



Psychosocial Benefits of Yoga Training for Freshmen High School Students

Citation

Scott, Kerri Alicia. 2016. Psychosocial Benefits of Yoga Training for Freshmen High School Students. Master's thesis, Harvard Extension School.

Permanent link

<http://nrs.harvard.edu/urn-3:HUL.InstRepos:33797373>

Terms of Use

This article was downloaded from Harvard University's DASH repository, and is made available under the terms and conditions applicable to Other Posted Material, as set forth at <http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-of-use#LAA>

Share Your Story

The Harvard community has made this article openly available.
Please share how this access benefits you. [Submit a story](#).

[Accessibility](#)

Psychosocial Benefits of Yoga Training for Freshmen High School Students:
Effectiveness of Regular Classroom Teachers Leading Yoga Practice

Kerri Alicia Scott

A Thesis in the Field of Biology
for the Degree of Master of Liberal Arts in Extension Studies

Harvard University

November 2016

Abstract

Stress in adolescents is a growing concern in the United States. The American Psychological Association has reported that teenagers are more stressed today than ever before (American Psychological Association, 2014 [APA]). Many studies have shown that relaxation techniques including yoga can be helpful in reducing stress and associated issues. This study investigates the efficacy of school teachers minimally trained in yoga techniques to instruct students in these techniques for 15-20 minutes per day 2-3 times per week during the school day. The hypothesis of this study was that this would be sufficient to see benefits in the students participating in yoga as compared to a control group that participated in silent reading for a similar duration of time. Students were asked to complete surveys pertaining to several psychosocial measures as well as bullying behavior and victimization. The yoga group showed significant reductions in bullying victimization over the course of the study while the control group saw no significant changes. Additionally, measures of confusion and depression increased in the control group (possibly enhanced by the death of a fellow student during the study) but there was no such change in the yoga group, indicating a protective effect from the yoga. These results indicate that students learning yoga techniques from classroom teachers with only a few hours of yoga-specific training can experience improvements in social interactions, while also being protected to a degree from the mental impacts of tragic events.

Acknowledgments

I am grateful to the many individuals who participated in the study, assisted me in planning and writing or supported me throughout the process. I would especially like to thank Sat Bir Singh Khalsa, Ph.D. for agreeing to be my thesis director and for all of his advice and suggestions throughout the planning stages and final writing of my paper.

I could not have done this without the help of Siri Bani Kaur, who shared her time, expertise and enthusiasm. She gave suggestions throughout the process, trained the teachers and created the yoga program for the classes in the study.

I would also like to thank the people at my school who were instrumental in making this all go smoothly: the teachers of the Freshmen Seminar classes - Lindsey Dobbins, Lisa Donovan, Lisa Lord, Heather MacDonald and Steve Wall for their willingness to try something new in their classes and their careful administration of the surveys; my principal, Marianne Farrell and superintendent, Cyndy Taymore who allowed me to complete my study at the school and assisted in communication with parents and community members; the class of 2019 for participating in the study and the members of my department for their constant encouragement.

Finally, I would like to acknowledge Jessica Forton and Matthew Bach for their unending support and encouragement. I am so grateful to Jessica for listening to me think out loud and offering suggestions and to Matthew for just always being there.

Table of Contents

Acknowledgments	iv
List of Tables.....	vii
List of Figures	viii
I. Introduction	1
II. Materials and Methods	10
Teacher Training.....	11
Participants.....	12
Distribution of Surveys	13
Measuring stress, psychosocial well-being, and bullying.....	13
Statistical Analyses	15
III. Results	17
Participants.....	17
Statistical Analyses	19
Qualitative Measures	26
IV. Discussion	27
Appendix A	35
Appendix B.....	36

References 45

List of Tables

Table 1. Demographics and general characteristics of participants.....	18
Table 2. Pre- and post-treatment group means, standard deviations and changes for Brunel Mood Scale	19
Table 3. Pre-and post-treatment group means, standard deviations and changes for Depression Anxiety Stress Scale	20
Table 4. Pre-and post-treatment group means, standard deviations and changes for Positive and Negative Affect Schedule for Children.....	21
Table 5. Pre-and post-treatment group means, standard deviations and changes for Adolescent Peer Relation Instrument: Bully/Target.....	21
Table 6. Pre-and post-treatment group means, standard deviations and changes for Self- efficacy Questionnaire for Children.....	23
Table 7. ANCOVA for variance between and within groups for confusion, depression, and positive affect.....	24
Table 8. General Linear Model for variance between and within groups for bullying victimization	25

List of Figures

Figure 1.	Scatterplots with regression for pre-treatment vs. change in score for bullying victimization for reading and control groups	26
-----------	--	----

Chapter I

Introduction

Stress among high school students appears to be a growing problem in the United States. The American Psychological Association's 2013 report *Stress in America* showed that 27% of teenagers reported high stress levels (8-10 on a 10-point scale) during the school year. Of these, 42% reported they did not feel they were doing enough to manage their stress (APA, 2014). In his text *Adolescence*, Robert Feldman cites Kiecolt-Glaser and Cohen, Tyrrell & Smith on the manifestations of unmanaged stress including headaches, backaches, indigestion, chronic fatigue, and illness (Feldman, 2008). In addition, Feldman discusses the positive effects of effectively coping with stress such as learning strategies to deal with more difficult stressors later in life. Feldman also notes that teens who cope effectively often have feelings of resilience, a perceived ability to deal with challenges, and increased feelings of self-worth (2008). Clearly it is necessary for teenagers to learn to manage stress for their mental health, but there is evidence that it is important for their academic achievement as well.

According to Forushani and Beshrat (2011) emotional intelligence (EI) is negatively correlated with perceived stress and Gohm, Corser, & Dalsky (2005) found that EI may be helpful in reducing stress in certain types of individuals. A number of studies have shown a connection between emotional intelligence and academic achievement, including Petrides, Frederickson, & Furnham (2004), who found that EI is important for scholastic achievement especially for students who are disadvantaged or otherwise in a vulnerable population. These students also tend to have high levels of

stress (Goodman, McEwen, Dolan, Schafer-Kalkhoff, & Adler, 2005). Additionally, a study of high school students by Parker et al. (2004) showed a predictive effect of EI on academic success. Students who had higher EI and stress management abilities tended to fall in the 80th percentile or higher in terms of academics compared to other students in their school. A later study by Parker, Hogan, Eastabrook, Oke, & Wood (2006) investigating factors related to successful high school to university transitions found a relationship between EI and retention of students after their freshmen year.

If emotional intelligence is related to academic achievement and stress is related to EI, it is very likely that stress and the ability to manage it are tied to academic success. As few studies show a direct link between stress and academic achievement, it is more likely the ability to manage stress rather than the amount or presence of stress that has an impact. If this is the case it would clearly benefit schools to teach stress-management strategies to their students. There are a number of stress management resources available free of charge on various websites, and a number of companies that offer paid curricula to schools. However, with so many academic requirements and increasing preparation for standardized tests, schools have little time to fit in new, untested material. In addition, the lack of studies investigating the effects of these stress management programs (Schoeberlein, Koffler, & Jha, 2005) would deter many schools with limited budgets. The key is to find a program that takes little time and few resources, but has clear positive impacts on students.

Another possible mediator between stress, emotional intelligence and academic performance is bullying, and there is evidence that reducing bullying may lead to improved student performance. Kokkinos, Panagopoulou, Tsolakidou, & Tzelios (2014)

studied a group of teenagers and found that both bullies and victims of bullies scored low on measures of self-efficacy, or an individual's belief in his or her ability to succeed. At the same time, there is evidence that students who bully have higher levels of stress (Konishi & Hymel, 2009). The relationship appeared to be mediated by other factors and was increased in those students who used distraction coping. Distraction coping includes focusing on objects or situations unrelated to the stressor, for example, imagining a "happy place". This is reminiscent of Feldman's (2008) assertions that effective coping can lead to feelings of resilience and ability to handle challenges. This information implies that distraction coping may not be an effective method of coping with stress. It also seems that students who have increased stress and do not have effective methods for coping end up lashing out and becoming bullies. In addition, Kokkinos & Kipritsi (2012) found a negative association between bullying and trait EI.

This evidence on bullying should be enough to encourage schools to look for ways to teach stress-management and coping strategies to their students. However, a study by Lacey & Cornell (2013) would also provide an incentive to do so. They found that passing rates on state-mandated testing were predicted by the perceived prevalence of teasing and bullying as measured by student and teacher surveys in 284 schools in Virginia. Schools with higher rates of perceived bullying had lower passing rates. Additional evidence of the connection between bullying and academic performance came from Kowalski & Limber (2013) in their study of nearly 1000 adolescents in grades 6-12. Students who identified as bullies or victims of bullies had lower self-reported academic performance and scored more negatively on measures of psychological health including anxiety and depression.

There is some question about whether the bullying caused the negative academic performance and psychological health or vice versa, but in either case, improving one is likely to improve the other. The question remains: How can we improve these intertwined problems? Also, how can we convince schools that it can and should be done during school hours? Stress and stress management is related to EI, bullying, and apparently academic performance. It seems likely that stress and coping strategies are at the root of the issues and improving this can lead to higher self-esteem, greater ability to monitor emotions of oneself and others, improved academic performance, and reduced bullying.

One method that an increasing number of people are finding useful is yoga. A large number of studies and reviews have shown that short or long term yoga can decrease stress and improve overall psychological health (Chong, Tsunaka, Tsang, Chan, & Cheung, 2011; Klatt, Buckworth, & Malarkey, 2009; Lenze et al., 2014; Li & Goldsmith, 2012; Wolever et al., 2012). However, most of these studies focus on adults and are not necessarily applicable to adolescents. In the last few years, there has been a growing cadre of research into the positive effects of yoga on adolescents and younger children, and mounting evidence that it can in fact improve many of the issues presented thus far.

