Health and Wellness Benefits of Yoga in the Schools Programs for Adolescents

Bernice Sanchez, PhD
Texas A&M International University
Associate Professor of Education

Linda Villarreal, MEd
Texas A&M International University
Kinesiology Instructor

Abstract

Background: *The present study provides an examination of the physiological and psychological effects of mindfulness yoga classes on Hispanic adolescents.* ***Methods:*** *Qualitative data were collected for this an online study (due to COVID-19) of a yoga in the schools program implemented within a high school in south Texas. Participant essay responses (n=46) were coded and reported based on student post responses focused on physical fitness and mental and emotional health wellness aspects. Intercoder reliability was applied for consistency.* ***Results:*** *The findings suggest that Hispanic high school adolescents experienced increased benefits of health and wellness activity through repeated engagement (24 classes) in mindfulness yoga in the school practices.* ***Conclusions****: Overall, the findings suggest that physical education educators should consider incorporating mindfulness yoga practices as an option into their school curricula as a means of encouraging positive health and wellness behaviors in supporting adolescents.*

Keywords: adolescents, mindfulness practices, online, physiological and psychological, yoga, health and wellness

Health and Wellness Benefits of Yoga in the Schools Programs for Adolescents

According to the Centers for Disease Control and Prevention (CDC) (2021) physical activity helps individuals feel better, function better, and sleep better, and assists in reducing anxiety. In addition, physically active people generally live longer and are at less risk for serious health problems. Centers for Disease Control and Prevention (2021) asserts that children and adolescents do not usually develop chronic diseases; however, current evidence shows that obesity and other risk factors for these diseases are increasingly appearing in children and adolescents at alarming rates due to sedentary lifestyles. Research by the CDC (2021) in the United States, finds that no more than half of youth and adolescents meet the currently recommended standard of at least 60 minutes of vigorous- or moderate-intensity physical activity daily. According to Active Living Research (2014) young people spend an excessive amount of time in sedentary behaviors. It is important that adolescents stay physically active and mentally positive. It is also important that adolescents have options on how to stay actively fit. Physical education has always been part of the school curriculum for decades and has played an important role in students' health and wellness and functionality within the school communities. However, the diversity and the stressors of daily life of the current generation call for alternatives and multifaceted approaches to incorporating physical activity into school curricula. Mindfulness yoga practices have yielded interest by educational institutions as a means of offering healthy active alternatives to achieve health and wellness.

There is a collective emerging body of research on yoga in the school programs, which has shown improvements in behavior, mental, physical, and emotional health and well-being (Butzer et al., 2016; Felver et al., 2015; Khalsa & Butzer, 2016). Conboy et al. (2013) conducted a randomized controlled trial studying the effects of a yoga program in place of a semester of physical education classes for high school students (9^{th} & 10^{th} graders). The qualitative interview study data reported that students exhibited a greater respect for body and improved self-image, and reduced stress, and showed more control over negative emotions, and that there is evidence that yoga may lead to emergent positive benefits in health behaviors (Conboy et al., 2013). The following qualitative research design implements a school based yoga intervention program intended to examine health and wellness actions/habits in Hispanic adolescents. Post qualitative data on student essay responses on changes in health and wellness actions/habits were collected from all participants (n=46). The theoretical framework approach for this study is that mindfulness yoga (breathing, yoga postures, and wellness relaxation techniques) are associated with numerous positive health and wellness benefits (Butzer et. al, 2016; Janssen & LeBlanc, 2010; Felver et al., 2015; Khalsa & Butzer, 2016).

Research on the Benefits of Mindfulness Yoga in Youths and Adolescents

Telles et al. (2013) conducted a randomized controlled trial to assess the effects of yoga or physical exercise on physical fitness, cognitive performance, self-esteem, and teacher-rated behavior and performance, in school children. Their study included 98 school children between 8 and 13 years who were randomized into yoga and physical exercise groups (N = 49 in each group). Both groups were blind assessed after distribution and utilized the following: Eurofit physical fitness test battery, Stroop color-word task for children, Battle's self-esteem inventory, and the teachers' rating system of the children's obedience, academic performance, attention, punctuality, and behavior with friends and teachers. Once assessed the yoga group practiced (breathing techniques, postures, guided relaxation and chanting) for 45 minutes each day, 5 days a week. During this time the physical exercise group had jogging-in-place, rapid repetitive movements and relay races or games for 45 minutes each day for 5 days a week. Both groups were assessed at the end of 3 months. Data analysis included ANOVA and post-hoc tests and were Bonferroni adjusted. Overall, one significant difference was identified between the groups, social self-esteem was higher after physical exercise than after yoga ($p < 0.05$). Telles et al. (2013) reported after-before comparisons, within each group and both showed an increase in BMI. Balance worsened in the physical exercise group, while plate tapping and balance improved in the yoga group ($p < 0.001$). For the Stroop task both groups showed improved color, word- and color-word naming ($p < 0.01$). Collective, general and parental self-esteem improved in the yoga group ($p < 0.05$). Telles et al. (2013) randomized controlled trials determined that both yoga and physical exercise provided multifaceted health and wellness benefits when added to school curricula.

