effect of yoga on college students. Participants have reported feeling “loose and limp” after yoga (Khasky & Smith, 1999). Yoga for stress management has also been implemented on college campuses to help college students and faculty learn how to manage their stress levels. This type of program has been suggested as an alternative or another resource for students seeking counseling services (Milligan, 2006).

Yoga has shown positive effects on children in different forms. Static motor performance increased in children after yoga instruction (Telles, Hanumanthaiah, Nagarathna, & Nagendra, 1993). Yoga breathing through the nostrils has been shown to increase spatial memory in children after breathing training (Naveen, Nagarathna, Nagendra, Telles, 1997). Fifth-grade children who had abnormal anxiety showed an increase in emotional balance and a decrease in their fears after training of Relaxation with Elements of Yoga (Stuck & Gloeckner, 2005).

Implementing yoga with children who have attention problems or Attention Deficit/Hyperactivity Disorder (ADHD) has shown to be effective on their attention span (Peck, Kehle, & Bray, 2005, Harrison, Manocha, & Rubia, 2004).

Yoga Ed. is an organization that brings physical and mental fitness benefits of yoga to children, teachers, and parents through yoga education programs to schools. Yoga Ed. offers a year-long curriculum for physical education. The mission of Yoga Ed. is to adapt the time-tested system of yoga into educational programs that provide children and teachers with proven techniques for enhancing health, well-being, and learning (Kalish & Guber, 2002).

The Yoga Ed. program showed an improvement in physical fitness scores and self-esteem. Yoga participation was correlated with good behavior. Teachers perceived the Yoga Ed. program as influencing students' ability to deal with anger and self-control, being able to deal with stress, level of confidence, doing their homework, getting along with others, attitudes about their bodies, and academics (Slovacek, Tucker, & Pantoja, 2003).

While yoga has been researched and has shown positive effects on stress management skills and has had positive effects on children, there is still a need for further research. One of these areas is yoga and the students' self-perception of daily stress. Teachers and parents have been evaluating the child's stress level and stress management skills after using yoga as a treatment, but it has not been measured by the child. This has also not been studied in a physical education setting. The purpose of this study is to test the theory that yoga can be used as a stress reduction technique that examines the relationship between the yoga treatment and self-perceived stress levels of fourth- and fifth-grade children in physical education at an urban elementary school.

### Statement of the Problem

The aim of this study was to determine if the use of yoga in physical education would help children manage their stress levels. If yoga does help elementary students manage their stress levels, it could be implemented into the physical education curriculum as a stress management unit.

### Purpose of the Study

The purpose of this study was to examine the relationship between Yoga Ed. and self-perceived stress levels and coping abilities, as measurable by self-reported evaluations, with fourth- and fifth-grade children in physical education classes at an urban elementary school. A secondary purpose of this study was to determine if fourth- and fifth-grade students perceive yoga as a physical activity, for relaxation, or as both.

## Hypothesis

It is hypothesized that:

### *Hypothesis 1*

Implementing yoga in physical education for three weeks, three times a week for forty minutes, will reduce individual fourth- and fifth-grade students' perceived stress level.

There is no difference in students' self-perceived stress level with the implementation of yoga in physical education for three weeks, three times a week for forty minutes, compared to the students' perceived stress level prior to participating in yoga.

### *Hypothesis 2*

Implementing yoga in physical education for three weeks, three times a week for forty minutes, will increase individual fourth- and fifth-grade students' ability to cope with stress.

There is no difference in students' ability to cope with stress with the implementation of yoga in physical education for three weeks, three times a week for forty minutes, compared to the students' ability to cope with stress prior to participating in yoga.

### *Hypothesis 3*

There is a correlation between self-perceived stress levels and stress coping skills, meaning that a high level of self-perceived stress would result in a low level of stress-coping skills and a low level of self-perceived stress would result in a high level of stress-coping skills.

There is no correlation between self-perceived stress levels and stress coping skills, meaning that a high level of stress would not result in a low level of stress-coping skills and a low level of self-perceived stress would not result in a high level of stress-coping skills.

#### *Hypothesis 4*

Implementing yoga in physical education for three weeks, three times a week for forty minutes, with individual fourth- and fifth-grade students, will allow them to perceive yoga as both physical activity and for relaxation.

Implementing yoga in physical education for three weeks, three times a week for forty minutes, with individual fourth- and fifth-grade students, will not change their perception on yoga.

#### Operational Definitions

Asana: Yogic postures (McCall, 2007).

Ashtanga Yoga: name of a style of yoga propagated by Pattabhi Jois (McCall, 2007).

Astanga Yoga: another name for Ashtanga yoga (McCall, 2007).

Hatha Yoga: various styles of yoga that include physical poses (McCall, 2007).

Mantra: A word or phrase chanted or said silently to oneself (“om”) (McCall, 2007)

Prana: Breath (McCall, 2007).

Pranayama: Yogic breathing exercises (McCall, 2007).

Sahaja: a form of meditation based on yogic principles (Manocha, Marks, Kenchington, Peters, & Salome, 2002).

Shavasana: Resting Pose (McCall, 2007).

Ujjayi: Victorious breath. A sibilant sound made by narrowing the vocal cords (McCall, 2007).

Vinyasa: A flowing sequence. A style of Hatha yoga in which practitioners flow from pose to pose (McCall, 2007).

Yoga: The state of connection or union, also often used shorthand to refer to the practices, particularly asana, that compose yoga (McCall, 2007).



Yoga Ed.: Yoga education for children developed by Leah Kalish and Tara Guber.

### Delimitations of the Study

Yoga was implemented into physical education for a three-week unit. Each physical education class is 40 minutes long and meets three times a week. The Yoga Ed. Curriculum was used to teach yoga.

Students were evaluated using the Stress in Children (SiC) questionnaire and the Children's Coping Strategies Checklist (CCSC). Stress in Children Questionnaire (SiC) is a short questionnaire that uses Likert-scale response categories with four alternatives. The categories are *never*, *sometimes*, *often*, and *very often*. Children were asked to choose the response that best applied to them (Osika, Friberg, & Wahrborg, 2007). The Children's Coping Strategies Checklist (CCSC): Divorce Adjustment Project that was used in this study is a fifty-two question self-report for children's ability to cope with problems (Program for Prevention, 1999).

### Limitations of the Study

The limitations of this study include the small sample of children who participated in the study. Participants in the current study were fourth- and fifth-grade students at a public elementary charter school. This sample represents only a small number of fourth- and fifth-grade students. Of the 49 fourth- and fifth-grade students in the school, only 27 (55 %) returned parental and participant consent to take part in the study. The researcher in this study was also the physical education teacher of the participants involved in this study. This may have caused bias in student responses on the questionnaires.

### Statement of Assumption

If the results of this study show a reduction in students' self-perceived stress level, yoga might be used as a stress management unit for elementary students. If the results of this study

show that the students develop coping skills for stress, it might also be used as a stress management unit for elementary students.

### Significance of the Study

Many research papers have focused on self-perceived stress reduction in college students (Wheeler & Wilkin, 2007). Research has also included the self-perceived physical relaxation of yoga with college students (Khasky & Smith, 1999). Research on younger children with using yoga to manage stress has been measured by teachers (Slovacek et al., 2003). However, it was interesting to see if implementing yoga into a physical education class impacted fourth- and fifth-grade students' self-perceived stress level.

This research was conducted over the course of three weeks in a regular physical education class. This study was done in a relatively short amount of time because physical education units can last from a few days to several weeks (Metzler, 2005). Three weeks was chosen for this unit, because the curriculum at the school only allowed for that much time. Data from this study may provide useful information regarding the use of yoga in a physical education curriculum for teaching students stress management skills.

## Chapter 2:

### Review of Literature

The purpose of this study was to examine the relationship between Yoga Ed. and self-perceived stress levels and coping abilities, as measured by self-reported evaluations, with fourth- and fifth-grade children in physical education classes at an urban elementary school. A secondary purpose of this study was to determine if fourth- and fifth-grade students perceive yoga as a physical activity, for relaxation, or as both.

#### Children and Stress

Children experience stress from multiple sources, both internal and external (Jewett, & Peterson, 2003). According to Monat and Lazarus (1977), stress occurs when environmental demands, internal demands, or both, exceed the adaptive resources of an individual, social system, or tissue system. Many school-aged children suffer from school-related stress such as failing grades, peer relationships, tests, separation from loved ones, and exposure to violence (Jewett, 1997). Daily struggles in life can cause stress and depression in children's lives (Dumont, & Provost, 1999).

A positive association between stress and bullying has been found in major stressful events and daily hassles. Konishi and Hymel (2008) suggest that caution needs to be used when helping children learn stress coping skills. Distraction was found to be a risk factor for high stress. Crying and wishful thinking are some of the coping actions that children may use to feel better about the stressor, but that does not resolve the stressor. Children and parents rated social situations, such as being laughed at by a peer, as highly stressful. Some children reported using aggressive behaviors and getting back at others as a way to cope with social stressors. Educators

and parents need to be aware of the stressors in childhood and help the children learn how to cope with them appropriately (Bagdi, & Pfister, 2006).

### Interventions to Help Children Cope with Stress

Mindfulness-Based Stress Reduction (MBSR) has been one way educators have tried to help students manage the daily stress children face. In one program, children participated in an eight-session course to learn how to deal with stressful situations. Children were asked to describe how they felt during stress and then learned how to cope with those feelings with slow breathing (Saltzman, 2008).

Tai-Chi was used with twelve 7- to 15-year-old at-risk children to help them cope with the stress in their daily lives. The program operates as an after-school program. It is a peer mentoring program that teaches rapport building, feelings, trust, drug awareness, peer pressure, communication skills, anger management, and problem-solving. An extra unit was created in this program for relaxation. The program developed the relaxation unit to help the children manage their stress and promote a healthy lifestyle (Rollin et al., 2003).

The relaxation unit of the program uses tai-chi and yoga techniques. Both of these exercises affect the whole child. Tai-Chi and yoga stimulate the brain, the nervous system, circulatory system, and the musculature (Birkel, 1998). Along with the physical exercises, they were taught cognitive and experimental models of stress reduction. The program also included activities and discussions to help the children identify what stress is and how to manage it (Rollin et al., 2003).

In a study by Silvestri et al. (1994), ninety fourth-grade students showed an increase in self-esteem after a five-month period of receiving thirty-two sessions of Developing Understanding of Self and Others, a self-development program or relaxation imagery training.