An early study into yoga practice in children was done by Clance, Mitchell, & Engelman (1980). They found that 3rd graders with low body satisfaction improved in their self-assessment after triweekly, 30-minute sessions of yoga for four weeks, indicating increased self-esteem. Khalsa, Hickey-Schultz, Cohen, Steiner, & Cope (2012) also showed a positive effect of yoga on self-esteem of 11th and 12th graders. They compared students who participated in regular yoga classes for 11 weeks to students who

participated in regular phys. ed. classes during this time and found a significant difference in measures of resilience with yoga students having higher levels. In another comparison of yoga and physical activity, Telles, Singh, Bhardwaj, Kumar, & Balkrishna (2013) found that both physical activity and yoga led to improvements in several measures of self-esteem.

In addition to self-esteem, yoga has recently been linked to decreases in anger, bullying behavior, or overall negative behaviors in response to stress. A study of “inner-city” 4th and 5th graders showed no significant changes in global self-worth, but students reported using fewer negative behaviors (hitting or throwing things) in response to stress (Berger, Silver, & Stein, 2009). Khalsa et al. (2012) found, in addition to changes in resilience, that there was a significant difference between yoga and non-yoga groups in anger control. The non-yoga students had a significant negative change in anger control and overall differences between groups was significant. This may indicate an improvement in coping strategies. Additionally, Marie, Wyshak, & Wyshak (2006) found a decrease in bullying and victimization in students who practiced yoga. There was a 60% reduction in self-reported bullying behavior and a 42% reduction in being bullied in the yoga practitioners. They also found improvements in anger management in these students.

Finally, many of the studies of yoga effects measured mood states, anxiety, perceived stress and other general measures of psychological well-being. One of these was a qualitative evaluation within a randomized controlled trial that interviewed students who took part in either yoga intervention or phys. ed. classes. Most students in the yoga program reported physical or mental benefits, but not both (Conboy, Noggle,

Frey, Kudesia, & Khalsa, 2013). Those reporting mental benefits reported improvements in emotional and stress regulation as well as reduced stress, and many reported using yoga techniques before tests. Many also mentioned feeling more connected to classmates and family. A number of the students also reported using techniques learned in yoga (typically breathing) during challenging times or when trying to fall sleep. These are all indications that the students found yoga techniques to be helpful and used them beyond the classroom. This may be important for school implementation because it implies that training would not necessarily have to be ongoing to benefit students. Once students learn the techniques and find them useful, they may continue using them in stressful or challenging situations. A semester or one-year program may have the potential to help students throughout their school career. This idea is reinforced by Meiklejohn et al. (2012) who state in their review about integrating mindfulness in K-12 education “short but regular formal mindfulness exercises, combined with informal mindfulness awareness practices, can strengthen their innate capacities for being mindful” (p.296).

In a similar study Noggle, Steiner, Minami, & Khalsa (2012) found evidence that yoga improves mood disturbance and that negative affect was significantly better in yoga versus control subjects. Nirmala and Mahesh (2013) also found that yoga had a positive impact on subjective well-being as well as EI, and Crowley (2002) saw a reduction in anxiety in a group of students after only six sessions of after-school yoga. Additionally, a study of “urban youth” participating in a yoga program showed a decrease in impulsive action in many of the students (Gould, Dariotis, Mendelson, & Greenberg, 2012) while children who did yoga as part of a study in postwar Lebanon were reported by their teachers to have increased mood, concentration, and ability to function under pressure

(Day & Sadek, 1982). Although most of these studies were small, the number finding positive outcomes is encouraging and offers support for further research.

Unfortunately, many of these previous studies lack randomization, appropriate data analysis, have small sample sizes or lack thorough descriptions of the intervention (Greenberg & Harris, 2012), which leaves room for further study and improvement. Additionally, a number of the studies include after- or before-school programming, which in itself is not flawed, but does not necessarily make a convincing argument for an in-school intervention as it would likely exclude a number of students. Also, because these studies were outside of school hours, the participants are usually self-selecting and may be more open to yoga, leading to questions about whether the participants' expectations or the yoga actually led to benefits. It should also be noted that because many of these studies lack specifics on the intervention it is difficult to tell whether the effects were due to physical activity or other elements of yoga. Physical activity is widely recognized as having mental health benefits (Hassmén, Koivula, & Uutela, 2000; Mayo Clinic Staff, 2014) and is a commonly used method of stress reduction (APA, 2014). Some studies used phys. ed. as a control and found benefits in the yoga group, which means there is likely some element of yoga beyond physical activity that is beneficial, so it would be helpful to see whether yoga in addition to a regular physical education class had additional or different benefits.

There is evidence that mindfulness specifically has an impact. Students trained to elicit a relaxation response for 15 minutes daily for 3 weeks reported increased self-esteem and their teachers reported increased cooperation, improved work habits, and improved GPA (Benson et al., 2000). In another study of relaxation practice a group of

5th graders practiced relaxation techniques for 10 minutes every morning for 6 weeks and reported decreased anxiety (Day & Sadek, 1982). Both of the programs focused on body awareness and passively acknowledging distractions: two important aspects of yoga training. While these studies were done with elementary school aged children, they both reinforce the idea that short periods of mindfulness practice can be effective. This is important when considering wide-scale implementation in a school setting with limited free time.

Adolescents with attention deficit hyperactivity disorder (ADHD) saw improvements in their symptoms after training in Mindful Awareness Practices (MAPs) in a 2008 study by Zylowska et al. (as cited by Meiklejohn et al., 2012, p. 296). These classes also focus mostly on meditation and some movements, but nothing that would be considered vigorous exercise, again reinforcing the idea that mindfulness is an effective treatment for stress reduction and may improve academic and social measures, perhaps by improving focus and attention. It is important to note that the focus is on mindfulness and not just relaxation. In a study of medical, nursing, and pre-med students comparing mindfulness training and relaxation training, Jain et al. (2007) found that both relieved overall psychological distress, but mindfulness was more effective at increasing a positive state of mind and decreasing rumination and distraction. Another randomized controlled trial using medical students found significantly decreased measures in perceived stress and anxiety in the group practicing 30 minutes daily of guided mindfulness for 8 weeks (Warnecke, Quinn, Ogden, Towle, & Nelson, 2011). These students may have more stress than a typical adolescent, but the study provides evidence that even a relatively short period of mindfulness practice can be effective.

Another important aspect of incorporating yoga training in schools is training for the teachers. It is not economically feasible to send teachers to 200-hour yoga training, so the question remains whether teachers who receive limited training in yoga techniques can successfully teach them to students. Most of the previous studies used fully certified yoga teachers to lead the practice, but there are a handful that trained regular school teachers. One such study was done by Chen and Pauwels (2014) who looked at the effects of the Yoga Ed. program on student outcomes including mental, physical, and social well-being. Teachers were given 2 days of training and then committed to using the program with their students for 5-15 minutes daily. There was no control group and it is not clear whether every student completed only 5-15 minutes of yoga in one class per day or participated in yoga in multiple classes throughout the day. However, the students, parents, and teachers reported improvements in the students, making it worthwhile to attempt a randomized controlled trial with similar teacher preparation.

Based on the reviewed literature, it is likely that yoga, which promotes mindfulness and contains elements of physical activity, can have significant benefits in adolescents including stress and anxiety reduction, overall increased psychological well-being (including self-efficacy), and a reduction in bullying behavior and victimization. There is enough evidence that short periods of practice can provide benefits and that classroom teachers can be trained to successfully implement yoga practices in a classroom setting. The hypothesis for this study was that students who practiced yoga for 15-20 minutes every other day, would show improvements in one or more of the measures listed above compared to a control group.

Chapter II

Materials and Methods

The purpose of this study was to examine the effect of yoga training on student stress, psychosocial well-being, self-efficacy and bullying. The participants were freshmen students at a suburban high school outside of Boston, MA. All freshmen students at the school are assigned to a Freshmen Seminar course, which they attend every other day on a rotating schedule (Appendix A). Because all freshmen students take this course they are randomly assigned to a class section during the scheduling process the previous spring/summer. The initial plan was to have all of the Freshmen Seminar teachers trained to deliver yoga instruction so they could each have a control group and a yoga group, however due to scheduling conflicts two of the teachers were unable to attend the training session.

Students were given surveys to measure their perceived levels of stress and anxiety, psychological well-being (including self-efficacy), and bullying behavior and victimization pre-administration of the yoga program and again at the end of the study to make comparisons after participating in the yoga program or the control program.

Students in the yoga group participated in breathing exercises and basic Kundalini yoga postures. They practiced 15 minutes in each class period, with classes meeting 2 or 3 times a week, depending on the schedule. The control group spent the same amount of time in each class doing recreational reading. This task was chosen to maintain equity in the curriculum of the class and prevent the control classes from getting ahead or feeling that they were doing more work than the yoga classes. Students were enrolled in the

study based on a passive consent process. Parents were informed of the study and asked to contact the school if they did not want their child to participate. Students were informed verbally in class and were given the opportunity to opt out. Only one student opted out of the study. This protocol was reviewed and approved by the Harvard University Institutional Review Board.

Teacher Training

Three of the teachers received training for a three-hour period in October during which they were taught about the potential benefits of yoga as well as a variety of techniques that they were to teach to the students. The trainer was a certified yoga instructor from Kundalini Yoga Boston who also teaches yoga to high school students as part of a curriculum at another school. The teachers were then given a plan to follow for the yoga program (Appendix B). The other two teachers were unable to attend the training and were instructed to have students spend 15 minutes reading silently at the beginning of each period.

A second training session and check-in with the Kundalini instructor was planned, but schedule conflicts forced us to cancel. The teachers for the yoga group were given the instructor's contact information in case they needed additional guidance, but they only contacted her once to update the schedule at which point the yoga postures and additional activities were added to the schedule. At a certain point when they felt comfortable, the teachers were left to choose from the poses and activities on the schedule that seemed most appropriate for their students rather than following a specific timeline.

Participants

There were 233 students divided into eleven sections of the course during the year of the study, but only ten sections participated in the study due to a teacher reassignment just after the training session and before the start of the yoga sessions. The sections were assigned to the yoga or control group based on availability of the teachers for training with a total of 6 sections being part of the yoga group and 4 sections in the control group.