Ross et al. (2010) suggest that a growing body of evidence supports the belief that yoga benefits physical and mental health via downregulation of the hypothalamic–pituitary–adrenal (HPA) axis and the sympathetic nervous system (SNS). The researchers performed a literature review of research studies comparing the effects of yoga and exercise on a variety of health outcomes and health conditions. The key word ''yoga,'' was the criteria for the comprehensive search of the research literature from scientific and nursing journals yielded 81 studies that met the criteria were found. These studies were classified as: uncontrolled (30), wait list controlled (16), comparison (35), and comparison interventions involving exercise (10). Among the studies reviewed, yoga interventions appeared to be equal or superior to exercise in nearly every outcome measured except those involving physical fitness. Ross et al. (2010) collectively assert, that studies comparing the effects of yoga and exercise seem to suggest that, in both healthy and diseased populations, yoga may be as effective as, or even better than, exercise for improving a variety of health-related effect measures. Additional clinical trials are needed to examine the differences between exercise and yoga, particularly how the two modalities differ in their effects on the SNS HPA axis and future studies using rigorous methodologies are needed.

Janjhua et al. (2020) examined the effect of yoga on emotional regulation, self-esteem, and feelings of adolescents. The measures employed included: Emotion Regulation Scale, Rosenberg Self Esteem Scale, 10-item scale that measures global self-worth by measuring both positive and negative feelings about the self. In addition, the Feeling State Assessment was employed to measure stress, mood, motivation, and energy and was scored based on a five-point Likert scale where 1 = Strongly disagree, 2 = Disagree, 3 = Can't say, 4 = Agree, and 5 = Strongly agree. Participants included n=110 students aged 13 – 18 years, with 52 adolescents engaging in yoga practices and 58 who had never practiced yoga. Overall, Janjhua et al. (2020) suggested that the yoga intervention was effective in enhancing self-esteem, emotional regulation, and positive feelings among the students practicing yoga. Findings reported that adolescents who practiced yoga had much higher mean values on all positive statements of emotional regulation indicating a higher degree of agreement with same. They reported lower mean values to the negative statements of emotional regulation, indicating a higher degree of disagreement with these statements. In addition, adolescents not practicing yoga reported higher mean values on negative statements indicating agreement and lower mean values for positive statements of emotional regulations showing disagreement. The effect of yoga on the mean difference pertaining to emotional regulation has been found to be highly significant. Thus collectively, it can be concluded that adolescents practicing yoga were able to regulate their emotions more effectively. The results in this study by Janjhua et al. (2020) support previous research studies where emotional regulation increased significantly in the yoga group as compared to the physical education group. Overall, yoga has been found to be a strong predictor of emotional regulation among youths and adolescents. The significant effect of yoga on emotional regulation, self- esteem, and feelings of adolescents requires the attention of policy makers to consider initiating yoga at the school level through standardized yoga curricula and training teachers to motivate and inspire students to learn and practice yoga at an early age Janjhua et al. (2020).

Wang and Hagins (2016) conducted a qualitative evaluation of a yoga intervention program for urban middle and high school youth in New York City public and charter schools (urban schools). The investigative questions asked the following: "Do urban youth perceive benefits from learning and practicing yoga? And if so, in what specific ways?" Approximately six focus groups were conducted with students who participated in a year-long yoga program to determine their perceptions of mental mindfulness and physical benefits as well as barriers and challenges. The focus groups gathered gather in-depth data from the students about what they thought of the yoga

program, its perceived physical and mental benefits, and the short- and long-term effects of the yoga, as well as challenges to maintaining the practice. The focus groups lasted approximately 20–40 minutes and were all conducted by one person, who was not affiliated with the yoga study. Coding was based on theory and literature and a constant and comparative method (CCM) was applied given particular themes.