The sixteen-week session was twice a week for thirty minutes. Teachers were unaware of the specific training being used in the study. Participants were from a large urban city from three different schools. Children were divided into three equal groups: a group for the self-development program, a group trained in relaxation and imagery, and a control group that received no training. Both teachers and students took a pre-test at the beginning of the school year and a post-test five months later. The Perceived Competence Scale for Children and a Teacher's Rating Scale of Child's Actual Behavior was used at pre-and post-test. Assessments were scored for scholastic competence, social acceptance, physical appearance, and behavioral conduct. At the post-test, students who participated in both programs had higher measures of perceived self-esteem than the control group. Teachers perceived that the students who were in the training groups had higher self-esteem (Silvestri et al., 1994).

## Yoga

Yoga is believed to be more than five thousand years old and originated from one of six orthodox philosophies evolving out of transcendentalism of ancient India (Carrico, 1997). Yoga is commonly translated as "union" and is the combination of heart, mind, and body. Two of the common components of Hatha Yoga are the postures (asanas) and the breath (pranayama). Asana, the physical practice of yoga, is most familiar to Westerners. Hatha means Ha "sun," and tha "moon," balancing and joining the opposites. The physical postures help strengthen the body and make it more flexible (Boon & Kirk, 2006). Using proper breathing during the postures helps quiet the mind and distress (Carrico, 1997). Physical and mental exercises are meant to synchronize the body and mind for a healthy lifestyle (Komitor, 2000).

Yoga can often be confused with Hinduism in the west because of language and terminology. In India there are many who practice yoga, but not all of them are Hindu. There are

different types of yoga philosophical traditions. One of these is Classical Yoga, which involves eight component stages. Classical yoga is often referred to as Ashtanga Yoga (Boon & Kirk, 2006).

In Ashtanga Yoga, also referred to as Astanga Yoga, the instructor guides students through Ujjayi, a specialized breath that is to be used throughout the class. The breathing is audible and is done through closing the back of the throat while inhaling and exhaling. This creates heat in the body, making this type of yoga very intense. Once a student has proven to the instructor that he/she can do the breathing properly, he/she can begin the asanas (poses) (Swensen, 1999).

Ashtanga Yoga uses names such as slow flow, Vinyasa Flow, and Power Yoga in the United States. The name will tell you the intensity of the class. Vinyasa Yoga was developed from the Ashtanga Yoga Series (Birch, 1995). Vinyasa is known as the marriage of breath and movement, which is experienced in Ashtanga Yoga. The difference between the two types of yoga is the method behind teaching this process (Carrico, 1997).

Yoga has been used with children in programs, such as *Be A Fit Kid*, due to the nature of yoga as noncompetitive exercise. Yoga is an individual exercise and allows the child to focus on his or her own fitness level (Slawta et al., 2008). Toscano and Clemete (2008) recommend using yoga in physical education classes for children or as a break in a classroom setting. Teaching yoga as part of the curriculum in physical education is consistent with the National Standards for Physical Education (Toscano & Clemete, 2008).

Yoga is a form of exercise that is low impact and a life-long exercise. Children can explore body movements while strengthening, balancing, stretching, and aligning the body. Yoga can be taught in a variety of ways to make it age-appropriate by adding music or moving quickly

in and out of poses. Toscano and Clemete (2008) suggest allowing the yoga to be creative and a form of expression without expectations. Learning to connect breathing to movement can help children connect the body and the mind, which can help children learn to relax and learn self-control (Toscano & Clemete, 2008).

### Yoga Ed.

Yoga Ed. is an organization that brings physical and mental fitness benefits of yoga to children, teachers, and parents through yoga education programs to schools. The organization was founded by Tara Guber, with the support of Leah Kalish. The mission of Yoga Ed. is to adapt the time-tested system of yoga into educational programs that provide children and teachers proven techniques for enhancing health, well-being, and learning (Kalish & Guber, 2002). Yoga Ed. offers a year-long curriculum for physical education. Yoga Ed. also offers workshops and a manual for classroom teachers in order to integrate yoga into the classroom (Kalish & Guber, 2002).

The Yoga Ed. curriculum is 36-week curriculum. Curricula are available for kindergarten through twelfth grade. Each curriculum is divided into three parts: mind, body, and self. Each lesson is structured with time-in, discussion, warm-up, yoga, game/partner work, rest/visualization, and a class project. The lessons within the curriculum are aligned with the National Standards for Physical Education (Kalish & Guber, 2002).

### Research on Yoga and Children

#### *Motor Development*

Yogic participation has been implemented with children, ages 9-13, to improve static motor performance. Two groups of forty-five children were tested on hand steadiness using a simple apparatus that consisted of a metal plate with nine holes of graded diameters, 8mm. to

2mm. Participants had to hold a stylus in one hand, with their arm straight, in a graded hole for fifteen seconds without making contact with the sides of the metal plate. Each time the stylus would touch the side it was electronically counted as an error (Telles et al., 1993).

One group of children were trained in yoga exercises; the other group did not receive any training. The yoga group participated in physical postures, voluntary regulation of breathing, maintenance of silence, visual focusing, and games to improve attention span. The yoga group received eight hours of yoga over the course of ten days. From the baseline the yoga group had a statistically significant number of fewer errors at the follow-up. At the baseline the yoga group's mean was 221.2  $\pm$  10.00 errors. At the follow – up the yoga group had 183.3  $\pm$  7.1 errors, making it statistically significant between baselines and follow-up (Telles et al., 1993).

Slovacek et al. (2003) studied 405 kindergarten-through-eighth-grade students who participated in Yoga Ed. at their school. Yoga Ed. was taught as a separate class in the school with certified yoga instructors during the 2002-2003 school year. Physical fitness tests showed improvement over a two-year span. The California state tests for flexibility, upper body strength, and aerobic capacity had a nine-percent increase for elementary students and a twelve-percent increase for middle school students. The results of the physical fitness tests were above average levels of fitness of students throughout the district. The students in fifth grade at The Accelerated School were almost twenty-four percent more fit than the average fifth-grader in the Los Angeles School Unified School District. The seventh-graders at The Accelerated School were almost twenty-nine percent more fit than the average seventh-grader in the district (Slovacek et al., 2003).



### *Yoga and Memory*

School-aged children, ages 10-17, participated in a spatial and verbal memory investigation with yoga nostril breathing. The purpose of this study was to determine if uninostril breathing facilitates the performance on spatial and verbal cognitive tasks, said to be right and left brain functions. The children (n=108) were randomly assigned to five different groups. Each group took a spatial and verbal memory test at baseline. One group received no treatment, while the other four groups participated in one of the following: right nostril breathing, left nostril breathing, alternate nostril breathing, and breath awareness without manipulation of the nostrils. The four breathing treatment groups practiced their specific breathing over the course of ten days. At the follow-up there was a significant increase for spatial memory, but no significant change for the verbal memory assessment. The control group showed no change. This study suggested that yoga breathing can help children increase spatial memory (Naveen et al., 1997).

### *Yoga and Academic Performance*

Slovacek et al. (2003) researched whether participants in the Yoga Ed. curriculum had a change in academic performance while participating in yoga. Academic improvement was shown to increase in middle school students who participated in the program. The students' participation in yoga was correlated with attendance, school discipline referrals, suspensions, gender, grade levels, ethnicity, and grades. It was not clear that yoga caused the increase, but it may have contributed to the results. Elementary academic scores were not available for the study (Slovacek et al., 2003).

The teachers were also a part of taking a survey to help determine if Yoga Ed. was contributing positively in the school. The survey was based on a 1 to 5 scale, five being that yoga influences the student a great deal. The results showed that the classroom teachers felt yoga was

influencing in some way the students' academic performance, focus, ability to deal with anger and self-control, ability to deal with stress, level of confidence, completion of their homework, getting along with others, attitude toward their bodies, and academics. There was no correlation found between yoga participation and the students' attendance. The students' daily attendance levels were 97 to 98 percent average (Slovacek et al., 2003).

### *Yoga and Heart Rate*

Psychophysiology measures (heart rate, skin resistance, breath rate, and pattern) were measured in two groups of girls, ages 12-16. This was a two-part study. One group of 40 girls was from a community home and received education at that facility. All of the girls came from split families and had difficulties adjusting to home or in society. Another group of 40 girls, with the same type of socioeconomic backgrounds, were randomly selected from a regular school and all living at home. There was not a significant difference among the heart rates of both groups of girls; however, the girls who lived in the community home had a significantly higher breath rate than the school group. The skin resistance was lower than the school grouping as well (Telles, Narendran, Raghuraj, Nagarathna, Nagendra, 1997).

The second part of the study implemented yoga and games to determine if the psychophysiology measurements would change. The girls were split into two groups. One group participated in games, which focused on physical activity and did not incorporate relaxation. The other group of girls received yoga, which focused on 50 minutes of postures and 10 minutes of relaxation. At the end of the sixth month intervention the girls' psychophysiology was assessed again. There was a significant decrease in the heart rates of both the yoga and game group from the baseline. The yoga group was the only group to show a significant reduction in breath rate.

The results suggest that a program that includes relaxation, awareness, and progressive physical activity could be a useful intervention for children in group homes (Telles et al., 1997).

### *Yoga and Attention Difficulties*

Yoga has been used as an intervention for children with attention difficulties (Peck, Kehle, & Bray, 2005). Ten students, in grades first through third, with attention difficulties, not those diagnosed with Attention Deficit Hyperactivity Disorder (ADHD), were selected based on teacher referrals and observed time on task in the classroom to participate in a yoga intervention to see if the attention span would increase (Peck et al., 2005).

Participants were observed for ten minutes in ten second intervals using the Behavioral Observation Form as the instrument of measure during baseline, treatment, and follow-up. Participants in the study were observed in the classroom, along with their peers who did not have attention difficulties. The treatment used for the students with attention difficulties was a 30-minute yoga DVD by Giam called “Yoga for Kids.” Two different videos were used for age-appropriate practices. Both videos included postures and breath in a game-like manner for the children. The effect size rose from 1.5 to 2.7 during the yoga intervention, but decreased from .77 to 1.95 during the follow-up. Peers without attention difficulties were observed during all three phases as a comparison for the students’ time on task, but they were not involved in the treatment (Peck et al., 2005).

Peck and her colleagues (2005) suggest that yoga could be done for a whole classroom or used as an intervention for children with attention difficulties along with other types of interventions such as behavioral modifications, cognitive modifications, or medicines. There are speculations in the findings from this study, because the investigator was implementing the intervention and observing the students, which may have caused bias. It is also stated that the

results of the study should be viewed with caution, because different techniques used to calculate effect sizes can lead to different results. This study is significant because of the broad range of attention difficulties and the direct measurement of yoga's effect in the classroom (Peck et al., 2005).