During the pre-treatment round of surveys students were asked about sex, race, class level, previous yoga experience and activities outside of school to determine whether any of these factors may play a role in measures after treatment. For race, students were given the options American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander and White and asked to select all that applied. A previous question asked whether the student was Hispanic or Latino/Latina. These options were based on those given in the Youth Risk Behavior Survey, which has been given to these students in previous years (Centers for Disease Control and Prevention, 2015).

Class level refers to the difficulty level of classes students were taking, including College Preparatory (CP), Honors (H), or Advanced Placement (AP).

Students were also asked about physical activity with a question about the number of days they are physically active and whether they had any previous yoga experience on a scale from never to practicing daily. An additional question asked about participation in organized sports.

Finally, students were asked whether they would participate in non-athletic group activities or other activities for stress relief over the course of the year. The group

activities question mentioned clubs, music lessons or youth groups, with a space to include the actual activity, while the stress relief question asked generally about these activities and included a space to write in the activity. This was done in an effort to elucidate whether participation in group activities or student perceived stress relief activities were a factor in any of the psychosocial measures.

Distribution of Surveys

Students completed the surveys in class prior to the first yoga session in October and at the end of the study just prior to the February vacation week, which was the third week in February. Surveys were distributed in the Freshmen Seminar classes by the Freshmen Seminar teachers with written instructions and a script to maintain consistent surveying conditions. Each student was assigned a random identification number, which was used to ensure surveys could be matched at the end of the study.

After the study, two of the teachers from the yoga group asked the students to make comments on their surveys about the yoga practice to gain a sense of whether the students enjoyed the program, found it helpful or had any suggestions if it were to continue. There were no formal questions, just an open-ended request by the teachers to provide feedback.

Measuring stress, psychosocial well-being, and bullying

Measures of stress and psychosocial well-being were assessed prior to the implementation of the yoga program using the Brunel Mood Scale (BRUMS), the Depression Anxiety Stress Scales (DASS) and the Positive and Negative Affect Schedule

for Children (PANAS-C). The BRUMS is a 24-item instrument modified from the Profile of Mood States (POMS). It consists of mood descriptors like angry, unhappy, and nervous that measure 6 subscales including anger, confusion, depression, fatigue, tension, and vigor. Subjects answer on a 5-point Likert scale. This instrument was found to be a valid substitute for the original POMS for use with adolescents and is estimated to take only a few minutes to complete (Curran, Andrykowski, & Studts, 1995; Terry, Lane, Lane, & Keohane, 1999). This survey was chosen in an attempt to reduce fatigue in filling out surveys and increase the likelihood that students would take the time to complete all forms accurately.

The DASS is a 42-item survey that measures and discriminates between depression, anxiety, and stress. It includes statements such as “I found myself getting upset rather easily” and “I couldn't seem to get any enjoyment out of the things I did” and asks students to rate on a 4-point Likert scale how often the statements applied to them during the past week. The DASS was shown to have internal consistency and temporal stability (Brown, Chorpita, Korotitsch, & Barlow, 1997).

The PANAS-C is a 30-item questionnaire measuring emotions. Respondents are asked to rate how often they have felt different emotions in the last few weeks using a 5-point Likert scale. It is divided into two subscales, positive and negative affect, with the negative affect scores being related to anxiety and depression. This scale was shown to have convergent and discriminant viability (Laurent et al., 1999).

Bullying and victimization was assessed using the Adolescent Peer Relations Instrument: Bully/Target developed by Parada, Marsh, and Craven (2000). This test was designed to measure interpersonal relationships between high school students. It

measures verbal, social, and physical bullying and victimization using a 6-point Likert scale where 1 is never and 6 is every day. In the first section students are asked to rate how often they participate in behaviors against other students, while in the second section students are asked how often the behaviors have occurred to them. This instrument was shown to have convergent and discriminant validity (Marsh et al., 2011).

Self-efficacy was measured using the Self-Efficacy Questionnaire for Children (SEQ-C) which consists of 24 questions that ask how well the respondent is able to do certain things such as studying, working with classmates, and expressing opinions. Responses are given on a 5-point Likert scale from “not at all” to “very well” and measure 3 subscales of self-efficacy – academic, social, and emotional. This scale was shown to have internal consistency reliability and to have a meaningful correlation with depression and can therefore be used as an additional measure of psychosocial well-being (Muris, 2001). Additionally, a study by Suldo and Schaffer supported the use of this questionnaire with adolescents (2007).

Statistical Analyses

Demographic data was tested for goodness of fit of distribution using a Pearson’s chi square test. Because responses to some of the measures resulted in less than 5 individuals in a category, some of the categories were combined within a measure to validate the chi square test. Race had three categories: white, black and other, because a majority of responses fell into the first two categories while none of the other responses were selected by 5 or more students. Few students responded that they participated in yoga a few times a month or more, so respondents with this level or more of yoga

participation were grouped together. Finally, those students who reported no physical activity during the week were grouped with those who were active 1 or 2 days for the purpose of the chi square test.

To see whether the yoga vs. recreational reading had an impact on mood, stress, bullying, and self-efficacy, mean scores were compared for each of the previously listed tests pre- and post-treatment within groups using a dependent t-test for paired samples. Additionally, two sample t-tests were used to compare between group change scores from pre-to post-treatment. Differences were considered significant at an alpha level of less than 0.05.

Because pre-treatment scores can be a factor in the changes seen pre- to post-treatment, ANCOVA was used to compare the mean differences for each group using pre-treatment means as the covariate, while standardizing the covariate by subtracting the mean. Only those measures showing significant or nearly significant within group changes between pre-and post-treatment were tested in this way to see whether the changes were affected by pre-treatment scores. The measures tested using ANCOVA were confusion and depression from the BRUMS survey, positive affect from the PANAS-C survey and all of the bullying victimization measures from the Adolescent Peer Relations Instrument. For the bullying measures, there was a relationship between group and pre-treatment, so a general linear model was used to compare these scores between groups as well as a scatterplot with regression to show the relationship.

Chapter III

Results

A number of students were absent during survey administration either pre-or post-treatment and many students skipped questions or entire surveys. To ensure matched data, all surveys of students who did not complete pre- and post-treatment surveys were removed leaving a total of 209 students with 128 students in the yoga group and 81 in the control/reading group.

Participants

The participants all attend the same school in a northern suburb of Boston, however a few students participate in a school choice program, so not every student enrolled in the study is a resident of this suburb. At the time of the pre-treatment survey distribution, a majority of the students (73%) were 14 years old, while nearly all of the remaining students were 15 years old. One student was 13 years old.

Of the participants 83% responded that they were white, 8% responded that they were black, 2.5% reported being Asian and the remaining responses were combinations of two or more choices. Each of these remaining responses accounted for less than 2% of the population. The distribution of these student race responses were evenly distributed across the two groups, with the group percentages mirroring those of the whole population. Additionally, the distributions of the other measures of general characteristics reflected those of the entire population of students. A chi-square test for goodness of fit

of distributions showed no significant differences between groups for any of the measures (Table 1).

Table 1. *Demographics and general characteristics of participants*

	Question/Category	Control (%)	Yoga (%)	χ^2	<i>df</i>
Race <i>N</i> = 208	White	83.5	82.4	1.06	2
	Black/African American	8.9	8.0		
	Asian	2.5	2.4		
Level <i>N</i> = 208	College Preparatory	34.6	43.0	3.20	3
	College Preparatory and Honors	37	33.6		
	Honors	14.8	16.4		
	All levels including AP	13.6	7.1		
Activity Level <i>N</i> = 208	0 days per week	4.9	0.8	4.20	3
	1-2 days per week	16	10.2		
	3-4 days per week	16	21.1		
	5-6 days per week	42	43		
	7 days per week	21	25		
Yoga Experience <i>N</i> = 208	Never Tried	16	16.4	2.86	3
	Tried once or twice	56.8	64.1		
	A few times a year	22.2	13.3		
	A few times each month	2.5	3.1		
	Once a week	0	2.3		
	A few times a week	1.2	0		
Play sports <i>N</i> = 207	Yes	74.1	80.3	1.06	1
	Other activities	71.6	62.1	2.09	1
Stress relief <i>N</i> = 205	Yes	37	32.8	0.34	1

Statistical Analyses

Group means were calculated for the Brunel Mood Scale (BRUMS), which includes 6 subscales that measure anger, confusion, depression, fatigue, tension, and vigor (Table 2). There were no statistically significant differences from pre- to post-treatment either within or between groups. However, increases in confusion ($t[67] = 1.98, p = 0.052$) and depression, ($t[67] = 1.99, p = 0.051$) approached significance for the control group.

Table 2. *Pre- and post-treatment group means, standard deviations and changes for Brunel Mood Scale*

Test	Pre-Treatment		Post-Treatment		Change	<i>t</i> within	<i>t</i> between
	M	SD	M	SD			
Anger							
Yoga	60.78	12.37	60.43	12.05	-0.34	-0.32	0.03
Control	64.22	15.20	63.93	16.93	-0.29	-0.19	
Confusion							
Yoga	53.33	9.80	53.92	10.57	0.59	0.65	1.39
Control	53.62	10.64	56.43	13.56	2.81	1.98	
Depression							
Yoga	50.28	10.92	50.71	11.59	0.42	0.45	1.40
Control	52.00	12.62	54.54	12.55	2.54	1.99	
Fatigue							
Yoga	56.73	10.59	56.77	11.26	0.04	0.04	0.32
Control	57.79	10.75	58.35	11.60	0.56	0.48	
Tension							
Yoga	55.07	11.37	54.00	10.49	-1.07	-1.07	-0.07
Control	59.25	12.60	58.07	11.12	-1.18	-0.90	
Vigor							
Yoga	53.72	9.14	54.74	8.69	1.02	1.19	-1.35
Control	55.81	7.64	55.15	8.03	-0.66	-0.79	

Yoga ($N = 99$), Control ($N = 68$)

The Depression Anxiety Stress Scale measures each of the three factors noted in the title of the survey. None of these measures showed significant changes from pre- to post-treatments either within or between groups (Table 3).

