

Amy Manchester

Jessica Joynt

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University of Massachusetts - Dartmouth

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Introduction

Early creators of school systems would be very surprised to see the directions that education has gone. The pressures of schools and education today are overwhelming compared to the past. Not only do schools have the difficult job of preparing students for the real world, but now they also are responsible for dealing with student emotional and social issues. Today more and more children are coming to schools with mental health issues that are impacting their learning. “School systems are not responsible for meeting every need of their students. But when the need directly affects learning, the school must meet the challenge.” (Adelman & Taylor, 2006, p. 296) One of the ways schools have begun to meet this challenge is by implementing mindfulness education (ME) into the school day. How ME is implemented varies through school systems around the world.

This study intends to describe the effects of the practice of mindfulness on middle school student’s level of anxiety. The mindfulness practices used in this study come from Learning to BREATHE curriculum and are modified to fit the school schedule. The study is focused on researching a technique that can help the learning experiences of students within our classroom, We are looking to see if mindfulness is an effective strategy that can be used to make our middle school students educational experience less stressful and more enjoyable and therefore more meaningful and productive.

Conceptual Frameworks

There are many definitions for the term mindfulness, but according to Jon Kabat-Zinn (2003), The founder of Mindfulness Based Stress Reduction, mindfulness is “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (p.144). The term mindfulness originates from the Buddhist term “sati” or “smrti.” T. W. Rhys David appears to be the first personal to translate these words into the English word “mindfulness.” Others before him used other translations such as remembrance, thinking of or upon (any person or thing), calling to mind, memory, which may suggest why Davis chose the word mindfulness. Western clinical psychotherapy began to incorporate mindfulness in its practices in the 1980s and early 1990s. (Gethin, 2011) Since then

mindfulness programs have been developed and utilized to treat a wide range of mental health issues. According to Brown University Health Services website (n.d.), “several studies with college students suggest that the practice of mindfulness leads to decreases in stress and anxiety, improvements in concentration and attention, and increases in self-awareness and overall emotional well-being. Professor Willoughby Britton, a clinical psychologist at Brown, has studied the effects of mindfulness meditation on Brown students and has found that meditation decreases anxiety” (What are the health benefits of mindfulness?). In a Harvard Health Publications article, *Mindfulness meditation may ease anxiety, mental stress* (2104), Dr. Elizabeth Hoge, a psychiatrist at the [Center for Anxiety and Traumatic Stress Disorders](#) at Massachusetts General Hospital and an assistant professor of psychiatry at Harvard Medical School, states “that mindfulness meditation makes perfect sense for treating anxiety. People with anxiety have a problem dealing with distracting thoughts that have too much power.” “If you have unproductive worries,” says Dr. Hoge, “you can train yourself [using mindfulness] to experience those thoughts completely differently” (para. 5-6). Practicing mindfulness as even been linked to changing the brain structure of areas linked to anxiety and stress. Magnetic resonance imaging (MRI) brain scans have been used to take images of the brains of people participating in an 8-week Mindfulness-Based Stress Reduction (MBSR) program and a control group. Results from before and after scans showed increased gray matter in the hippocampus, an area of the brain responsible for learning and memory. Conversely, scans showed a decrease in gray matter in the amygdala, a region associated with anxiety and stress. These results were not present in the scans of the control group that did not practice mindfulness (Hölzel et al., 2011). Johns Hopkins University in Baltimore, MD has identified 47 trial studies that meet their criteria for well-designed studies. From these studies they concluded that mindfulness meditation programs had moderate evidence of improved depression, pain, and anxiety. (Goyal, M. et al., 2014) Researchers involved in this study have had positive experiences with mindfulness and medication in the reduction of generalized anxiety and major depression. In addition to mental health issues being treated by mindfulness, people with medical conditions are experiencing benefits from including mindfulness in their treatment. According to Baer (2003), Grossman, et al. (2004), and Shapiro and Carlson (2009), adult populations with “cancer, fibromyalgia, psoriasis, chronic pain, anxiety disorders, and depression have demonstrated measurable benefits from mindfulness practice” (as cited in Meiklejohn et al., 2012, p. 2).