Previous studies with boys who have Attention-Deficit/Hyperactivity Disorder (ADHD) found less significant results. A group of eleven boys, 8-13 years of age, participated in a twenty-session yoga study. Participants were assessed by their parents while they were on medication withdrawal. Jensen and Kenny (2004) suggest that yoga may act as a complimentary treatment for boys with ADHD who are stabilized on medication. Researchers suggest that future research should be done on larger groups with more supervised yoga sessions (Jensen & Kenny, 2004).

Family-oriented treatment using Sahaja yoga meditation has been found as an effective management tool for children with ADHD. Children who were diagnosed with ADHD and their families participated in a six-week program of twice-weekly clinic sessions and regular mediation at home. This study was done to investigate meditation as a family treatment method for children with ADHD. Forty-four families participated in the study. There were forty-eight children and sixty-one adults. Children and adults participated in the data collection of child report questionnaires, parent-rated questionnaires, examiner testing, and interviews (Harrison et al., 2004).

Assessments were collected during the first, third, and sixth week of the study. Parent-teacher questionnaires for ADHD were assessed by the parent using the Conner's Parent Questionnaire. Children were assessed using the Burnett Self-Scale for self-evaluation and self-esteem. An abbreviated version was used for the areas of peer relations, relations with mother and father, and learning self-concept. Children were also interviewed regarding whether they

liked meditation, what they liked about it, whether they felt it helped them, and why they felt it helped them (Harrison et al., 2004).

#### *Yoga and Attitudes/Behavior*

Slovacek et al. (2003) found after one year of the Yoga Ed. program that students' self-esteem increased. Participants were asked in both the pre-test and the post-test if they agreed with the statement "I like myself." There was a twenty percent increase in agreeing with this statement by the end of the year. Teachers' perceptions of the students who participated in Yoga Ed. showed that students' attitudes about their bodies were influenced by the program (Slovacek et al., 2003).

The behavior of students was tracked through referrals and yoga participation. The results showed that there was a negative correlation between participating in yoga and discipline deferrals. This showed that participating in yoga seems to be related to good behavior. The students who had high participation in yoga seemed to have fewer behavioral problems in school (Slovacek et al., 2003).

#### *Yoga and Stress Reduction*

Fifth-grade children in Germany (n=48) participated in a study to determine if training of relaxation with elements of yoga for children and adolescents would reduce stress and optimize their reactions to high demands and pressure in everyday life. Out of 110 children, the 48 participants were chosen for the program due to abnormal examination anxiety. The 48 children were divided into two groups in order to have a control group that did not receive training (Stuck & Gloeckner, 2005). The program consisted of 15 meetings that lasted sixty minutes. The program was divided into three categories: relaxation, yoga exercises, and final part. Children learned relaxation through concentrating on single body parts and using yoga breathing. During

yoga exercises, participants learned 23 poses and learned to develop their own poses. Students taught their poses to others in order to take on the teacher role. During the final portion of the class, children participated in massage, meditation, sensory exercises, interactive exercises, and imagery techniques. Through measuring process variables and effect variables during pre- and post-tests, measuring three times, it showed an increase in emotional balance and reduced fears. The data from the Anxiety Questionnaire for Pupils also showed that feelings of hopelessness and aggression were reduced. It is suggested that yoga is suited for children as an independent control method (Stuck & Gloekner, 2005).

Slovacek et al. (2003) found through surveys completed by the teachers at The Accelerated School that participating in Yoga Ed. helped influence the students' ability to deal with stress.

#### Yoga and Perceived Stress Reduction with Adults

Physical and perceptual benefits were investigated with twenty-six healthy adults, 20-58 years of age, using two different styles of yoga, Hatha and Astanga. The participants were divided into the two different yoga classes for six weeks. The significant improvement of a twenty-percent reduction in self-perceived stress for participants in Astanga yoga and no significant reduction in self-perceived stress for Hatha participants shows there are differences in perceptual benefits of yoga. Perceptual benefits were assessed using Perceived Stress Scale, and short form 20 health survey was used for data collection. This study is significant to the area of yoga research because it focused on testing the benefits of certain styles of yoga (Cowen, & Adams, 2005). A similar study was done by Wheeler and Wilkin (2007) with 79 college students, ages 18-54, to determine if Yoga Asana influenced perceived stress level over a ten-

week period. The results of the study suggest that Yoga Asana was associated with positive pre- to post-class changes on perceived stress.

Khasky and Smith (1999) found that college students still felt stress after a yoga session but still scored high on physical relaxation. Yoga participants self-reported feeling disengagement after the audiotape but physically feeling limp and loose. This was measured by R-State Inventory and Smith Quick Stress test.

College students, from a general health course (n=62), participated in a study to examine the relationship between the practice of meditation and a measure of self-actualization. The purposes of this study were also to determine if mantra meditation and Shavasana relaxation produce a measurable reduction in stress reduction. Measures were taken using Personal Orientation Inventory and Behavioral Relaxation Scale. Behaviors that were measured were slow regular breathing, anatomical sounds, and relaxed body parts during relaxation and meditation, independent from the self-report. Meditation was instructed using mantra meditation, which is believed to vibrate the various energy centers of the body. The relaxation group participated in Shavasana, which involved systematically relaxing muscle groups for twenty to thirty minutes. The results of this study suggest that meditation training had higher scores on relaxed behaviors than the relaxation training (Janowiak & Hackman, 1994).

#### Yoga as Stress Management for College Students

Yoga for Stress Management (YSMP) has been implemented among college students as an alternative therapy resource. The program was designed in order to help students learn to cope with stress. The program was free to all students and staff. It was offered various times throughout the week and was promoted through flyers and invitations from counselors. The aim of the program was to provide stress management skills through yoga exercises, breathing, and

the use of metaphors to help students learn to manage stressful situations. No statistics were given to determine the effects of this service, but students seemed to frequently use this service, especially those classes offered at the end of the week. Milligan (2006) suggested that this may be a helpful program to students who want to seek an alternative resource in replace of traditional counseling (Milligan, 2006).

### Summary

Some research has been conducted on various aspects of yoga, exploring the effects on physical and emotional skills of children, but the need for research, especially with elementary school-aged participants, still exists. Past studies have shown a positive effect of yoga integration with parents and teachers evaluating the psychological effects (Slovacek et al., 2003, Peck et al., 2005, & Jensen & Kenny, 2004). The purpose of this study was to examine the relationship between Yoga Ed. and self-perceived stress levels and coping abilities, as measured by self-reported evaluations, with fourth- and fifth-grade children in physical education classes at an urban elementary school. A secondary purpose of this study was to determine if fourth- and fifth-grade students perceive yoga as a physical activity, for relaxation, or as both.



## Chapter 3:

### Methods

The purpose of this study was to examine the relationship between Yoga Ed. and self-perceived stress levels and coping abilities, as measured by self-reported evaluations, with fourth- and fifth-grade children in physical education classes at an urban elementary school. A secondary purpose of this study was to determine how fourth- and fifth-grade students viewed yoga both before and after implementing it into a physical education class.

#### Participants

Forty-nine fourth- and fifth-grade students from an urban elementary school, ranging in ages from 9-12 years, were invited to participate in this study. All forty-nine students were invited to participate in the study as part of their physical education class. All students were required to obtain parental consent as well as their own consent in order to participate in the study. Students without proper consent did not participate in the study, and there were no penalties against the students for this.

#### Design of the Study

A pre-test, post-test with repeated measures design was used in this study. Due to the small number of participants in the study, participants served as their own control group. In order for this to happen, six weeks were needed for data collection. The mid-point of the study, week 3, was prior to the yoga intervention. The mid-point served as the post-test for the control group and the pre-test for the treatment group.

Participants attended their regular physical education class during the Yoga Ed. unit. Participants were given the SiC and the CCSC for the Divorce Adjustment Project during non-

physical education class. Students who were in class but not participating in the survey were asked to read a book of their choice silently at their desks.

Participants in the study were given both the SiC and CCSC for the Divorce Adjustment project at the beginning of the six weeks (pre-test). Participants were instructed to answer the questions honestly and told that there was no right or wrong answers for the Stress in Children Questionnaire (SiC). For the Children's Coping Strategies Checklist (CCSC) for the Divorce Adjustment Project, the answer that describes how they usually cope with a problem should be chosen, and once again they were reminded that there were no right or wrong answers (Program for Prevention, 1999). During the first three weeks, participants did not receive any Yoga Ed. treatment. Instead they participated in a softball unit in physical education. At the end of this three-week time period, participants were given the same questionnaires once again with the same directions as described before (mid-point). After the second assessment, participants were taught Yoga using the Yoga Ed. curriculum. At the end of the three-week unit, participants took the SiC and the CCSC for the Divorce Adjustment Project with the same directions as done previously (Field, 2005).

### *Instruments*

In order to determine if participation in Yoga Ed. had an effect on participants' self-perceived stress level, the Stress in Children Questionnaire (Osika et al., 2007) was used. In order to determine the participants' stress-coping skills, the Children's Coping Strategies Checklist for the Divorce Adjustment Project (Program for Prevention Research, 1999) was used.

The Stress in Children Questionnaire (SiC) is a short, 21-item questionnaire that uses Likert-scale type response categories with four alternatives. The categories were (1) never, (2)

sometimes, (3) often, and (4) very often. Children were asked to choose the responses that best applied to them. The questionnaire was developed for children ages 9-12, and items were selected by schoolteachers and psychologists familiar with stress and children. Studies using the Beck Youth Inventories of Emotional and Social Impairment, saliva, and urine samples have shown that the SiC is a valid and reliable self-report for children's perceived stress level (Oska et al., 2007).

The Children's Coping Strategies Checklist (CCSC) for the Divorce Adjustment Project is a 52-question self-report for children's ability to cope with problems. The CCSC for the Divorce Adjustment Project was developed from two other valid instruments, *Children's Coping Strategies Checklist* and *How I Coped Under Pressure Scale*. The *How I Coped Under Pressure Scale* used the same questions as the Children's Coping Strategies Checklist but was changed to past tense and focused on a specific problem. Both instruments were tested and proved to be reliable (Program for Prevention, 1999). The same 45 questions that appeared on these scales were used in the CCSC Divorce Adjustment Project, with seven additional questions, and showed test-retest reliability. The questionnaire used a Likert-scale response with four categories: (1) never, (2) sometimes, (3) often, and (4) most of the time (Program for Prevention, 1999).