Participants were *n*=72 students from several middle and high schools in New York City. In general, students received one to two class periods of yoga instruction per week across the entire academic year. Participants were prompted to discuss both the mental and physical benefits of the practice. Collectively, Wang and Hagins (2016) determined that their results of this study showed promising benefits and that four main mental health benefits which emerged: self-regulation, mindfulness, reduction of stress, and increased self-esteem. The main physical health benefits identified were overall physical conditioning, energy levels, and increased athletic performance. One interesting finding from this study was that students were able to transfer the teachings and benefits of the yoga practice such as breathing and mindfulness and being in control of their emotions to their daily lives "off the yoga mat." For example, researchers described increased self-regulation and coping when dealing with family members, school conflicts, and academic performance. One student even explicitly stated that "He liked that there were connections to the outside world mentioned during the class" indicating that there were kinks between the yoga practice and real life situations. Evidence suggests that yoga may increase self-regulation and improve life skills. Some students mentioned bringing yoga into their home environments and teaching their siblings and parents what they had learned. Furthermore, increasing activities and family time in a positive manner may have beneficial outcomes beyond just learning yoga in school. These findings are consistent with previous published qualitative studies on yoga in school programs (Butzer et al., 2016; Case-Smith, et al., 2010) and help to verify and build on past research, as well as increase the settings in which these programs are introduced. Wang and Hagins (2016) suggest that these findings will be beneficial to school-based programming, planning, and curriculum development as they suggest these types of programs may be most useful in settings in which self-regulation and stress reduction are problematic.

Khalsa et al. (2012) conducted a study for exploratory purposes in efforts to identify psychological constructs that may assist in framing future studies to evaluate the psychological benefits of an in-curriculum yoga program in secondary school adolescents. The goal of the study was to evaluate the potential mental health benefits of yoga for adolescents in secondary school. Participants included *n*=121 students (51 females, 70 males) aged 15–19 years who were randomly assigned by class: 74 students in four classes in the Yoga Ed group (34 females, 40 males), and 47 students in three classes in the control group (17 females, 30 males). Participants were randomly assigned to either regular physical education classes or to yoga sessions based upon the Yoga Ed program over a single semester. Participants in the yoga intervention attended two to three yoga sessions per week during the 11-week program (23, 25, 31, or 32 sessions depending upon the classes). Yoga sessions were 30 min (three classes) or 40 min (one class) long. Participants completed baseline and end-program self-report measures of mood, anxiety, perceived stress, resilience, and other mental health variables. Using an independent evaluation of individual outcome measures, the findings by Khalsa et al. (2012), showed statistically significant differences over time between the yoga participants and the controls on measures of anger control and fatigue/inertia. Most outcome measures exhibited a pattern of worsening in the control group over time, whereas, changes in the yoga group over time were either minimal or showed slight improvements. These preliminary results suggest that implementation of yoga in the schools is acceptable and feasible in a secondary school setting and has the potential to play a protective or preventive role in maintaining mental health.

Methods

This exploratory study provides an examination of the physiological and psychological effects of mindfulness yoga classes on Hispanic adolescents through a qualitative essay response approach.

Participants

Participants were selected using convenience sampling of freshmen enrolled at a designated high school in south Texas. The student demographics at this school were 99.06% Hispanic, .47% Asian, .23% White, and .24% Multiracial. The convenience sample size represented students enrolled in a mandatory curriculum aerobic activity class for all freshmen. Participants were given the option of voluntarily participating in an aerobic activity class or a mindfulness yoga class. Participants were minors, and both parental consent and adolescent assent were required. Participants were informed that at any time they could withdraw from the mindfulness yoga class at any time, without any penalty and would be transitioned into the aerobic activity class. The study proposal was reviewed and approved by the Institutional Review Board and by the School District that opted to participate in the study.

Instrumentation

To access physiological and psychological changes (qualitative data) student essay responses assessed health and wellness actions/habits that were collected from all participants in post mindfulness yoga (*n*=46). All participants were provided a verbal and written descriptive explanation and expectations (300 + word essay) for prompts were provided. Post essays were via electronic submissions after 12 weeks after the conclusion of the classes were required of participants. The post essay prompts reflected the following questions: What is your activity level/ exercise routine/sport? Describe any changes you have noticed in terms of increase/decrease in your activity level or exercise routine after having been engaged in this mindfulness yoga class over 12 weeks.