Table 3. Pre-and post-treatment group means, standard deviations and changes for Depression Anxiety Stress Scale

Test	Pre-Treatment		Post-Treatment		Change	<i>t</i> within	<i>t</i> between
	M	SD	M	SD			
Stress							
Yoga	7.91	8.18	7.60	8.73	-0.31	-0.42	-1.05
Control	8.18	8.72	8.82	8.81	0.65	1.18	
Anxiety							
Yoga	5.17	6.70	5.59	8.29	0.43	0.75	-0.82
Control	5.74	7.27	6.00	7.06	0.26	0.58	
Depression							
Yoga	4.29	7.85	5.05	9.56	0.76	1.20	-0.89
Control	4.16	7.08	5.04	7.06	0.88	-2.93	

Yoga (*N* = 108), Control (*N* = 74)

The Positive and Negative Affect Schedule for Children (PANAS-C) did not show any significant difference in change scores between groups for either positive or negative affect. However, PANAS-C scores showed a significant within group decrease in post-treatment means for both yoga ($t[102] = -2.73, p = .007$) and control ($t[62] = -2.93, p = .005$) groups in positive affect, but no significant within group differences in negative affect for either the yoga or the control group (Table 4).

Table 4. *Pre-and post-treatment group means, standard deviations and changes for Positive and Negative Affect Schedule for Children*

Test	Pre-Treatment		Post-Treatment		Change	<i>t</i> within	<i>t</i> between
	M	SD	M	SD			
Positive Affect							
Yoga	40.90	12.10	38.56	11.71	-2.34	-2.73**	-0.43
Control	41.70	8.74	38.81	8.78	-2.89	-2.93**	
Negative Affect							
Yoga	24.28	8.93	24.64	10.13	0.36	0.54	-1.23
Control	28.21	11.66	27.16	10.01	-1.05	-1.08	

Yoga (*N*=103), Control (*N*=63)

Scores significantly different between pre- and post-treatment within group ***p* < .01

The Adolescent Peer Evaluation Instrument includes two subscales, one for bullying behavior and one for bullying victimization. There were no significant differences from pre- to post- treatment within or between groups for any of the bullying behavior measures (Table 5). However, the yoga group showed significant within group decreases between pre- and post-treatment means for several of the victimization measures – verbal victimization ($t[116] = -3.11, p = .002$), social victimization ($t[116] = -2.43, p = .017$), and total victimization ($t[116] = -2.57, p = .012$) while the control group showed a statistically significant but small within group decrease in mean scores for physical victimization ($t[77] = -2.59, p = .011$).

The Self-Efficacy Questionnaire for Children has three subscales – academic, social and emotional self-efficacy, while also including total efficacy as a measure of those three combined. None of the changes from pre- to post-treatment were significantly different either within or between groups (Table 6).

Table 5. Pre-and post-treatment group means, standard deviations and changes for Adolescent Peer Relation Instrument: Bully/Target

Test	Pre-Treatment		Post-Treatment		Change	<i>t</i> within	<i>t</i> between
	M	SD	M	SD			
Verbal Bullying							
Yoga	8.32	3.51	8.75	3.73	0.43	1.24	-1.14
Control	10.25	5.53	10.06	5.54	-0.19	-0.46	
Physical Bullying							
Yoga	6.69	1.74	6.97	2.32	0.28	1.26	-0.75
Control	7.35	3.53	7.38	3.53	0.03	0.10	
Social Bullying							
Yoga	6.38	1.05	6.66	1.90	0.28	1.52	-1.81
Control	6.89	2.56	6.64	1.94	-0.25	-1.10	
Total Bullying							
Yoga	21.39	5.22	22.38	6.57	0.99	1.64	-1.41
Control	24.49	9.29	24.18	9.59	-0.31	-0.47	
Verbal Victimization							
Yoga	9.18	5.55	8.04	3.65	-1.14	-3.11**	1.92
Control	10.36	6.62	10.74	6.90	0.385	0.79	
Physical Victimization							
Yoga	7.26	3.53	6.93	2.65	-0.33	-0.90	-1.03
Control	8.21	4.80	7.35	3.65	-0.86	-2.59*	
Social Victimization							
Yoga	7.92	4.55	6.97	2.25	-0.94	-2.43*	1.47
Control	7.68	4.56	7.49	4.28	-0.19	-0.86	
Total Victimization							
Yoga	24.35	12.34	21.95	6.76	-2.40	-2.57*	1.11
Control	26.24	13.64	25.32	11.93	-0.92	-1.12	

Yoga (*N* = 117), Control (*N* = 78)

Scores significantly different within group (**p* < .05, ***p* < .01)

Table 6. *Pre-and post-treatment group means, standard deviations and changes for Self-efficacy Questionnaire for Children*

Test	Pre-Treatment		Post-Treatment		Change	<i>t</i> within	<i>t</i> between
	M	SD	M	SD			
Academic							
Yoga	27.49	6.11	27.58	6.56	0.09	0.16	-.093
Control	27.65	6.42	27.89	6.60	0.24	0.34	
Social							
Yoga	28.1	6.62	28.05	6.56	-0.07	-0.10	0.67
Control	28.76	5.65	29.18	5.15	0.42	-1.16	
Emotional							
Yoga	25.14	6.59	24.41	7.13	-0.72	-1.12	1.51
Control	24.43	6.40	25.13	6.13	0.69	1.09	
Total							
Yoga	80.74	15.96	80.04	17.62	-0.70	-0.43	0.31
Control	80.85	15.79	80.90	17.74	0.06	0.03	

Yoga ($N = 104$), Control ($N = 72$)

Further analysis of the measures with significant or nearly significant changes between pre- and post-treatment revealed only some significant differences between groups. ANCOVA for change in confusion, depression, and positive affect scores showed no significant differences between groups after controlling for pre-treatment scores, though depression changes did approach significance with the reading group scores increased compared to the yoga group (Table 7). There was no significant interaction between group and pre-treatment scores for confusion ($F[163] = .08, p = .779$), depression ($F[163] = .11, p = .744$) or positive affect ($F[163] = .41, p = .401$).

Table 7. ANCOVA for variance between and within groups for confusion, depression, and positive affect

		df	Adj SS	Adj MS	<i>F</i> (1,163)	<i>p</i>
Confusion (C)	C	1	1718.2	1718.23	18.34	<.001
	Group	1	215.7	215.69	2.30	.131
	Within Groups	163	15366.3	93.70		
Depression (D)	D	1	2513.6	2513.56	29.88	<.001
	Group	1	306.9	306.85	3.65	.058
	Within Groups	163	13788.9	84.59		
Positive Affect (PA)	PA	1	1959.0	1959.04	33.45	<.001
	Group	1	3.5	3.47	0.06	.808
	Within Groups	162	9546.3	58.57		

Confusion and Depression (*N* = 167), Positive Affect (*N* = 166)

A significant interaction between group and pre-treatment score existed for verbal, physical, social and total victimization. A general linear model indicated a significant main effect of group for verbal, social and total victimization after controlling for pre-treatment scores and standardizing the covariate by subtracting the mean. The group effect was not significant for physical victimization (Table 8). The interaction between group and pre-treatment score was such that the students in the yoga group with higher pre-test scores showed a greater decrease in post-test scores than the control group for victimization measures (Figure 1).

Table 8. *General Linear Model for variance between and within groups for bullying victimization*

		DF	Adj SS	Adj MS	<i>F</i> (1,191)	<i>p</i>
Verbal	VV	1	1152.4	1152.37	83.99	<.001
Victimization	Group	1	136.2	136.25	9.93	.002**
(VV)	VV*Group	1	119.2	119.19	8.69	.004**
	Within Groups	191	2620.6	13.72		
Physical	PV	1	1208.9	1208.89	199.76	<.001
Victimization	Group	1	0.00	0.00	0.00	.980
(PV)	PV*group	1	152.6	152.62	25.22	<.001***
	Within Groups	191	1155.9	6.05		
Social	SV	1	886.7	886.707	224.89	<.001
Victimization	Group	1	19.78	19.785	5.02	.026**
(SV)	SV*Group	1	399.6	399.571	101.34	<.001
	Within Groups	191	753.1	3.943		
Total	TV	1	7091.7	7091.65	202.63	<.001
Victimization	Group	1	245.0	244.99	7.00	.009**
(TV)	TV*Group	1	1430.2	1430.22	40.87	<.001
	Within Groups	191	6684.6	35.00		

N = 195

Scores statistically significant (***p* < .01, ***<.001)