#### Data Collection

The Yoga Ed. treatment, the independent variable, was compared with the students' self-perceived stress level and their ability to cope with stress, the dependent variables. Participants were asked at the mid-point and at the post-test whether they viewed Yoga Ed. as a physical activity or as relaxation. This helped determine how students of this age group viewed Yoga Ed. both before and after the implantation.

The demographics of each participant were collected through school records. School records were used because they were completed and signed by an adult guardian of the student. This was done to make sure the information on each participant was accurate.

### *Procedures*

Participants were not asked to put their name on any of the surveys. The researcher had the surveys numbered and all data collected were placed in a secure locked file in the researchers' office. Students were given a number next to their name in order for the researcher to identify the surveys. This was protected in the same manner as the data from the survey. The data from the surveys were entered into Microsoft Excel using a number coding system and not the participants' names and later transferred to SPSS for analysis. Microsoft Excel was available on the computers at the school where the research was taking place and the home of the researcher, while SPSS was not available on those computers. This spreadsheet was available on two flash drives, both kept in a locked office.

For the present study, participants learned yoga for three weeks. Eight Yoga Ed. lessons were used, practicing it three times a week for 40 minutes. Physical education units in elementary schools can last from a few days to several weeks. Instruction is more likely to be effective if the units are made clear and coherent by the teacher before the unit begins (Metzler, 2005).

During the yoga unit, participants learned various poses and breathing techniques from the Yoga Ed. curriculum. Modified versions of the third-through fifth-grade Yoga Ed. curriculum were taught over the course of three weeks. The actual curriculum is divided into three sections—body, mind, and self—and was created for use during the entire school year (Kalish & Guber, 2002). In order to use Yoga Ed. as a unit in physical education, the lessons

need to be chosen from the manual based on the objectives that are desired to be taught. For the purpose of this study, four lessons from the Mind and Body sections were taught. Participants focused on discussion, poses, breathing, and guided relaxation.

The word *pre-test* is used to describe the self-assessment scores from the beginning of the six-week study. *Mid-point* is used to describe the second set of self-assessments, which took place before the yoga implementation. *Post-test* refers to the self-assessments that took place after the yoga implementation.

### Data Analysis

The current study used the pre-test post-test with repeated measures design allowing for a control group within the same group that was used for the treatment (Field, 2005). The SiC and the CCSC for the Divorce Adjustment Project were analyzed using SPSS. Descriptive statistics were used to determine the mean and standard deviation for the frequencies and distribution of the SiC and CCSC of the Divorce Adjustment Project. A t-test was used to identify differences within the control group between the pre-test and the mid-point. A t-test was used to identify differences within the treatment group between the mid-point and the post-test. Pearson's Product Moment (PPM) Correlation was used to determine if there was a correlation between the participants' responses on the SiC and the CCSC for the Divorce Adjustment Project.

A Pearson's Product Moment Correlation formula was also used to compare the participant's view of Yoga Ed. between the mid-point (prior to yoga intervention) and the post-test. This was used to determine if participants view Yoga Ed. as a physical activity or as a relaxation method and if their point of view changes after the Yoga Ed. implementation.

## Chapter 4:

### Results

#### *Demographic Results*

Forty-nine fourth- and fifth-grade students from an urban elementary school, ranging in ages from 9-12 years, were invited to participate in this study as part of their physical education class. Of the 49 students, 27 students (55%) received proper consent to participate in the study.

Of the twenty-seven students, 13 were male (48.1%) and 14 were female (51.9%). There were 11 fourth-graders (40.7 %) and 16 fifth-graders (59.3%). The students ranged in ages from 9 to 12 years of age. Five of the participants were 9 years of age (18.5%), seventeen of them were 10 years of age (63%), three of them were 11 years of age (11.1%), and two of them were 12 years of age (7.4%). Of the twenty-seven students who participated in the study, 85.2% were African American, 11.1% were Biracial, and 3.75 % were Caucasian. All of the students were in overall good health; however, five of them had asthma and had proper medication on school grounds where the research took place (See Table 1).

Table 1  
*Demographic Characteristics of Participants*

Characteristics	Number	Percent
Group	(n=27)	
Control	27	100
Treatment	27	100
Gender	(n=27)	
Female	14	51.9
Male	13	48.1
Age	(n=27)	
9 years old	5	18.5
10 years old	17	63
11 years old	3	11.1
12 years old	2	7.4
Race/Ethnicity	(n=27)	
American Indian/Alaskan Native	---	---
Asian/Asian American	---	---
African American	23	85.2
Biracial	3	11.1
Caucasian	1	3.75
Other	---	---
Grade level	(n=27)	
Fourth	11	40.7
Fifth	16	59.3

The first research question of this study was to determine if the use of yoga in physical education would help children reduce their self-perceived stress level. The Analysis of Stress in Children was used to measure participants' self-perceived stress level. The total score of the

questionnaire allows the researcher to determine the amount of self-perceived stress that the participant had in his or her life both before and after the implementation of Yoga Ed. into the physical education class.

#### *Analysis of Stress in Children (SiC)*

Twenty-seven students from an urban elementary school participated in this study. Due to the small number of participants, the students served as their own control group. The SiC Questionnaire was given to the participants three times over the course of six weeks. The pre-test and the mid-point questionnaires were given three weeks apart, both prior to the yoga intervention. The post-test was given three weeks after the yoga implementation.

The mean score of the self-perceived stress level, as measured by the SiC, in the participants at the pre-test ( $m = 51.33$ ,  $sd = 8.204$ ) was not significantly different from the mean of the participants after the treatment ( $m = 51.96$ ,  $sd = 7.128$ ). At mid-point in the study the participants' stress level, according to the SiC, was not significantly different from the pre-test or the post-test ( $m = 51.30$ ,  $sd = 8.227$ ). The scores of the SiC Questionnaire had a range of 33 points at the pre-test and the mid-point, with 38 being the lowest score and 71 being the highest score. At the post-test the SiC Questionnaire had a range of 34 points, with 37 being the lowest score and 71 being the highest score (See Table 2).



Table 2

*Raw Scores, Means, and Standard Deviations for SiC Outcome*

	N	Range	Minimum	Maximum	M	SD
SiC Totals Pre-test	27	33	38	71	51.33	8.204
SiC Totals Mid-point	27	33	38	71	51.30	8.277
SiC Totals Post-test	27	34	37	71	51.96	7.128

Analysis of data for the SiC demonstrated no significant difference between the control groups' self-perceived stress level ( $t [26] = 1.000, p > .05$ ) and the treatment group ( $t [26] = -.420, p > .05$ ). The SiC total scores were assessed at the pre-test and the mid-point (prior to yoga intervention) to identify the differences of the control group. The SiC total scores were assessed at the mid-point (prior to yoga intervention) and the post-test (after yoga intervention) to identify the differences of the treatment group.

*Analysis of Children's Coping Strategies Checklist (CCSC)*

The second question of this study was to determine if the use of yoga in physical education would help children increase stress coping skills. The Analysis of Children's Coping Strategies Checklist (CCSC) for the Divorce Adjustment Project was used to measure participants' coping abilities. The total score of the questionnaire allows the researcher to determine the ability to cope with stress that the participants had in their lives both before and after the implementation of Yoga Ed. into their physical education class.

Due to the small number of participants, the students served as their own control group. The CCSC for the Divorce Adjustment Project was given to the participants three times over the course of six weeks. The pre-test and the mid-point questionnaires were given three weeks apart, both before the yoga implementation. The post-test was given three weeks after the yoga implementation.

The mean score of the CCSC for the Divorce Adjustment Project at the pre-test ( $m = 126.59$ ,  $sd = 22.772$ ) was not significant to the CCSC for the Divorce Adjustment Project at the post-test ( $m = 123.11$ ,  $sd = 21.514$ ). At mid-point (prior to yoga intervention) in the study, the participants' ability to cope with stress was not significantly different from the pre-test or the post-test ( $m = 118.33$ ,  $sd = 24.380$ ). The scores of the CCSC for the Divorce Adjustment Project had a range of 81 points at the pre-test, with 89 being the lowest score and 170 being the highest score. At the mid-point (prior to yoga intervention) there was a range of 97 points, with 77 being the lowest score and 174 being the highest score. The post-test had a range of 75 points, with the lowest score being 86 and the highest score being 161 (See Table 3).

Table 3

*Raw Scores, Means, and Standard Deviations for CCSC for the Divorce Adjustment Project*

	N	Range	Minimum	Maximum	M	SD
CCSC Totals Pre-test	27	81	89	170	126.59	22.772
CCSC Totals Mid-point	27	97	77	174	118.33	24.380
CCSC Totals Post-test	27	75	86	161	123.11	21.514

Analysis of data from the CCSC for the Divorce Adjustment Project showed no significant difference between the control group ( $t [26] = 2.056, p > .05$ ) and the treatment group ( $t [26] = -1.593, p > .05$ ). The CCSC for the Divorce Adjustment Project total scores were assessed at the pre-test and the mid-point (prior to yoga intervention) to identify the differences of the control group. The CCSC for the Divorce Adjustment Project total scores were assessed at the mid-point (prior to yoga intervention) and the post-test to identify the differences of the treatment group.

*Correlations between Self-Perceived Stress Levels and Stress Coping Skills*

The third purpose of this study was to determine if there was a correlation between self-perceived stress levels and stress coping skills, meaning if the participant had a high level of self-perceived stress, this would result in a low level of stress-coping skills, and a low level of self-perceived stress would result in a high level of stress-coping skills. The Pearson's Product Moment (PPM) Correlation was used to determine if there was a correlation between the participants' scores on these two measures.

Analysis of data from the scores of the participants between the SiC and CCSC for the Divorce Adjustment Project showed a strong correlation at the pre-test ( $p=.01$ ) and the post-test ( $p=.05$ ). The SiC total score at the pre-test and the CCSC for the Divorce Adjustment Project total score at the pre-test showed a strong correlation ( $r = .489$ ). The SiC total score at the mid-point and the CCSC for the Divorce Adjustment Project total score at the mid-point showed a weak correlation ( $r = .241$ ). The SiC total score at the post-test and the CCSC for the Divorce Adjustment Project total score at the post-test showed a strong correlation ( $r = .477$ ; See Table 4).