Describe any changes you noticed or feel regarding physical changes due to your participation in this course (weight loss, stronger, flexible)? Describe any changes you noticed or feel regarding any mental or emotional changes (health and wellness changes) due to your participation in this course (feel better, feel worse, happier, motivated, inspired, feel tired, relaxed, anxiety, depression). Describe any changes in your sleep patterns or in your focus/concentration levels. Essays were coded accordingly utilizing the following established categories to document any changes over the duration of the semester 1) changes/levels of physical activity from the start of the mindfulness yoga to the end of the semester (24 classes) 2) positive changes in the physical body 3) positive mental wellness and 4) positive emotional wellness. For consistency and validity, the standard measure applied was intercoder reliability in which two different researchers came to an agreement and discussed any inconsistencies on how to code the same content.

Procedures

The participants voluntarily opted into one of two groups, with 46 adolescents in the mindfulness yoga class and 33 adolescents in the aerobic activity class. The research design model included a total of 4 course sections for each class section meeting 2 days a week (Monday/Wednesday or Tuesday/Thursday) for a total of 60 minutes for each class session. Of those 4 sections, 2 were mindfulness yoga classes (treatment) and 2 were aerobic activity classes. For the purposes of the study reported in this analysis, only data collected from the mindfulness yoga group were analyzed. 12 weeks with 24 classes transpired in total for the duration of the semester of mindfulness yoga classes. It is important to note that the original design was face-to-face instruction with adolescents. However, due to the COVID-19 pandemic, classes were restricted to online delivery of instruction in accordance with IRB approval and compliance and University, and school district policies. Two-way interactive live (synchronous) sessions via the ZOOM platform was the online delivery method of instruction for the duration of the semester due to COVID-19 restrictions. Mindfulness yoga classes consisted of a 24 lesson-secular curriculum that was developed by the researcher. The curriculum was developed reflective of Adolescent Yoga research in the field, Kripalu Yoga Philosophy, and targeted the CASEL Social Emotional Learning (SEL) core competencies: self-management, self-awareness, social awareness, relationship skills and responsible decision-making. The curriculum design reflects *Best Practices for Yoga in Schools* (2015) and mirrors previous yoga in the school interventions (Butzer et al., 2016; Felver et al., 2015; Noggle et al., 2012), The 60-minute class consisted of the traditional mind and body practices of yoga inclusive of breathing exercises (5 minutes), yoga postures and stretching exercises (40 minutes), and deep relaxation and meditation techniques (5 minutes). The remaining 10 minutes of the course were utilized for connecting with students virtually and allowing students down time before their next online course. For each of the 12 weeks, different themes were embedded weekly into the breathing and meditation timeframe: gratitude, mind body connections, self-worth (self-esteem), positive behaviors, positive relationships, compassion, healthy choices, abandonment of negativity, challenges are there to help us grow, focus and concentration, nonjudgement, and healthy thoughtful responses determine outcomes (healthy food facts and food rules). The yoga classes were delivered by the researcher and coresearcher who are both registered yoga teachers with Yoga Alliance.

The instructional delivery of classes consisted of a 2-way interactive live (synchronous) sessions via the ZOOM platform. The researcher taught the yoga curriculum and modeled throughout the 50-minute class. The coresearcher provided visual oversight of adolescent engagement of all aspects of the course from breathing techniques to posture alignment and adjustments needed as students worked through the transitional movements from one posture to the other. The ZOOM platform allowed for visual inspection of all students throughout each practice session in order to address adjustments or modifications for each posture as a means of supporting students to avoid injury and encourage active engagement through a collaborative effort of both researcher and coresearcher.

Data Analysis

Essays were content coded to document changes from initial states of being and to document any changes after 12 weeks of participating in the mindfulness yoga classes. Overall, health and wellness actions/habits (physical activity changes/engagement, changes mentally or emotionally) identified by participants were documented. At the inception of the study, there were n=54 participants in the experimental mindfulness yoga group. Due to attrition (8

dropped out/nonsubmission), a total of 46 participants, 39 females and 7 males, participated and submitted essays for coding purposes.