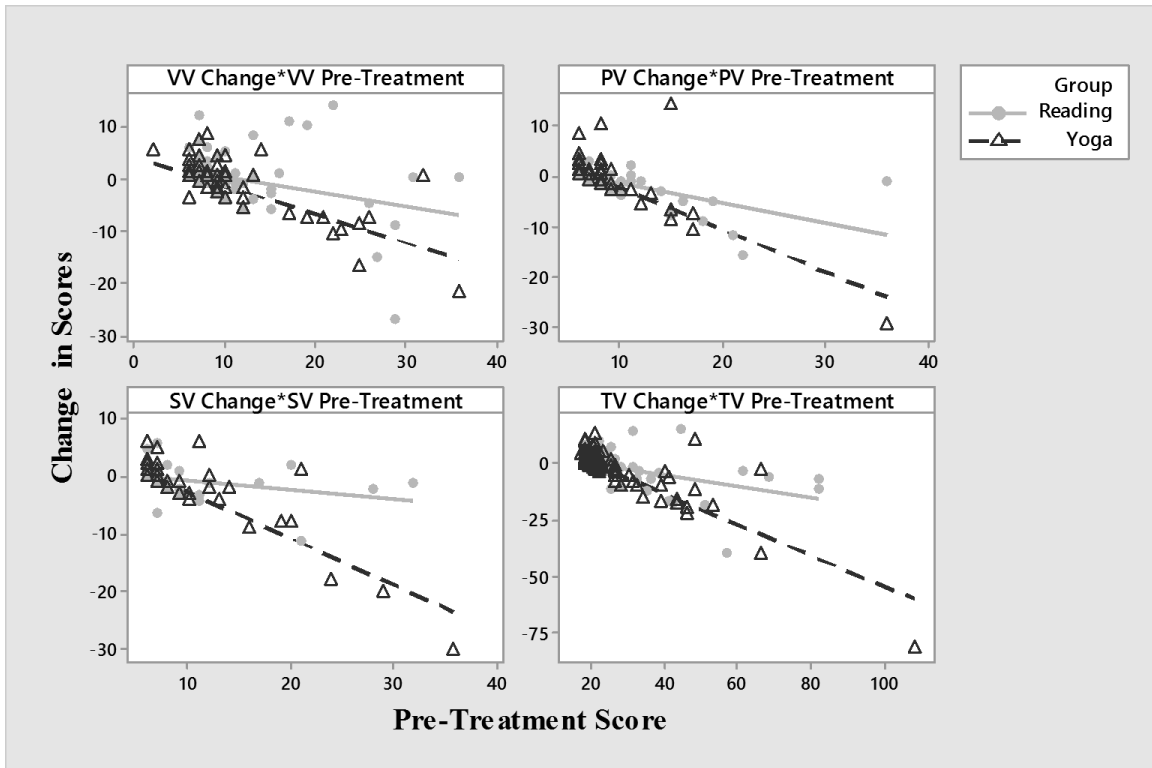


Figure 1. Scatterplots with regression for pre-treatment vs. change in score for bullying victimization for reading and control groups

Qualitative Measures

Of the forty-five student comments, seventeen responded that they enjoyed the yoga or that it helped them in some way. There were five comments indicating that many students, including the commenters, did not take the yoga practice very seriously, while seven students made comments that implied that what they were doing was not “real” or “actual” yoga. A few students said that they enjoyed the yoga, but that they wished they could have done it for more time, while others said that the yoga was not helpful at all. Many of the comments just mentioned poses or activities that they liked or disliked.

Chapter IV

Discussion

The purpose of this study was to evaluate the psychosocial effects of a teacher-led yoga program where students would participate in yoga for 15-20 minutes every other day. Teachers would be minimally trained, but would not be certified yoga instructors. The effects of yoga were compared with a control group that participated in 15-20 minutes of silent reading every other day for the duration of the study. It was expected that students participating in yoga would see benefits in stress, psychosocial well-being, bullying and self-efficacy. Specifically, the expectation was that there would be decreases in stress and other measures of psychosocial well-being such as anxiety and depression, as well as decreases in both bullying behavior and victimization. Additionally, increases in self-efficacy measures were expected for the yoga participants.

While most of the measures showed no significant changes between pre-treatment and post-treatment either within or between groups, the yoga group had significantly lower scores in verbal, social, and total bullying victimization at the end of the study. The change in scores for these measures were also significantly different between groups after controlling for pre-treatment scores. Initially, the control group showed a significant decrease in physical victimization, but this change was small and there was no significant difference between the control and yoga groups after controlling for pre-treatment scores. For both groups, higher pre-treatment scores predicted a greater decrease in all subscales of victimization, but this effect was stronger in the yoga group. While there were few

individuals in either group that had high pre-treatment scores for victimization, it is clear that yoga was a factor in reducing bullying victimization.

The reason for this effect is not as clear. The expectation was that bullying and victimization would be related to stress and self-efficacy, but as none of these other measures showed significant changes, it is unlikely that changes in these measures were responsible for the victimization scores. It is also unlikely that the reduction in victimization is related to changes in bullying behavior as neither group showed a reduction in behavior. Therefore, the victimization reduction cannot be explained by saying that students were not being bullied as frequently. It is more likely that the effect has something to do with some measure of emotional well-being provided by yoga practice that was not measured in this study. It is possible that the yoga practice increased student self-image or self-esteem as seen in previous studies by Conboy (2013) and Benson et al. (1994) respectively. The Benson study was similar to the current study in the amount of time spent doing yoga. In any case, it is more likely that perceptions of bullying changed as opposed to actual bullying. The changes that occurred in students who practiced yoga may have made victims of bullying less likely to perceive the perpetrator's behavior as bullying. This seems likely considering that only verbal and social victimization, not physical, were reduced. Further research could investigate effects of yoga on both bullying victimization and self-esteem or self-image to elucidate whether these measures are connected in an effort to further understand how yoga reduces bullying victimization.

Despite a number of studies showing that yoga helped reduce stress, anxiety, and other factors measured in this study, none of these psychosocial factors were significantly

changed after participation in this particular yoga program. There are a number of possible explanations for this discrepancy including teacher training, the yoga program itself and other factors related to the school year. First, the teachers were minimally trained and did not have prior experience with yoga practice previous to the study while many of the other studies on yoga effects used fully certified yoga instructors. However, the fact that improvements were made in bullying victimization does not support this argument. Clearly the teachers were able to effectively teach the yoga practice well enough to elicit some changes in the students, so it is unlikely that the lack of training was the most influential.

The explanation that relates to the program itself is unlikely to be able to explain the discrepancies between this and other studies as many of the meditations and practices done in the program relate to stress response and relaxation that should have resulted in reductions in stress, anxiety and perhaps depression. It is possible that not enough time was given to practice the yoga, including the weeks taken out for research projects, but again that is not consistent with the results for bullying victimization. Instead, it is likely that much of the lack of effect can be attributed to unusual circumstances during the school year.

In the fall, about one month after school began, a relatively young member of the faculty passed away unexpectedly. This teacher was highly regarded by students and faculty alike and was the teacher of a number of the freshmen students. He was also involved in summer programming, so a number of the students in the study knew him even if he had not been their classroom teacher. Later in the year, shortly after the study began, a secretary passed away after a battle with cancer. While most of the students in

the study did not know her, it is likely that some of them were impacted by hearing of her death, which may have brought back emotions from the faculty member's death or that of another loved one. Finally, just a few weeks before the post-treatment surveys were given a student at the high school committed suicide. Again, even if the participants in this study did not know the individual well it is likely that they were impacted in some way. In a study investigating the impact of the death of an adolescent on his peers the authors found that a majority of classmates, even those who were not close to the deceased, "described themselves as significantly affected by the news..." (Mcneil, Silliman, & Swihart, 1991, p. 136). This may also be the reason that there was a significant decrease in the positive affect scores in both groups as the Positive and Negative Affect Schedule for Children asks about feelings in the past few weeks.

There was one other interesting outcome that may have been related to the traumatic event shortly before the surveys. This was the difference in confusion and depression scores in the control group as measured by the Brunel Mood Scale. The control group saw a nearly statistically significant increase in both of these measures at the end of the study while the yoga group saw only a slight increase. Additionally, there was a significant difference in the mean post-treatment depression scores between groups, while the pre-treatment mean scores were nearly identical. Confusion and depression were among the emotions experienced by adolescents who lost a sibling according to a study by Balk about the emotional responses of adolescents to the death of a sibling (1983). Respondents reported feeling shock, confusion, depression and anger among other emotions. While the student lost during this study was not a sibling to any of the participants, it seems likely that they would have some of the same emotions in

response. So while the yoga group did not see any decrease in these measures, the fact that they did not see a dramatic increase like the control group is encouraging. In fact, this mirrors the results found by Khalsa et al. where for many of the measures the students in the yoga group did not have significant changes in mood or stress while the control group had changes that were either significant or led to significant differences between the groups' scores (2012). In all of these cases, the changes led the researchers to conclude that yoga had a protective effect, even if it did not lead to a significant change.

These findings support the conclusion that while the yoga program did not have all of the desired outcomes, the minimal training of the teachers and the limited time for practice of 15-20 minutes every other day was enough to produce positive changes and protective effects in the yoga participants. These results are encouraging in light of the short and long term effects of bullying victimization. Victims are more likely to suffer from colds and psychosomatic problems like headaches and sleeping problems as well as anxiety disorders during their adolescence, while in adulthood they are more likely to experience depression, have more general health complaints and even increased suicidal tendencies (Wolke & Lereya, 2015). These results are also heartening considering that public school budgets are extremely tight and are not likely to allow for increased staff to specifically teach yoga or to pay for teachers to become certified in yoga instruction. However, most schools do offer professional development to teachers throughout the year and could easily replace several hours of some other training with instruction on teaching yoga to their students. In addition, a growing number of high schools, including the one in the study, are implementing advisory programs where teachers meet with small groups

of students throughout the school year to provide social and academic support for these students (Tocci, Hochman, & Allen, 2005). While the scheduling and time spent in these advisories varies across schools, this could be an ideal placement for yoga practice as it would not interfere with curriculum instruction in other classes, making the implementation of yoga instruction in public schools feasible both economically and schedule-wise.

Because the training provided did give the teachers enough background to effectively teach yoga, it would be interesting to see whether a longer training or a follow-up session for the teachers (as intended in this study) would lead to even more positive results. A few additional hours of training would probably be economically feasible for a public school and could improve the teachers' ability to keep students engaged with new activities and poses and allow them to choose activities or poses that target specific responses appropriate to their students. Considering the several comments about this not being "real" or "actual" yoga, it would be helpful to give the teachers a little more background on yoga and make sure that they are adequately able to explain yoga practices to students before beginning the program. While this was part of the training for the teachers in this study, it is unknown whether they were able to relate this information to students and clearly set the expectations of what this yoga practice would look like. Clearly a number of students were expecting to do a more physical regimen as they have seen practiced in local gyms.

While this study did have a control group it would have been more ideal to have each teacher have one yoga group and one control group to more accurately gauge the impact of the yoga and better control for any variables related to the teachers themselves.

It would also allow for more randomization. While the students in each class were randomly assigned through scheduling, the classes were not randomized in the study due to the lack of training of two of the teachers. Further studies could have teachers with multiple classes act as their own control.