Table 4

*SiC and CCSC for the Divorce Adjustment Project Total Outcome Correlation*

	N	r	p	Sig. (2-tailed)
SiC & CCSC Totals Pre-test	27	0.489	0.01	0.010
SiC & CCSC Totals Mid-point	27	0.241		0.225
SiC & CCSC Totals Post-test	27	0.477	0.05	0.012

*Participants Opinion of Yoga*

The fourth purpose of this study was to determine how participants viewed yoga. Participants were asked how they viewed Yoga both before and after the Yoga Ed. treatment. Students were asked if they viewed Yoga as physical activity, relaxation, or both. Immediately before the yoga unit, the mid-point (prior to yoga intervention) of the study, 3.7 % (n=1) of participants viewed yoga as physical activity only, 48.1 % (n=13) viewed yoga as only for relaxation, and 48.1% (n=13) viewed yoga as for both relaxation and physical activity. At the end of the yoga unit, the post-test, 22.2% (n=5) of the participants viewed yoga for relaxation and 77.8% (n=22) viewed yoga as both relaxation and physical activity. Results of the analysis showed a moderate strength correlation at the  $p = .05$  level ( $r = .419$ ; See Table 5).

Table 5

*Participants' Opinion of Yoga in Raw Numbers*

	Relaxation	Physical Activity	Relaxation & Physical Activity
Mid-point	13	1	13
Post-test	5	0	22

Summary

The results of this study demonstrated there was no significant difference between the control groups' self-perceived stress level and the treatment groups. This study also demonstrated that there was no significant difference between the control groups' ability to cope with stress and the treatment groups' ability to cope with stress. This study did, however, find a strong correlation at the .01 level between the total scores of the SiC questionnaire and the CCSC

for the Divorce Adjustment Project at the pre-test. Post-test results also demonstrated a strong correlation at the .05 level between the total scores of the two self-assessments.

Participants' perception of yoga did change after the yoga intervention. The Pearson's Product Moment (PPM) Correlation was used to determine if there was a correlation between the participants' view of yoga before and after the yoga intervention. Data received from analysis of this question showed a moderate strength correlation at the  $p = .05$  level.

## Chapter 5:

### Discussion

There were four purposes of this study. The first purpose was to determine whether implementing Yoga Ed. into a physical education class would help the students reduce their self-perceived stress level. The second purpose was to determine if implementing Yoga Ed. into a physical education class would help students increase their ability to cope with stress. The third purpose of this study was to determine if there was a correlation between the participants' self-perceived stress level and their ability to cope with stress. The final purpose of this study was to study students' perceptions of yoga as a physical activity and for relaxation. Determining whether Yoga Ed. helps students manage their stress level or helps them increase coping skills for stress can help physical educators decide whether or not to use yoga as a stress management unit.

#### *Research Question 1*

There was no difference between the participants' self-perceived stress level before or after the implementation of yoga in physical education for three weeks, three times a week for forty minutes, with individual fourth- and fifth-grade students in the current study. Self-perceived stress levels were measured by the SiC questionnaire. The SiC questionnaire scores from 21, being most stressed, to 84, being least stressed (Osika et al., 2007). Participants in the current study had a mean score of 51.33 at the pre-test and 51.96 at the post-test. There has been minimal research that uses the SiC; therefore, these scores could not be compared to the scores of other children who took this questionnaire.

The results of the current study were different from Stuck and Gloeckner's (2005) study. Participants in their study ( $n = 48$ ) had a comparable age and similarities in the yoga techniques taught, such as yoga breathing and poses. However, findings from the Stuck and Gloeckner

(2005) study, using the Anxiety Questionnaire, showed that feelings of hopelessness and aggression were reduced.

Cowen and Adams (2005) found a significant improvement in self-perceived stress with adult participants. Participants' self-perceived stress was evaluated using the Perceived Stress Scale. There was a 20% reduction in participants' (n=26) self-perceived stress level after participating in Astanga yoga for six weeks (Cowen & Adams 2005). A similar study was conducted by Wheeler and Wilkin (2007) with college students (n = 79) after participating in Asana yoga for ten weeks. Results of the study suggested that Yoga Asana was associated with positive pre- to post- changes on perceived stress (Wheeler & Wilkin, 2007).

#### *Research Question 2*

There was no significant increase in participants' ability to cope with stress after implementing yoga in physical education for three weeks, three times a week for forty minutes, with individual fourth- and fifth-grade students in the current study. Participants' ability to cope with stress was measured by the CCSC for the Divorce Adjustment Project. The CCSC for the Divorce Adjustment Project scores can range from 54, very few coping skills, to 216, very high coping skills (Program for Prevention, 1999). The participants in the current study had a mean score of 126.59 at the pre-test and 123.11 at the post-test. The participants had room to raise or lower their scores over the six weeks, but the scores remained consistent.

These results differ from the findings of Slovacek and her colleagues (2003). Participants (n = 405) had a comparable age, along with the similarity of taking place in an inner city school; however, their results differed after a year-long Yoga Ed. program. Educators reported through surveys that they felt Yoga Ed. had helped influence students' ability to deal with stress



(Slovacek et al., 2003), whereas the current study investigated participants' self-perceptions by directly surveying the children themselves.

There is minimal research on yoga and stress-coping skills with children. Yoga has been implemented with college students as an alternative therapy resource. Yoga for Stress Management was created to help students cope with stress. The program offered similar yoga poses and breathing techniques used in the current study. No statistics were given to determine the effects of this service, but students frequently used the service (Milligan, 2006).

### *Research Question 3*

There was a strong correlation between self-perceived stress levels, as measured by the SiC questionnaire, and stress coping skills, as measured by the CCSC for the Divorce Adjustment Project. If a self-perceived stress score is higher, it would result in a lower score in the ability to cope with stress. If the self-perceived stress has a lower score, the ability to cope with stress would be higher.

Past research on coping with stress shows that children often cope with stress by crying or wishful thinking (Bagdi & Pfister, 2006). The CCSC for the Divorce Adjustment Project lists crying as a coping skill for stress, because it is an expression of feelings (Program for Prevention, 1999). The CCSC for the Divorce Adjustment Project lists wishful thinking as a coping skill or strategy for stress, because it is cognitive avoidance (Program for Prevention, 1999). The SiC questionnaire lists the ability to show feelings as sadness as a lower level of stress in children (Osika, Friberg, & Wahrborg, 2007). Data from the current study were in agreement with this previous research.

While each question of the CCSC for the Divorce Adjustment Project and the SiC questionnaire were not individualized, the total scores do show a correlation between the two

self-assessments. Individual item analysis to determine if there is a correlation was beyond the scope of the current study. Future research might include individual item analysis in the self-assessments to determine if there is a correlation.

#### *Research Question 4*

The fourth purpose of this study was to determine how participants viewed yoga. Participants were asked how they viewed yoga both before and after the Yoga Ed. treatment. Students were asked if they viewed yoga as physical activity, relaxation, or both. This was done immediately before the yoga unit, at the mid-point of the study, and directly after the yoga intervention, at the post-test. The current study showed a change in the participants' perception of yoga after the implementation. This was an increase of 29.7% who viewed yoga as both physical activity and relaxation and an increase of 25.9% who viewed yoga as relaxation only. This provides some indication that at least some of the participants in the current study did learn about relaxation benefits gained from the yoga unit in physical education.

Past research exploring how children perceive yoga could not be located. However, Khasky & Smith (1999) found that adults reported feeling physically "limp and loose" after participating in a yoga session. These were similar to the findings of the current study, because of the increased perception of yoga as relaxation.

Other research conducted by Slovacek and her colleagues (2003) explored other opinions of yoga with a comparable age group, urban school location, and Yoga Ed. program. The results reported by Slovacek and her colleagues (2003) indicated that participants reported higher self-esteem after participating in Yoga Ed for a year. The current study adds to the 2003 study by showing how students of this age group perceive yoga.

## *Summary*

The primary purpose of this study was to examine the relationship between Yoga Ed. and self-perceived stress levels and coping abilities, as measured by self-reported evaluations, with fourth- and fifth-grade children in physical education classes at an urban elementary school. Twenty-seven fourth- and fifth-grade students participated in this study. Due to the small number of participants in the study, the participants served as their own control group.

In order to keep the yoga unit in physical education similar to other units in physical education, yoga was taught for three weeks. Toscano and Clemete (2008) suggest teaching yoga as part of the curriculum in physical education, because it is consistent with the National Standards for Physical Education (Toscano & Clemete, 2005). The yoga unit was planned in advance, and lessons from the Yoga Ed. curriculum were carefully selected to serve the purpose of stress management. Physical education units can last from a few days to several weeks. Instruction is more likely to be effective if the units are made clear and coherent by the teacher before the unit begins (Metzler, 2005).

After a three-week yoga unit, there was no significant change in the participants' self-perceived stress level or their ability to cope with stress. One possible barrier that may have prevented the participants' reduction in stress level and their increase in stress-coping skills was the short period of time spent on the yoga unit. As seen with Slovacek and her colleagues (2003), teachers reported students' ability to deal with stress increased after a year-long Yoga Ed. program. Stuck and Goeckner's (2005) study showed reduced feelings of hopelessness and aggression after fifteen 60-minute sessions of yoga. Both of these studies used comparable age groups and yoga techniques, but the length of the yoga intervention was longer.

Yoga has been found to be an appropriate activity for children in the fourth and fifth grade (Toscano & Clemete, 2005). Research has shown other positive benefits for children who practice yoga skills. Younger students, kindergarten through third grade, also found that yoga had a positive effect on attention difficulties in Peck, Kehle, and Bray's 2005 study. The attention span of students with attention difficulties improved after participating in yoga. Peck and her colleagues suggest yoga could be helpful in the classroom setting (Peck et al., 2005). In Slovacek and colleagues' (2003) study at the Accelerated School in Los Angeles, findings indicated that physical fitness scores improved over a two-year span after implementing the Yoga Ed. Curriculum. The California state tests for flexibility, upper body strength, and aerobic capacity had a nine percent increase for elementary school students following implementation of the Yoga Ed. curriculum (Slovacek et al., 2003).

### *Limitations*

One of the limitations of this study was the small sample size of this study. Sample size was limited due to the number of students who were available to participate in the study. Having a larger sample size would potentially increase the standard deviation. A larger sample size would better predict the population of this age group.

The time of year that the yoga intervention took place could also be considered a limitation. The yoga intervention took place in the spring, when physical education units are generally held outside. A few students commented on the nice weather and their desire to be outside reviewing soccer and softball. Had the yoga unit taken place in the winter months, when the weather didn't allow for physical education outside, students may have been more focused.