Results

Post - Essay Responses Mindfulness Yoga

Physical activity level changes	87%
Physical changes	98%
Mental wellness improved	78%
Emotional wellness improved	98%

Post Essay Response Prompt: Mindfulness Yoga Participants

At the conclusion of the study, 87% of the mindfulness yoga group reported increased physical activity levels due to their active participation in the yoga classes. Student responses varied from starting physical activities/adding a favorite sport to their weekly exercise routines. Student comments included increased walking time outside, running, basketball/volleyball increased play, riding bicycles for extended time, stretching (some yoga poses) before engaging in physical activities, and participating in yoga videos. Thirteen percent of participants did not report an increase or decrease in the physical activity levels coded category.

Collectively, 98% of participants in the mindfulness yoga group reported physical variations: increased in flexibility, feeling stronger, improved balance, muscle strength, increased balance, lost 5-10 pounds, feel physically lighter, sleep better, decreased back pain, and feeling physically better. A total of .02% of participants did not provide a response regarding physical changes. For the mental wellness category, 78% reported positive attributes which included the following: mentally stable and stronger, better focus, increased concentration, controlled moods, mind clearer, more patience, deep breaths helpful, little things don't stress me out, and improved mental health. Twenty two percent of participants did not report a response to this question in their post essays. In response to the emotional wellness category, 98% reported positive attributes which included: being more clam, more relaxed, happier, less negative, and feeling motivated. A total 02% did not provide a response to this inquiry.

Discussion

Participant responses seem to align with the research (Active Living Research, 2014; Damian et al., 2018) on the sedentary lifestyles of adolescents seem to resonate with participant responses in that there was an 87% increase in changes in physical activity by adolescents based on the findings reported after the 12 week mindfulness yoga sessions. The post essay results collectively reported overall increased physical activity engagement which is consistent with the Centers for Disease Control and Prevention (2021) statement that physical activity helps you feel better, function better, sleep better, and assists in reducing anxiety. The specific statements provided by the participants included, but were not limited to: more outdoor walks increased from once or twice a week to four to five times a week, increased jogging from 1day to 3 days a week, and increased breathing practices when working out. These statements are indications that overall stimulation of physical activity considered impactful or beneficial to adolescents seems to motivate further/additional active engagement.

The participant findings reported by Conboy et al.(2013) reflected a greater respect for body and improved self-image, stress reduction, more control over negative emotions, and evidence that yoga may lead to emergent positive benefits in healthy behaviors are consistent with the findings in the present study of the mental wellness category, where 78% reported positive attributes and in the emotional wellness category 98% reported positive attributes. The theoretical framework for this study is based on previous research conducted on mindfulness yoga (breathing, yoga postures, and wellness relaxation techniques) which found numerous positive health and wellness benefits (Butzer et. al, 2016; Janssen & LeBlanc, 2010; Felver et al., 2015; Khalsa & Butzer, 2016) which are consistent with the findings of the current study.

Implications for School Health Policy, Practice, and Equity

The results of this study demonstrate promising improvements in the physical state, mental health and well-being of students engaged in mindfulness yoga practices at school. A school-based yoga program is an innovative approach that supports and cultivates mental skills and emotional dispositions in preparing and educating future generations and should be considered a viable alternative to a traditional physical education curriculum. Diversity, social media, and the stressors of daily life of this current generation call for alternatives and multifaceted approaches to incorporating physical activity into school curricula in an effort to meet the needs of all students. Mindfulness yoga practices should be offered as a healthy active alternative to health and wellness classes and should be part of academic school curricula based on the research available on the positive impact.

Limitations and Future Research Recommendations

The benefits on health and wellness for participants are clearly evident in the findings of this study and in previous research. Additional research is needed to continually evaluate any short- and long-term effects. This study also has limitations including small sample population groups, the limit to 12 weeks of mindfulness yoga practices, and the online delivery method due to COVID-19. Future studies with face-to-face delivery focused on the same attributes and physical, mental, and emotional aspects are needed. Mindfulness practices that continue to examine the potential benefits of yoga in the school programs are needed with attention to research limitations. However, there is evidence to support continuing to build on this area of research, specifically among Hispanic adolescents who may live sedentary lifestyles. Yoga could yield significant physical, mental, and emotional health and wellness benefits for future adolescents in academic environments.

Statement Declarations

The research was supported by a Texas A & M International University Creative Projects Grant. There are no conflicts of interest/competing interests to disclose, on behalf of any members of the research team regarding this study. APA ethical standards were followed in conducting the study, and the proposal was reviewed and approved by the Institutional Review Board and by the school district that opted to participate in the study.

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