It would also be useful to study effects over an entire year of yoga practice and to do a follow-up. Time did not allow for follow-up surveys to assess whether the reduction in victimization and other protective effects resulting from yoga practice would be maintained or whether the students who found yoga helpful would continue on their own. This would be helpful in understanding whether inclusion of a yoga program could be limited to just one year, most likely in the Freshmen Seminar class for the school in the study, or whether it should be continued throughout the entire four years.

Finding a way to study yoga for other grade levels would also be helpful as there are different concerns and stressors in different years of high school. Students in higher grades may have more academic stress and anxiety and would have more potential to reduce these levels whereas the students in this study generally did not have high levels of stress and anxiety at the start of the study. Including multiple schools or even middle school students would also help to clarify whether the reduction in victimization could be seen in any student who was victimized or only those students with very high levels at the start. Although there were over 200 students in this study, very few of them reported high levels of victimization and because the effects seemed to be associated with the initial level, it would be important to have a larger sample of students that fall into the higher end at the beginning of the study.

Despite its limitations, this study did provide evidence that regular classroom teachers with minimal training in yoga practice can successfully teach students well enough to provide some benefits. It also lends support to the idea that even a small amount of time devoted to yoga practice can be beneficial.

Appendix A

7-Day Schedule for Melrose High School

	Day1	Day2	Day 3	Day4	Day5	Day 6	Day 7
7:45 - 8:42	A	A	A	A	A	A	D
8:45 - 9:47	E	E	C	D	B	E	C
9:50 - 10:47	C	D	B	E	C	B	E
10:50 -12:09*	B	C	E	B	D	C	B
12:12 - 1:09	D	F	G	F	G	D	G
1:14 - 2:11	F	G	F	G	F	G	F

* Lunch occurs during this period, so the class time is equal to other periods.

Appendix B

Yoga Plan

The following is the information and instructions shared with the teachers who taught the yoga group. Day numbers indicate individual days of practice for the initial days of the program. After that the teachers followed the activities that were given and included yoga postures from the provided link, but did follow a specific schedule of days as the schedules were varied with interruptions for research projects.

Day 1

Key principles for you to consider:

- Give students the space and support to participate. Trust in their abilities to do this and project that trust.
- Allow for the space for students to have their own experience. Allow for feedback and learn from each other.
- Be creative and open-minded. Respect and encourage. Respect confidentiality and differences of opinion. No harsh judgments.
- Remember to laugh and enjoy yourself and let them know they might laugh or think some of what they are practicing might be weird or outside their comfort zone. Students will model your attitude of gratitude!

Introduce students to Key Terms. What is Mindfulness, meditation and Yoga and why is it good for you? The PowerPoint I used is in this folder. If you need more information, please let me know. I have some notes below.

Mindfulness and yogic focusing techniques are based, in part, by meditation and yogic techniques with roots in a variety of religious and spiritual traditions. Yoga and meditation are not a religions though. It is a philosophy that began in India an estimated 5,000 years ago. Yoga sometimes interweaves other philosophies such as Hinduism or Buddhism, but it is not necessary to study those paths in order to practice or study yoga.

Mindfulness: Mindfulness is non-judgemental awareness of the present moment. Mindfulness is a retraining of attention.

Meditation: There are many things in life that are beyond our control. However, it is possible to take responsibility for our own states of mind – and to change them for the better. This is the most important thing we can do, and meditation teaches that it is one tool to ease our own personal sorrows, anxieties, fears, hatreds, and general confusions that cause stress and anxiety.

- Meditation is a means of transforming the mind. There are breathing meditations, walking meditations, mantra (sound/singing) meditations and silent meditations. Meditation practices are techniques that encourage and develop concentration, clarity, emotional positivity, and a calm seeing of the true nature of things. By engaging with a particular meditation practice you learn the patterns and habits of your mind, and the practice offers a means to cultivate new, more positive ways of being. With regular work and patience these nourishing, focused states of mind can deepen into profoundly peaceful and energized states of mind. Such experiences can have a transformative effect and can lead to a new understanding of life.

Yoga: The word "yoga" comes from the Sanskrit root "yuj", which means "to yoke" the spirit and physical body together. Yoga has evolved over thousands of years to embrace a wide range of styles and disciplines. Yoga is a popular activity for athletes, children, and seniors. Though many people think of yoga only as physical exercises — the asanas or postures that have gained widespread popularity in recent decades — these are actually only the most superficial aspect of this profound science of unfolding the infinite potentials of the human experience.

Many people think that they need to be flexible to begin yoga, but that's a little bit like thinking that you need to be able to play tennis in order to take tennis lessons. Come as you are and you will find that yoga practice will help you become more flexible in your body and mind.

Activity: Today, after you give the introduction, have them practice the Active Listening Exercise we practiced. Have students sit face to face in chairs or on the floor. Try pairing students who don't know each other well. Each partner gets 3 minutes to talk while the other person listens. You will start and stop the exercise. Invite giggles and being uncomfortable-it's normal. The goal is for the students to try to maintain eye contact and for the "listener" to be non-reactive. Oftentimes we go through the motions of listening when we really thinking about what to say/do next. This manifest in the listener saying/doing things while the other person talks. When we really tune into the person in front of us, collaboration happens.

You can ask them to pick a partner and spend 3 minutes looking into your partner's eyes and you may speak or not speak, but your partner may not speak or acknowledge what you say, they just listen. After 3 minutes, we will switch partners.

I would use a chime or bell. Bring out meditation bell or use App (<https://itunes.apple.com/us/app/meditation-tibetan-bowls/id392531124?mt=8>) to bring

their attention to switching partners and ending. I also like to have students thank each other after each person speaks and listens.

Total time is 6 minutes with five minutes for wrap-up/reflection..

*If you need help generating questions to prompt the reflection, please let me know.

Day 2

Activity:

You might want to start by asking them if they have any questions or experiences to share from the day before.

1. Connect the Mind and Body:

The first thing that will help us during mindfulness is to let our bodies be very still... let's try that?

The second thing automatically happens when we get still... what is the noise like in here right now, when you get still?

Yes, it gets very quiet.

Now we have still bodies and quiet bodies. That's what we'll call our mindful bodies.

Now, let's close our eyes and just sit like that for one minute.

You did a great job at your first practice of a mindful body. Was that easy or hard?

Take a few minutes to discuss and ask them if they want to try again and for longer. You can guide them through naming (silently each sound they hear) and trying to listen to all sounds until they trail off.

2. Mindful Listening:

We won't have to be this still and quiet all the time, but often during this time we have set aside for our yoga and meditation practice, I will remind you to get your mindful bodies on! There are a lot of things that we can learn to be mindful of. Today we are also going to practice being mindful of sound. I brought something to help us with that.

Bring out meditation bell or use App (<https://itunes.apple.com/us/app/meditation-tibetan-bowls/id392531124?mt=8>)

Would you like to hear what this sounds like? Ok, but we have to get our mindful bodies on.

Demonstrate a mindful body again and let them get ready. Make sure they are as still and quiet as you think that class is capable of.

Ring bell.

Great job. Would you like to hear it again? Ok, but this time, get your mindful ears on.

That means you listen very carefully, the whole time. So, see if you can pay attention from the very first moment you hear the bell all the way to the end. Raise your hand when the sound is gone.

Ring bell.

Since you are so good at this, let's try it one more time with our eyes closed. Let your eyes close. Listen just like you did before to the entire sound and raise your hand when the sound is gone for you.

Ring bell.

We can also listen this carefully to any sound. There are lots of sounds around you all the time. If you listen very carefully, you might hear things you don't normally hear. Let's keep our mindful bodies on, with our eyes closed, and listen to the sounds around us. You might hear sounds in the classroom or outside, or even in your own body.

Mindful listening for about one minute.

Raise your hand if you would like to share some sounds that you noticed.

Comment on the quieter sounds and how quiet it had to be to hear them.

You have just learned how to pay attention better. In mindfulness, we learn how to focus and pay close attention to many things. Do you think it's important to be able to focus?

Why? When could you use mindful listening?

Wrap-Up. Let's try this again the next time we meet. Now that you've learned mindful listening, see if you can remember to listen to sounds around you the rest of today and tomorrow. You might stop and listen while you are on the playground, or in the classroom, or at home. And you can tell me what sounds you noticed when we have this time again.

Ring bell.

Day 3

Activity: Today, let them know that they are going to practice some gentle yoga that is great for creating a relaxation response versus a stress response.

You can do these in a chair/desk, car or in easy pose (crossed legged). Try to do them for 3 minutes each.

1. Neck rolls - inhale through the nose as the head comes forward and exhale through the nose as it goes back. Change direction at least once.

2. Shoulder shrugs – inhale, through the nose, the shoulders up toward your ears and then exhale, through the nose, as you drop them down.

3. Dancing, clapping overhead and shaking it out for three minutes with MUSIC! Lift the arms overhead and shake, shake, shake out the tension! Sing along! Raise your arms over your head and clap your hands for three minutes each. Reminder: Clapping changes our mood and we can actually “shake” off stress. You can invite students to bring their awareness to something that is stressful at this moment and then “shake” it off!

4. End with Active Listening or Mindfulness exercises from Days 1 and 2

Day 4

Activity:

1. Practice Yoga from Day 3. You can tell them that we will be adding more postures that are appropriate for the classroom later.

2. Meditate

Sit in Easy Pose (cross-legged) or in a chair.
Lightly close your eyes and focus (between the eyebrows).

With the four fingers of one hand, feel the pulse on the wrist of the other hand. Place the fingers in a line, lightly, so that you can feel the pulse in each fingertip. On each beat of the heart, mentally hear the sound SAT NAAM.

"SAT NAAM" means, "truth is my identity". Meditating on this mantra helps you connect with your authentic self (the you without projection). Everyday people project their thoughts and beliefs onto us (we also do this to ourselves and others). This meditation helps you connect with your TRUE SELF. Everyone has a heartbeat which binds us, but your heartbeat is unique.