The questionnaires that were used in this study may also have limited the results of this study. The Stress in Children questionnaire didn't assess long-term stress. The types of stresses

that were asked may also have been relevant to the sample of students who participated in this study. The coping skills that were listed on the Children's Coping Skills Checklist for the Divorce Adjustment Project may have also been irrelevant to the students who participated in the study.

### *Recommendations for Future Research*

Further research is needed studying the relationship between yoga and self-perceived stress and the ability to cope with stress with children. Perhaps a longer treatment period would produce increased significance, whereas the current study results were not significant. Perhaps continuing with yoga as a cool-down for several weeks after a yoga unit in physical education may produce different results.

Future research might include individual item analysis of each question in the self-assessments to determine if there is a correlation. Analyzing each item of the SiC questionnaire to the items of the CCSC for the Divorce Adjustment project would help determine if there is a moderate or strong correlation between the two of them. The current study only focused on the totals scores, because item analysis for each question was beyond the scope of this study.

Another possible study might include a larger number of participants, with a separate control group. Due to the small number of participants in the current study, participants served as their own control group. Another possibility might include two or more different schools with similar demographics that might show different results.

Future research could also include different age groups of children. There is minimal research on yoga with younger children. Younger children may perceive stress differently and may not have developed coping skills for stress. Older children, such as middle school students,

may also perceive stress differently. Comparing the effectiveness of yoga for a broad age range of children would be an interesting study.

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Appendix A

Eastern Michigan University

Request for Human Subject Approval

**Please Send 3 copies of your proposal AND 3 copies of this completed form**

**EASTERN MICHIGAN UNIVERSITY**

**II) Request for Approval of Research Involving Human Subjects**

Date Submitted: February 10, 2009 Due Date of Proposal \_\_\_\_\_

Principal Investigator: Holly Smith-Vogtmann

Co-PI/Project Director: Dr. Faust

Title of Project: The Effects of Yoga in a Physical Education class on Children's Self-perceived stress level and Coping Ability.

From what sources are funds expected for this project? No funds are needed

Department: Health Promotion and Human Performance Telephone: 734-787-0556

I. Is this application: New X Renewal \_\_\_\_\_ Modification \_\_\_\_\_

If Renewal or Modification:

- a. Date of last approval by this Committee: \_\_\_\_\_
- b. Principal Investigator previous research: \_\_\_\_\_
- c. Describe any modifications in the in the previously approved research protocols:
- d. Were any human subjects encountered in previous research? If yes, how were they handled?  
Yes, in previous research in yoga and stress reduction human subjects were used. Children and adults have been used in previous research. Researchers received consent from participants and legal guardians where needed.

II. Numbers, Types and Recruitment of Subjects

- a. Numbers and characteristics of subjects (e.g., age, ranges, sex, ethnic background, health status, handicapping conditions, etc.): 49 fourth and fifth grade children will be given consent forms for their legal guardians and for themselves. There are 26 girls and 23 boys among the 49 children. They range in ages from 9 to 11. Children are in overall good health. 12 of these students have asthma and have proper medication on school grounds where the research will take place.
- b. Special Classes. Explain the rationale for the use of special classes of subjects such a pregnant women, children, prisoners, mentally impaired, institutionalized, or others who are likely to be particularly vulnerable:

Research has shown yoga to be an effective tool for stress reduction among college students and adults. There is a lack of research on yoga as a stress management skill for children using a self-perceived measurement. The purpose of this study would be to compare students self-perceived stress level after implementing yoga into the Physical Education program for 3 weeks.

- c. How is the individual subject to be recruited for this research? Is it clear to the subjects that participation is voluntary and that may withdraw at any time negative consequences?

The yoga unit is part of the Physical Education curriculum at New Beginnings Academy. All of the students being recruited for this study are students in the class already. Students will be given a consent form for themselves and their parents stating that they do not have to participate in the study and may withdrawal at anytime without consequences. Students who wish to not participate will be given a different activity in replace of the surveys or participation in yoga.

### III. Informed Consent

- a. To what extent and how are the subjects to be informed of the research procedures before their participation?  
 Legal guardians and students will be given a letter with the consent form describing the type yoga, some of the positive benefits already studied in the area of yoga and stress reduction, and the reasoning behind this study. Guardians or students may contact myself, Holly Vogtmann, with any questions regarding this study.
- b. Attach a copy of written “Informed Consent Form” or a written statement of the oral consent.

### IV. Risks Involved in the Research

Does the research involve any of the following procedures?

Deception of the subject..... no

Punishment of the subject.....no

Use of Drugs in any form.....no

Electric Shock.....no

Deliberate production of anxiety or stress.....no

Materials commonly regarded as socially unacceptable.....no

Use of radioisotopes.....no

Use of chemicals.....no

Drawing of blood.....no

Any other procedure that might be regarded as including in the subject any altered state or condition potentially harmful to his/ her personal welfare.....no

Any other procedure that might be considered as an invasion of privacy.....no  
 Disclosure of name of individual subjects participating in the research.....no  
 Any other physically invasive procedure.....no

- a. If the answer to any of the above is ‘YES’, please explain this aspect of the research in details:
- b. Describe the procedure for protecting against or minimizing any potential risk:

There are no known risks and no adverse reactions are anticipated. If any reactions should arise participants will be sent to the school’s Student Services Coordinator where they can discuss any feelings or problems in a professional manner. Parents/guardians will be contacted immediately if this does occur.

IV. Confidentiality

- a. To what extent is the information confidential and to what extent are provisions made so that subjects are not identified:  
 Students’ names will not be used in this study. Students will be given a random number from 1-49.
- b. What are the procedure for handling and storing all data so that the confidentiality of the subjects is protected (particular attention should be given to the use of photographs, video, and audio recordings):

All of the data collected during this time will be kept on two separate flash drives, one to serve as a backup copy. The original flash drive will be kept in a locked safe at Holly Vogtmann’s home. The backup flash drive will be kept at Dr. Faust’s office and will remain in a locked area.

- c. By what means will the results of the research be disseminated? Will the subjects be informed of the results? Will confidentiality of subjects or organizations be protected in the dissemination?  
 The results of this study will be shared with the school and within the thesis and staff members of Eastern Michigan University. Students’ names will not be shared with anyone, only the results as a whole of whether or not yoga helped students’ reduce their stress levels.

V. Describe any anticipated benefits to subjects from participation in this research:

This research will be done over the course of six weeks in a regular physical education class. Using the repeated measures design, there will be a pre-test, 3 weeks of no treatment along with the same tests, and then the treatment followed

by a post-test. This will be done in a relatively short amount of time. This study will provide valuable information regarding the use of yoga in a Physical Education curriculum for teaching students stress management skills.

- VI. Attach a copy of the full research proposal including copies of all instruments or tests to be used. If instruments are not fully developed attach drafts and so indicate.

Stress in Children Questionnaire (SiC) is a short questionnaire that uses Likert-scale response categories with four alternatives. The categories are never, sometimes, often, and very often. Children are asked to choose the response that is best applied for them. The questionnaire was developed for children ages 9-12 and items were selected by schoolteachers and psychologists familiar with stress and children. Studies using the Beck Youth Inventories of Emotional and Social Impairment, saliva, and urine samples have shown that the SiC is a valid and reliable self-report for children's perceived stress level (Oskia, Friberg, Wahrborg, 2007).

The Children's Coping Strategies Checklist (CCSC): Divorce Adjustment Project that will be used in this study is a 52 question self-report for children's ability to cope with problems. The CCSC was developed from two other valid instruments, Children's Coping Strategies Checklist and How I Coped Under Pressure Scale. The How I coped Under Pressure Scale used the same questions as the Children's Coping Strategies Checklist, but was changed to past tense and focused on a specific problem. Both instruments were tested for validity and proved to be reliable instruments (Ayers, 1996). The same 45 questions that appeared on these scales are used in the CCSC Divorce Adjustment Project, with 7 more additional questions, and showed test-retest reliability. The questionnaire uses a Likert-scale response with four categories: never, sometimes, often, and most of the time (Program for Prevention, 1999).

Both instruments will be given to the students as a pre-test. Students' will be given the test again at the end of the Yoga Unit in Physical Education.

Holly Smith-Vogtmann  
Principal Investigator Signature

2-10-09  
Date



# EASTERN MICHIGAN UNIVERSITY

March 9, 2009

Holly Smith-Vogtmann  
c/o Bert Faust  
Eastern Michigan University  
School of Health Promotion and Human Performance  
Ypsilanti, Michigan 48197

Dear Holly Smith-Vogtmann,

The CHHS Human Subjects Review Committee has reviewed the revisions to your proposal entitled: "The Effects of Yoga in a Physical Education Class on Children's Self Perceived Stress Level" (CHHS 09-029).

The committee reviewed your proposal and recommends the following additions to your proposal and informed consent:

- Include contact information for the CHHS-HSRC Chair Gretchen Reeves (734.487.0077).
- Do you anticipate any adverse psychological reactions to questionnaire? If so, how will you handle this?

Your study is approved by the committee with the revisions requested above. Please return documents with revisions at your earliest convenience to [chhs\\_human\\_subjects@emich.edu](mailto:chhs_human_subjects@emich.edu)

Good luck in your research endeavors.

Sincerely,

Gretchen Dahl Reeves, Ph.D.  
Interim Chair, CHHS Human Subjects Review Committee



## Appendix B

### Informed Consent for Research Involving Human Subjects

## INFORMATION OF RISK

### **Description of the Study:**

This study is being conducted by Holly Smith-Vogtmann. This study is being used as a thesis for Eastern Michigan University in the Health Promotion and Human Performance department. The purpose of this study is to test the theory that yoga can be used as a stress reduction that compares the yoga treatment to self-perceived stress levels of fourth and fifth grade children.

### **Benefits and Risks:**

As a participant of this study you will not benefit personally from it, however you will help determine whether yoga can be used a stress management unit within Physical Education. There are no known risks to participating in the survey.

### **Voluntary Participation:**

Your participation is strictly voluntary. Feel free to ask questions at any time during the course of the study. You will not be credited or compensated in any way for your participation.

### **Right to Withdraw:**

You have the right to refuse participation and withdraw from the study at any time. You may refuse to answer any question, or respond directly to any statement on the questionnaire. No penalties or negative consequences will result from your withdrawal or refusal.

### **Confidentiality:**

All information collected will be held in the strictest of confidence. Neither your name, nor the name of your school will appear on the questionnaire. Be assured that your name will no way be associated with this study. The completed questionnaires will be kept in a locked safe in the office of the Principal Investigator, Holly Smith-Vogtmann.

### **Dissemination of Information:**

The results of the study will be published and presented in a thesis for Eastern Michigan University.

If you have any questions or concerns related to this study, please contact:  
Holly Smith-Vogtmann

Or

Human Subjects Committee Chair for the College of Health and Human Services:  
Dr. Gretchen Reeves  
Phone: (734) 487-0077  
Email: [greeves@emich.edu](mailto:greeves@emich.edu)

**Please keep this copy for your future reference**

## **Informed Consent Agreement**

Your signature below indicated you have read and understand the information provided about the research study and have decided to voluntarily participate in the study. Again, if you have any questions, feel free to contact Mrs. Holly Smith-Vogtmann.

I understand that the primary purpose of this study is gather information about yoga as a stress management program used in Physical Education to reduce children's self-perceived stress level. I understand that as a participant in this study, I may gain insight on how to manage daily stress through yoga postures and breathing.

I understand that while the risks of participation are minimal, I may experience some anxiety while participating.

I understand that my participation is strictly voluntary. I understand that I am free to ask questions at any time during the course of the study. I understand that I will not be credited or compensated in any way for my participation.

I understand that I have the right to refuse participation and withdraw from the study at any time.

I understand that I may refuse to answer any question. I understand that no penalties or negative consequences will result from my withdrawal or refusal.

I understand that the information that I give will be held in the strictest confidence and that my responses will be kept separately from my identifying information. All information will be kept in a locked safe in the Principal Investigator, Holly Smith-Vogtmann's home.

I understand that my name will in no way be associated with this study.

---

Signature of Participant

Date

Please return this form to Holly Smith-Vogtmann

## **Information of Risk Parent Consent**

### **About the study:**

- The research study that we are asking your child to be a part of will help us to learn whether or not yoga can be used to manage stress levels in children your age.

### **What will happen?**

#### **If you approve your child's participation in this study:**

- He or she will be asked to complete a paper pencil survey about daily life stress and how you cope with that stress.
- A survey will be given during Physical Education class and should take about 20 minutes to finish.
- Mrs. Vogtmann will be giving out the survey to your child.
- Mrs. Vogtmann will be asking your child to do the survey again at the end of the yoga unit.

### **Will anyone know my child was in the study?**

- No. Your child will not be asked to put their name on the survey.
- Only Mrs. Vogtmann will know whose survey is whose.
- No one other than the thesis committee will see the surveys, but they will not have your child's name on them.
- The survey results will be reported with all of the students' data combined; therefore your son/daughter's information will not be identifiable.

### **Are there any risks for my child participating in the study?**

- There is no known risk to your child filling out this survey.

### **Is my child required to participate in the study?**

- No. Participation in this study is completely voluntary. An alternative activity will be given to your child while his/her classmates complete the survey.
- Your son or daughter may stop taking the survey or choose not to answer any of the questions on the survey at anytime.

### **About the Results of the Study:**

- Mrs. Vogtmann will provide a final report to the thesis committee at Eastern Michigan University and a copy to the director of the participating school. Parents/guardians can contact Mrs. Vogtmann for a copy of the final report. The final report will be published as a thesis at Eastern Michigan University.

### **Who can I ask if I Have Any Questions?**

- If you have any question you can ask Mrs. Holly Vogtmann

Or

- Human Subjects Committee Chair for the College of Health and Human Services:

Dr. Gretchen Reeves  
Phone: (734)487-0077  
Email: [greeves@emich.edu](mailto:greeves@emich.edu)

**What should I do if I want my child to participate in the study?**

Please indicate whether you agree or not to have your child participate in the study and return this form to Mrs. Vogtmann immediately.

Please check the box below if you agree to participate.

- I Agree** to have my child to participate in the study described above which is part of an authorized thesis study at Eastern Michigan University. I understand the purpose of the survey and my questions, if any, have been answered.
- I DO NOT PERMIT** my child to participate in the stud described above and understand that he/she will be given an alternative activity while the survey is being given

\_\_\_\_\_  
Parent/Guardian Signature

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Print Child's Name

\_\_\_\_\_  
Child's Grade

Holly Vogtmann  
Eastern Michigan University Graduate Student

**Information of Risk  
Student Consent**

**About the study:**

- The research study that we are asking you to be a part of will help us to learn whether or not yoga can be used to manage stress levels in children your age.

**What will happen?**

- We are asking you to complete a paper pencil survey about daily life stress and how you cope with that stress.
- The survey will take about 20 minutes to finish.
- Mrs. Vogtmann will be giving you the survey.
- Mrs. Vogtmann will be asking you to do the survey again at the end of the yoga unit.

**Will anyone know I was in the study?**

- No. You will not be asked to put your name on the survey.
- Only Mrs. Vogtmann will know whose survey is whose.
- No one other than the thesis committee will see the surveys, but they will not have your name on them.
- Parents, teachers, and other school staff will not know how you answered these questions.

**Are there any risks for participating in the study?**

- There is no known risk to you filling out this survey.

**Am I required to participate in the study?**

- No. You are not required to take this survey.
- Even if you choose not to take the survey, you will still be able to take part in the yoga unit in Physical Education.
- You may stop taking the survey or choose not to answer any of the questions on the survey at anytime.

**What should I do if I do not want to participate in the study?**

Please check the box below if you agree to participate.

- I agree to take the survey about stress which is part of a research project at Eastern Michigan University for a thesis. I know why they are asking me to take this survey, and all of my questions have been answered.

\_\_\_\_\_  
Student Signature

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Date

Holly Vogtmann  
Dr. Wayne Millette,

As part of my education at Eastern Michigan University I am conducting a research project for my thesis. The purpose of this research is to determine if using Yoga in Physical Education will help children manage their stress levels. In order to study this topic I would like to invite the fourth and fifth grade students to participate in this study. As the director of the school, I am asking for your support in this research study.

All fourth and fifth grade students will receive an informed consent form, parental consent form, and a student consent form for this study. Only students who agree to be a part of the study will be given surveys. The two surveys that are being used in this study are the Stress in Children Questionnaire (Oskia, Friberg, Wahrborg, 2007) and the Children's Coping Strategies Checklist (Ayers, 1996). These instruments will be used to determine students' stress levels and to understand how they cope with daily stress. Both questionnaires will be given to the students three times over the course of six weeks. Students will not be asked to write their name on their questionnaires, instead a number coding system will be used in order to protect the privacy of our students.

The Yoga Unit for Physical education will take place over the course of three weeks. Yoga lessons will come from the Yoga Ed. curriculum and contain no religious suggestions. This curriculum is designed for elementary aged children. Students will learn a variety of Yoga Poses and breathing techniques. If there are any concerns about the Yoga that is being taught I have the Yoga Ed. Curriculum available in my office and I am welcome to discuss it.

Both the questionnaires and the Yoga Unit have no known threats or risks to students. I am willing to share the findings of this study with the school at the end of the research study. I would appreciate your support in this study.

Thank You,  
Mrs. Holly Vogtmann

- As the Director of the elementary school I support the research of yoga and stress reduction taking place at our school.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Appendix C  
Questionnaires



**CHILDREN'S COPING STRATEGIES CHECKLIST (CCSC):  
DIVORCE ADJUSTMENT PROJECT**

Sometimes kids have problems or feel upset about things. When this happens, they may do different things to solve the problem or to make themselves feel better. Below is a list of things kids may do when faced with a problem. For each item, select the response that best describes how often you usually do the behavior when you have a problem. There are no right or wrong answers, just indicate how often you usually do each thing in order to solve the problem or to make yourself feel better.

**RESPONSES:**

(1)            (2)            (3)            (4)  
Never    Sometimes    Often            Most of the time

**WHEN I HAVE A PROBLEM, I . . .**

- 1. Think about what I could do before I do something.
- 2. Try to notice or think about only the good things in life.
- 3. Talk about how I am feeling with my mother or father.
- 4. Go bicycle riding.
- 5. Try to stay away from the problem.

**WHEN I HAVE A PROBLEM, I . . .**

- 6. Blame or say bad things about other people.
- 7. Do something to make things better.
- 8. Think about why it has happened.
- 9. Write down my feelings.
- 10. Tell myself to accept this situation the way it is.

**WHEN I HAVE A PROBLEM, I . . .**

- 11. Listen to music.
- 12. Try to put it out of my mind.
- 13. Figure out what I can do by talking with one of my friends.
- 14. Think about what would happen before I decide what to do.
- 15. Tell myself it will be over in a short time.

**WHEN I HAVE A PROBLEM, I . . .**

- 16. Talk about how I am feeling with some adult who is not in my family.
- 17. Play sports.
- 18. Try to stay away from things that make me feel upset.
- 19. Do something bad or cause trouble.
- 20. Try to make things better by changing what I do.

**WHEN I HAVE A PROBLEM, I . . .**

- 21.
- 22. Cry by myself.
- 23. Go for a walk.

- \_\_\_ 24. Imagine how I'd like things to be.
  - \_\_\_ 25. Talk to my brother or sister about how to make things better.
- WHEN I HAVE A PROBLEM, I . . .
- \_\_\_ 26. Think about which things are best to do to handle the problem.
  - \_\_\_ 27. Remind myself that things could be worse.
  - \_\_\_ 28. Talk with my brother or sister about my feelings.
  - \_\_\_ 29. Go skateboard riding or roller skating.
  - \_\_\_ 30. Avoid the people that make me feel bad.

- WHEN I HAVE A PROBLEM, I . . .
- \_\_\_ 31. Get angry and threaten the people who caused the problem.
  - \_\_\_ 32. Talk to someone who might understand how I feel.
  - \_\_\_ 33. Do something to solve the problem.
  - \_\_\_ 34. Try to understand it better by thinking more about it.
  - \_\_\_ 35. Let out feelings to my pet or stuffed animal.

- WHEN I HAVE A PROBLEM, I . . .
- \_\_\_ 36. Read a book or magazine.
  - \_\_\_ 37. Wait and hope that things will get better.
  - \_\_\_ 38. Try to solve the problem by talking with my mother or father.
  - \_\_\_ 39. Think about what I need to know so I can solve the problem.
  - \_\_\_ 40. Tell myself it's not worth getting upset about.

- WHEN I HAVE A PROBLEM, I . . .
- \_\_\_ 41. Talk with one of my friends about my feelings.
  - \_\_\_ 42. Do some exercise.
  - \_\_\_ 43. Avoid it by going to my room.
  - \_\_\_ 44. Do something like video games or a hobby.
  - \_\_\_ 45. Talk to someone who could help me make the situation better.