This is a great meditation, from the Kundalini Yoga tradition, for someone who doesn't know how to meditate, or wants to develop the ability to concentrate. It allows you to control reaction to any situation and can bring one-pointedness to the most scattered mind. Try this meditation to help you learn to meditate and connect with your total amazingness. Continue for 6-11 minutes.

Activity:

I've scanned in some yoga cards to help you have more options with postures that can be done in the classroom.* All of the physical exercises above and below can be done for 1-3 minutes. For the meditations, I've listed times. I've listed out a focus for each day for a meditation or activity, but since your schedules seem to be unpredictable, go with the flow of your days! Hope this helps!

1. Do some yoga first and then try this meditation: COUNTING BREATH – INHALE 4, EXHALE 6 for Stress Relief:

You may place your hands on your chest and belly as in belly breathing, or gently place your hands on your lap, either palms up to feel more energized, or palms down to feel more grounded. You may also choose to close your eyes. Bring your awareness to your breath. Inhale for a count of four seconds, notice the small pause between the inhale and exhale, and then exhale for a count of six. Again notice the pause as your body transitions between inhale and exhale, and then inhale for a count of four, and so on. Try for 1-6 minutes.

*Poses shared were Vrksasana (Tree pose), Tadasana (mountain pose), Gomukhasana (cow face pose), Utkatasana (chair pose), Bhikasana (frog pose) – the cards included instructions, pictures of the pose, benefits of the pose, and challenges

Activity:

Do some yoga first and then try this meditation:

MEDITATION used to support Perspective and Emotional Balance (Alternate Nostril Breathing)

For this technique you will be blocking one nostril at a time while you inhale and exhale. Begin by using your ring finger to block the right nostril and inhale through the left nostril. Block the left also with the thumb, release the right nostril, and exhale. Keep the thumb blocking the left nostril and inhale through the right, block the right nostril with the ring finger, release the thumb, and exhale through the left.

Alternate nostril breathing improves brain function and reduces anxiety. This is a basic technique in Kundalini Yoga and Hatha yoga. It is excellent to do before bed to let go of the worries of the day. It is a superior technique to establish emotional balance and calmness. Inhale through the left nostril to stimulate the capacity of the brain to reset the frame of thinking and feeling. New perspectives and connections become available. Exhale through the right nostril to relax the constant computations and cautions of the brain, breaking automatic patterns. The two processes together set a new level of functioning.

Alternate Nostril Breathing in depth description:

Posture Description:

- Sit with a straight spine, in Easy Pose or in a chair.
- Hold the left hand resting in your lap.
- Exhale fully and then close the right nostril using the thumb of the right hand
- Inhale through the left nostril, and then close the left nostril using either the index or ring finger of the right hand.
- Open the right nostril and exhale.
- Inhale through the right nostril, then close the right nostril using the thumb of the right hand.
- Open the left nostril and exhale.
- This is one cycle of alternate nostril breathing.

Eyes: Closed

Time: 1-11 minutes or continue as long as is comfortable.

End: End on an exhale, then resume regular, comfortable breathing.

Don't practice this pranayama if you are experience sinus headaches, nasal congestion or other sinus related issues. Instead practice a more gentle pranayama such as Long Deep Breathing.

Check out this beautiful song, *Keep Breathing* by Ingrid Michaelson that might be good to play while they do this.

Discussion: Where is your breathtaking you these days? What would it be like if you could harness it to have greater control over how you feel? Do you ever find yourself holding your breath when you are stressed out? Are there any of the other breathing techniques that you we've practiced that you want to try now?

Activity:

1. Do some yoga first and then try this meditation:

Palming - Rub your hands together and generate some heat! Rest your elbows and forearms on a table, and rest the weight of your head in the palm of your hands. Keep the hands soft and relaxed, as the hands cup the eye sockets. Long Deep Breathing. 6 minutes

Do some yoga first and then try this meditation: **Eliminating Thoughts You Dislike Meditation**

Sit straight in easy pose (comfortable cross legged position, or shoeless feet flat on the floor if you are sitting in a chair. Sit with your back straight, with your chin tucked in a little so that your spine is fully straight.)

Make a cup with the hands by putting the right hand over the left. The fingers will cross each other. Put this open cup at the level of the heart center. The eyes look only into the cup.

Begin the pranayama (yogi breathing pattern) by inhaling deeply through the nose. Exhale through the puckered mouth. The exhale is as if you spit the air into the palms, but it is a dry. Long spitting motion of the air.

Meditate on the particular thought that you have and which you do not like. Spit out the thought with the breath. Inhale the thought you don't like and exhale it in the breath.

Continue for 3-11 minutes, then inhale deeply, exhale, and with the eyes closed.

Activity:

Family and Social Pressures (perceived stress) Activity:

Meditation: Meditation for Calm Heart.

Posture: Sit in easy pose or in a chair with your spine straight.

Focus: Either close your eyes and focus at the third eye point or look straight ahead with your eyes half open.

Breath: Concentrate on the flow of breath. Regulate each bit of the breath consciously. Inhale slowly and deeply through both nostrils. Then hold your breath in by suspending your chest. Retain as long as possible. Exhale through the nose smoothly, gradually and completely. When your breath is totally out, lock the breath out for as long as possible.

Mudra (hand posture): Place your left hand on the center of your chest at your heart level. The palm is flat against your chest and your fingers are horizontal and pointing to the right. The right hand is in Gyan Mudra (with the pad of the index finger touching the pad of the thumb). The other fingers of the right hand are straight. Raise your right hand to your right side as if giving a pledge. Your palm faces forward. Your elbow is relaxed near your side with your forearm perpendicular to the ground.

Time: 3-5 minutes.

End: Inhale and exhale strongly three times.

Benefits: The entire posture induces a feeling of calmness. The left hand is for receiving. In this meditation the left palm is placed at the natural home of the prana (life force). Create a deep stillness at that point. The right hand is for giving, for projecting, for throwing you into action and analysis. It is placed in a receptive, relaxed mudra and put in the position of peace.

Emotionally, this meditation adds clear perception to your relationships with yourself and others. If you are upset at work or in a personal relationship, sit in this meditation for 3 to 5 minutes before deciding how to act. Then act with your full heart.

In addition, this meditation opens your awareness of breath and conditions the heart and lungs.

Discussion/Activity:

Identity: Nexus of forces that make up your past, present, and future. Genetics, culture in which you were raised, people in your life, the people who raised you, people who have done you harm and those that you have harmed, your experiences of love and suffering. We don't always think that connecting to our identity will impact our work at school, but it does.

Integrity: Whatever wholeness you find within that nexus. Ways of relating to those forces that form identity.

Activity:

Talk (or write about) about a person who made a difference in your life? What made your

mentor great? What is it about you that made your experience great with your mentor?

Activity:

Do some yoga and any of the breathwork above and then try this activity:

Activity: The Open/Closed Mind Project. Create a past, present, and future mind. Draw the mind your family thinks you have or what they want you to have. Draw what you think is in your mind. Draw what you would like to see in your mind. The open mind of _____ . Draw your head. Outline only. Fill it with all that is on your mind.

Leave time for students to discuss as they feel comfortable.

References

- American Psychological Association. (2014). *Stress in america™: Are teens adopting adults' stress habits?* (No. 8). Vanguard Communications.
- Balk, D. (1983). Adolescents' grief reactions and self-concept perceptions following sibling death: A study of 33 teenagers. *Journal of Youth and Adolescence; A Multidisciplinary Research Publication*, 12(2), 137-161. doi:10.1007/BF02088310
- Benson, H., Kornhaber, A., Kornhaber, C., LeChanu, M. N., Zuttermeister, P. C., Myers, P., & Friedman, R. (1994). Increases in positive psychological characteristics with a new relaxation-response curriculum in high school students. *Journal of Research and Development in Education*, 27(4), 226-31.
- Benson, H., Wilcher, M., Greenberg, B., Huggins, E., Ennis, M., Zuttermeister, P. C., . . . Friedman, R. (2000). Academic performance among middle- school students after exposure to a relaxation response curriculum. *Journal of Research and Development in Education*, 33(3), 156-65.
- Berger, D. L., Silver, E. J., & Stein, R. E. K. (2009). Effects of yoga on inner- city children's well-being: A pilot study. *Alternative Therapies in Health and Medicine*, 15(5), 36.
- Brown, T., Chorpita, B., Korotitsch, W., & Barlow, D. (1997). Psychometric properties of the depression anxiety stress scales (DASS) in clinical samples. *Behaviour Research and Therapy*, 35(1), 79-89.
- Centers for Disease Control and Prevention. (2015). Questionnaires: Youth risk behavior survey. Retrieved from <http://www.cdc.gov/healthyyouth/data/yrbs/questionnaires.htm>
- Chen, D. D., & Pauwels, L. (2014). Perceived benefits of incorporating yoga into classroom teaching: Assessment of the effects of “ yoga tools for teachers”. *Advances in Physical Education*, 04(03), 138-148. doi:10.4236/ape.2014.43018
- Chong, C., Tsunaka, M., Tsang, H., Chan, E., & Cheung, W. (2011). Effects of yoga on stress management in healthy adults: A systematic review. *Alternative Therapies in Health and Medicine; Altern. Ther. Health Med.*, 17(1), 32-38.
- Clance, P. R., Mitchell, M., & Engelman, S. (1980). Body cathexis in children as a function of awareness training and yoga. *Journal of Clinical Child Psychology*, 9(1), 82-85. doi:10.1080/15374418009532956

- Conboy, L. A., Noggle, J. J., Frey, J. L., Kudesia, R. S., & Khalsa, S. B. S. (2013). Qualitative evaluation of a high school yoga program: Feasibility and perceived benefits.(report). *Explore: The Journal of Science and Healing*, 9(3), 171.
- Crowley, A. (2002). *The psychological and physiological effects of yoga on children* (Masters).
- Curran, S., Andrykowski, M., & Studts, J. (1995). Short form of the profile of mood states (POMS-SF): Psychometric information. *Psychological Assessment*, 7(1), 80-83.
- Day, R. C., & Sadek, S. N. (1982). The effect of benson's relaxation response on the anxiety levels of lebanese children under stress. *Journal of Experimental Child Psychology*, 34(2), 350-56.
- Feldman, R. S. (2008). Stress, coping, and well-being. In J. Marshall, L. Jewell, A. Talwar & M. Richardson (Eds.), *Adolescence* (pp. 452-468). Upper Saddle River, NJ: Pearson Education Inc.
- Forushani, N. Z., & Besharat, M. A. (2011). Relation between emotional intelligence and perceived stress among female students. *Procedia - Social and Behavioral Sciences*, 30, 1109-1112. doi:10.1016/j.sbspro.2011.10.216
- Gohm, C. L., Corser, G. C., & Dalsky, D. J. (2005). Emotional intelligence under stress: Useful, unnecessary, or irrelevant? *Personality and Individual Differences*, 39(6), 1017-1028. doi:10.1016/j.paid.2005.03.018
- Goodman, E., McEwen, B. S., Dolan, L. M., Schafer-Kalkhoff, T., & Adler, N. E. (2005). Social disadvantage and adolescent stress. *Journal of Adolescent Health*, 37(6), 484-492. doi:10.1016/j.jadohealth.2004.11.126
- Gould, L. F., Dariotis, J. K., Mendelson, T., & Greenberg, M. T. (2012). A school- based mindfulness intervention for urban youth: Exploring moderators of intervention effects. *Journal of Community Psychology*, (8), 968-982. doi:10.1002/jcop.21505
- Greenberg, M. T., & Harris, A. R. (2012). Nurturing mindfulness in children and youth: Current state of research. *Child Development Perspectives*, 6(2), 161-166. doi:10.1111/j.1750-8606.2011.00215.x
- Hassmén, P., Koivula, N., & Uutela, A. (2000). Physical exercise and psychological well-being: A population study in finland. *Preventive Medicine*, 30(1), 17-25. doi:10.1006/pmed.1999.0597
- Jain, S., Shapiro, S., Swanick, S., Roesch, S., Mills, P., Bell, I., & Schwartz, G. (2007). A randomized controlled trial of mindfulness meditation versus relaxation training:

- Effects on distress, positive states of mind, rumination, and distraction. *Annals of Behavioral Medicine*, 33(1), 11-21. doi:10.1207/s15324796abm3301_2
- Khalsa, S., Hickey-Schultz, L., Cohen, D., Steiner, N., & Cope, S. (2012). Evaluation of the mental health benefits of yoga in a secondary school: A preliminary randomized controlled trial. *The Journal of Behavioral Health Services & Research*, 39(1), 80-90. doi:10.1007/s11414-011-9249-8
- Klatt, M. D., Buckworth, J., & Malarkey, W. (2009). Effects of low-dose mindfulness-based stress reduction (MBSR-ld) on working adults. *Health Education & Behavior*, 36(3), 601-614. doi:10.1177/1090198108317627
- Kokkinos, C. M., & Kipritsi, E. (2012). The relationship between bullying, victimization, trait emotional intelligence, self- efficacy and empathy among preadolescents. *Social Psychology of Education: An International Journal*, (1), 41-58. doi:10.1007/s11218-011-9168-9
- Kokkinos, C. M., Panagopoulou, P., Tsolakidou, I., & Tzeliou, E. (2014). Coping with bullying and victimisation among preadolescents: The moderating effects of self-efficacy. *Emotional and Behavioural Difficulties*, , 1-18. doi:10.1080/13632752.2014.955677
- Konishi, C., & Hymel, S. (2009). Bullying and stress in early adolescence: The role of coping and social support. *Journal of Early Adolescence*, 29(3), 333-356. doi:10.1177/0272431608320126
- Kowalski, R. M., & Limber, S. P. (2013). Psychological, physical, and academic correlates of cyberbullying and traditional bullying. *Journal of Adolescent Health*, 53(1), S13-S20. doi:10.1016/j.jadohealth.2012.09.018
- Lacey, A., & Cornell, D. (2013). The impact of teasing and bullying on schoolwide academic performance. *Journal of Applied School Psychology*, 29(3), 262-283. doi:10.1080/15377903.2013.806883
- Laurent, J., Catanzaro, S. J., Joiner, T. E., Rudolph, K. D., Potter, K. I., Lambert, S., . . . Gathright, T. (1999). A measure of positive and negative affect for children: Scale development and preliminary validation. *Psychological Assessment*, 11(3), 326-338. doi:10.1037/1040-3590.11.3.326
- Lenze, E. J., Hickman, S., Hershey, T., Wendleton, L., Ly, K., Dixon, D., . . . Wetherell, J. L. (2014). Mindfulness-based stress reduction for older adults with worry symptoms and co-occurring cognitive dysfunction. *International Journal of Geriatric Psychiatry*, 29(10), 991-1000. doi:10.1002/gps.4086
- Li, A., & Goldsmith, C. (2012). The effects of yoga on anxiety and stress. *Alternative Medicine Review*, 17(1), 21-35.

- Marie, D., Wyshak, G., & Wyshak, G. (2006). *Yoga prevents bullying in school*. Unpublished manuscript.
- Marsh, H. W., Nagengast, B., Morin, A. J. S., Parada, R. H., Craven, R. G., & Hamilton, L. R. (2011). Construct validity of the multidimensional structure of bullying and victimization: An application of exploratory structural equation modeling. *Journal of Educational Psychology*, *3*(3), 701-732. doi:10.1037/a0024122
- Mayo Clinic Staff. (2014). Depression and anxiety: Exercise eases symptoms. Retrieved from <http://www.mayoclinic.org/diseases-conditions/depression/in-depth/depression-and-exercise/art-20046495>
- Mcneil, J. N., Silliman, B., & Swihart, J. J. (1991). Helping adolescents cope with the death of a peer: A high school case study. *Journal of Adolescent Research*, *6*(1), 132-145. doi:10.1177/074355489161010
- Meiklejohn, J., Phillips, C., Freedman, M., Griffin, M., Biegel, G., Roach, A., . . . Saltzman, A. (2012). Integrating mindfulness training into K- 12 education: Fostering the resilience of teachers and students. *Mindfulness*, *3*(4), 291-307. doi:10.1007/s12671-012-0094-5
- Muris, P. (2001). A brief questionnaire for measuring self- efficacy in youths. *Journal of Psychopathology and Behavioral Assessment*, *23*(3), 145-149.
- Nirmala, S. R., & Mahesh, K. C. (2013). Impact of yoga on emotional intelligence and subjective well - being: A pre and post analysis. *Indian Streams Research Journal*, *3*(7), 01.
- Noggle, J. J., Steiner, N. J., Minami, T., & Khalsa, S. B. S. (2012). Benefits of yoga for psychosocial well-being in a US high school curriculum: A preliminary randomized controlled trial.(report). *Journal of Developmental & Behavioral Pediatrics*, *33*(3), 193.
- Parada, R., Marsh, H., & Craven, R. (2000). *Adolescent peer relations instrument: A theoretical and empirical basis for the measurement of participant roles in bullying and victimisation of adolescence: An interim test manual and a research monograph: A test manual*. . University of Western Sydney: Publication Unit, Self-concept Enhancement and Learning Facilitation (SELF) Research Centre.
- Parker, J. D. A., Creque Sr., R. E., Barnhart, D. L., Harris, J. I., Majeski, S. A., Wood, L. M., . . . Hogan, M. J. (2004). Academic achievement in high school: Does emotional intelligence matter? *Personality and Individual Differences*, *37*(7), 1321-1330. doi:<http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1016/j.paid.2004.01.002>
- Parker, J. D. A., Hogan, M. J., Eastabrook, J. M., Oke, A., & Wood, L. M. (2006). Emotional intelligence and student retention: Predicting the successful transition

- from high school to university. *Personality and Individual Differences*, 41(7), 1329-1336. doi:10.1016/j.paid.2006.04.022
- Petrides, K. V., Frederickson, N., & Furnham, A. (2004). The role of trait emotional intelligence in academic performance and deviant behavior at school. *Personality and Individual Differences*, 36(2), 277-293. doi:http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1016/S0191-8869(03)00084-9
- Schoeberlein, D., Koffler, T., & Jha, A. P. (2005). *Contemplation and education current status of programs using contemplative techniques in K-12 educational settings: A mapping report*. (). Garrison, NY: The Garrison Institute.
- Suldo, S. M., & Shaffer, E. J. (2007). Evaluation of the self- efficacy questionnaire for children in two samples of american adolescents. *Journal of Psychoeducational Assessment*, 25(4), 341-355. doi:10.1177/0734282907300636
- Telles, S., Singh, N., Bhardwaj, A. K., Kumar, A., & Balkrishna, A. (2013). Effect of yoga or physical exercise on physical, cognitive and emotional measures in children: A randomized controlled trial.(research). *Child and Adolescent Psychiatry and Mental Health*, 7, 37.
- Terry, P. C., Lane, A. M., Lane, H. J., & Keohane, L. (1999). Development and validation of a mood measure for adolescents. *Journal of Sports Sciences*, 17(11), 861-872. doi:10.1080/026404199365425
- Tocci, C., Hochman, D., & Allen, D. (2005). Advisory programs in high school restructuring. Montreal, Quebec.
- Warnecke, E., Quinn, S., Ogden, K., Towle, N., & Nelson, M. R. (2011). A randomised controlled trial of the effects of mindfulness practice on medical student stress levels.(report). *Medical Education*, 45(4), 381.
- Wolever, R., Bobinet, K., McCabe, K., Mackenzie, E., Fekete, E., Kusnick, C., & Baime, M. (2012). Effective and viable mind-body stress reduction in the workplace: A randomized controlled trial. *Journal of Occupational Health Psychology*, 17(2), 246-258. doi:10.1037/a0027278
- Wolke, D., & Lereya, S. T. (2015). Long-term effects of bullying. *Archives of Disease in Childhood*, doi:10.1136/archdischild-2014-306667