- WHEN I HAVE A PROBLEM, I . . .
- \_\_\_ 46. Do something in order to get the most I can out of the situation.
  - \_\_\_ 47. Think about what I can learn from the problem.
  - \_\_\_ 48. Let off steam by hitting my pillow or bed.
  - \_\_\_ 49. Watch TV.
  - \_\_\_ 50. Wish that things were better.

- WHEN I HAVE A PROBLEM, I . . .
- \_\_\_ 51. Try to figure out what I can do by talking to an adult who is not in my family.
  - \_\_\_ 52. Try to figure out why things like this happen.

### HOW WELL I COPE

Sometimes things people do to handle their problems work really well to make the situation better, and sometimes they don't work at all to make the situation better.

1. Overall, how well do you think that the things you usually do work to make the SITUATION BETTER?

(1)	(2)	(3)	(4)
Do not work at all	Work a little	Work pretty well	Work very well

Sometimes things people do to handle their problems work really well to make them feel better and sometimes they don't work at all to make them feel better.

2. Overall, how well do you think that the things you usually do work to make you FEEL BETTER?

(1)	(2)	(3)	(4)
Do not work at all	Work a little	Work pretty well	Work very well

Program for Prevention Research Arizona State University (1999). *Manual for the Children's Coping Strategies Checklist and The How I Coped Under Pressure Scale.*

## **Stress in Children SiC Questionnaire:**

1. I get angry

(1) Never (2) Sometimes (3) often (4) Very Often

2. I get headaches

(1) Never (2) Sometimes (3) often (4) Very Often

3. I like going to school

(1) Never (2) Sometimes (3) often (4) Very Often

4. I feel calm and happy

(1) Never (2) Sometimes (3) often (4) Very Often

5. I get stomach pains

(1) Never (2) Sometimes (3) often (4) Very Often

6. I feel lonely

(1) Never (2) Sometimes (3) often (4) Very Often

7. I get sad

(1) Never (2) Sometimes (3) often (4) Very Often

8. I like to be at school

(1) Never (2) Sometimes (3) often (4) Very Often

9. The other kids tease me

(1) Never (2) Sometimes (3) often (4) Very Often

10. I fall asleep easily at night

(1) Never (2) Sometimes (3) often (4) Very Often

11. I feel calm

(1) Never (2) Sometimes (3) often (4) Very Often

12. Things work out as I have planned

(1) Never (2) Sometimes (3) often (4) Very Often

13. I feel happy

(1) Never (2) Sometimes (3) often (4) Very Often

14. When I am happy I show it

(1) Never (2) Sometimes (3) often (4) Very Often

15. Sometimes I do not reach the goal I have planned for  
(1) Never (2) Sometimes (3) often (4) Very Often

16. When I have a hard time it helps being with my friends  
(1) Never (2) Sometimes (3) often (4) Very Often

17. When I am sad I show it  
(1) Never (2) Sometimes (3) often (4) Very Often

18. Sometimes I can't manage with the things I have to do  
(1) Never (2) Sometimes (3) often (4) Very Often

19. When I have a hard time there is an adult to talk to  
(1) Never (2) Sometimes (3) often (4) Very Often

20. If anyone teases me I will protest  
(1) Never (2) Sometimes (3) often (4) Very Often

21. It is easy to concentrate during lessons at school  
(1) Never (2) Sometimes (3) often (4) Very Often

Osika, W., Friberg, P., & Wahrborg, P. (2007). *A New Short Self-Rating Questionnaire to Assess Stress in Children*. *International Journal of Behavioral Medicine*, 14, 2, 108-117.

## Appendix D

### Modified Yoga Ed. Lessons

**Yoga Unit: Stress Management**  
**Week One: Body Lessons 1-2**

**Lesson 1:**

**Inquiry:** What is Yoga? How do I breathe during Yoga?

**Discussion:** Yoga is not a competition- Yoga is exercises that require strength, focus, and balance.

Use blocks to show alignment. Focus on yourself and not your neighbor.

Explain where to place shoes and socks. Staying on your own mat during yoga, exception of partner poses.

**Time-In:** 5-7 rounds of breathing through the nostrils.

**Warm-Up:** Rock, cat, Down Dog

**Game:** Back to Mountain- keeping the abdominals engaged

**Poses:** Mountain, Rag Doll, Down Dog, Push-Ups, Cobra, Warrior, Triangle, Tree, Twisting Star, Bridge, Boat

Focus during poses will be following directions, alignment, & coordination

**Partner Pose:** Double Boat

Communicate with your partner

Work together

Be gentle

**Rest & Visualization:** Balloon Breathing

Importance of rest for the body & mind

Demonstrate resting pose-show different options to make them more comfortable.

Keep body still & Quiet

**Lesson 2:**

**Inquiry:** How should I use my breath in Yoga? How does Yoga breathing make me feel? What does it do for my body?

**Discussion:** Respiratory System-lungs, oxygen. Show Candle in a Jar metaphor.

Breathing is used to help stay focused during yoga.

**Time-In:** Staring at a candle flame, ask students to imagine their breathing being deep enough to fuel the flame, but not so strong it blows it out.

**Warm-Up:** Rock, cat, Down Dog

**Poses:** Mountain, Rag Doll, Down Dog, Push-Ups, Cobra, Warrior, Triangle, Tree, Twisting Star, Bridge, Boat, Chair.

Focus during poses will be following directions, alignment, coordination, and breath

**Partner Pose:** See-Saw

Communicate with your partner

Work together

Be gentle

**Rest & Visualization:** Guiding Star

**Yoga Unit: Stress Management**  
**Week Two: Body Lessons 3-5**

**Lesson 3**

**Inquiry:** How does proper alignment affect how the pose feels? How do I feel?

**Discussion:** Block metaphor- keep spine long, aligned, and flexible

Practice rounding, arching, straightening, and bending while sitting & standing.

**Time-In:** Have students sit back to back, so spines are touching, practice breathing through the nostrils.

**Warm-Up:** Rock, cat, Down Dog

**Poses:** Mountain, Rag Doll, Down Dog, Push-Ups, Cobra, Warrior, Triangle, Tree, Twisting Star, Bridge, Boat, chair, river

Partners will check proper alignment-all poses will be done twice

Is your partner doing the pose correctly?

How does it feel when you are doing the pose correctly?

**Partner Pose:** Double Chair –Spines back to back

Communicate with your partner

Work together

Be gentle

**Rest & Visualization:** Guiding Star

**Lesson 4**

**Inquiry:** What is observing? When do I use it in life? What is the quality of my attention when I am

observing? What do I notice in my body, Thinking, and breathing?

**Discussion:** What does “observation” mean?

**Time-In:** Using a candle or a flower have students observe it while breathing deeply

How do you feel? What did you notice?

**Warm-Up: Sun Salutation**

Introduce Half Moon-difficult balancing pose – have students observe

Where do you think I feel it in my body? Students will be coached through the specifics of the pose.

Students will try the pose and observe how their bodies feel.

Students will learn how to modify the pose and work on mastering the pose

**Poses:** Mountain, Rag Doll, Down Dog, Push-Ups, Cobra, Warrior, Triangle, Tree, Twisting Star, Bridge, Boat, chair, river

How do you feel? What parts of the body did you use? Did you use strength?

Balance? Flexibility?

**Partner Pose:** See-Saw

Communicate with your partner

Work together

Be gentle

**Rest & Visualization:** The Wisdom Tree



## **Lesson 5**

**Inquiry:** How does sound affect how I feel?

**Discussion:** Difference between listening and hearing. Music-what types give us more energy or help us relax?

**Time-In:** Bear breath- listen to your breathing-listen to your breath go out in to space and return to you.

How do you feel? What did you notice?

**Warm-Up: Sun Salutations**

**Poses:** Self-Directed

Create your own Yoga Routine

Listen to how your body feels

No sound at the beginning, pop music will be added, Jazz, and classical

Did your energy level change during the music? Did your feelings change? Does Sound affect us?

**Partner Pose:** Show your partner part of your routine

Communicate with your partner

Work together

Be gentle

**Rest & Visualization:** Magic Forest- with the use of a rain stick

## **Yoga Unit: Stress Management**

### **Week Three: Body Lessons 6-8**

## **Lesson 6**

**Inquiry:** What are feelings? How do they work?

**Discussion:** Rocks and feelings metaphor

Feelings are part of our lives, but suffering only happens when we resist how we feel or what is true.

**Time-In:** Bear breath- how do you feel? Observe your feelings. Do they have color?

Shape? Texture? If you are not sure of how you feel just breathe and relax. Observe any tight places you might feel.

**Warm-Up: Sun Salutations**

**Poses:** Push-ups-strength poses

Balance poses

Twisting poses – twisting poses help wring out the toxins in our body

Demonstrate with a sponge & water

**Partner Pose:** see-saw, double boat, & double chair - resistant poses

Communicate with your partner

Work together

Be gentle

**Rest & Visualization:** Color Shower visualization

## **Lesson 7:**

**Inquiry:** Do I know what I'm feeling? Do I allow my feelings and then express and release them? Do I see my feelings to help me get to know others and myself better?

**Discussion:** Rocks and feelings metaphor-review

How did you feel during the last class? Did you observe different feelings?

Opportunity to share.

Heart Smart Hook-Up (Brain Gym) Use it to center or balance yourself if you feel confused, sad, scared, or angry.

**Time-In:** Focus on and accept what you are feeling and breathe.

Just observe your feelings.

Heart Smart hook-Up- Is there a change?

**Warm-Up: Sun Salutations (Focus on heart & breath)**

**Poses: Twisting & Inverted poses Sequence poses into a flow from previous lessons**

**Rest & Visualization:** Heart Mail

## **Lesson 8**

**Inquiry:** What is a choice? What is a reaction? What is the difference? How can Yoga help me make choices and not just react?

**Discussion:** Pebble and water metaphor

Distinguish feelings from choices.

Discuss how to feel feelings and let them go.

Discuss behavioral choices and their consequences.

**Time-In:** Heart Smart Hook-Up. Observe and listen to your inner wisdom.

**Game:** Find the Choice

**Warm-Up: Sun Salutations & back bends**

**Poses:** Bridge to full wheel

Cobra- Open the heart

Camel- Open the heart

Up-Dog- Open the heart

Back bends open the heart and challenge us to let go of the past.

Back bends also help to energize us.

Go through sun salutes aerobically.

**Rest & Visualization:** Inner Advisor