Using mindfulness with adults has clear mental and physical benefits and its use with children and adolescents is being studied more frequently. This study focuses on middle school aged students from a suburban town. One concern regarding this study is the participation of the students in the mindfulness class. During adolescence, teens are very aware of their actions and how their peers view their actions. According to Dr. B. J. Casey from the Weill Medical College of Cornell University, social situations often cause teens to make decisions based on influences from external factors like peers (Scholastic, 2008). This is an issue that may influence the participation in the study. Students may feel embarrassed or uncomfortable during the mindfulness activity or not take it seriously and possibly distract other students because they are afraid of how they may be perceived by their peers.

“Schools function today, one of rapid social change, high demands for vocational preparation, and knowledge overload. Such reforms, however, have also contributed to a surge in high-stakes testing and an increase in competitive educational environments. Schools now function under a set of pressures that early creators of our school system could hardly have imagined.” (Broderick & Metz, 2009, p. 1)

Students at Somerset Middle School are very high achieving and under a great deal of pressure to be in a level one class or receive high honors. Many times parents contact teachers over a missing point or to contest a grade if it keeping their child off honor roll. Because of this type of environment that student are immersed in at least 6 hours a day, mindfulness education and programs are being implemented in schools around the world. The idea is that these school-based programs will produce similar mental health benefits in adolescents as mentioned above, in particular reduce anxiety therefore allowing students to have a more productive and enjoyable education. The pressure of education extends to teachers as well. By having teachers direct the mindfulness program within the classroom, benefits mentioned should be seen in this population as well.

Mindfulness and its use in Western clinical psychotherapy began in the 1980s and early 1990s and more recently has been incorporated into the educational setting. Because of its roots in Buddhism and its fairly recent implementation, there is misconception surrounding whether it is religious or conflicts with religious beliefs. According to Brown University Health Services website (n.d.), “research has found that mindfulness can be considered a quality of human consciousness which can be measured and studied empirically.” From its origins, mindfulness has been evolved into formal programs such as Mindfulness-Based Cognitive Therapy (MBCT), Mindfulness-Based Relapse Prevention (MBRP), Mindfulness-Based Stress Reduction (MBSR), Learning to BREATHE, etc., which place emphasis on the key aspects of mindfulness while dropping any religious content.

Literature Reviews

Learning to BREATHE: A Pilot Trial of a Mindfulness Curriculum for Adolescents by Patricia C. Broderick and Stacie Metz from the Department of Health, West Chester University of PA, USA

This study was a pilot trial of Learning to BREATHE mindfulness curriculum, which was created to be used in the classroom with adolescents. The program's goal is to introduce students to mindfulness and develop emotion regulation skills. “Contemporary education reforms have placed a necessary and well-intended emphasis on skills and knowledge acquisition in the interest of preparing students for the global economy they will enter. This emphasis reflects the context in which students’ schools function today, one of rapid social change, high demands for

vocational preparation, and knowledge overload. Such reforms, however, have also contributed to a surge in high-stakes testing and an increase in competitive educational environment. Schools now function under a set of pressures that early creators of our school system could hardly have imagined” (p. 35).

The pilot trial consisted of a treatment group which was a senior class of 120 seniors (93.3% Caucasian average age 17.4) from a private, Catholic all girls school in suburban Pennsylvania. The control group consisted of two sections of juniors (88.2 % Caucasian, average age 16.41 years old) from the same high school. It was hypothesized that the program will reduce students negative affect, rumination, and somatic symptoms in students as well as provide a greater understanding of their emotions, thoughts, and feelings. Within the curriculum mindfulness is described as a way of paying attention that is intentional, trained on the present moment, and maintained with an attitude of non-judgment and meditation.

Before the program began a letter was sent home informing parents about the program which is part of the health curriculum in the school and consists of six lessons built around the acronym for BREATHE. Each lesson has a core theme, which include body awareness, understanding and working with feelings, integrating awareness of thoughts, feelings and bodily sensations, reducing harmful self-judgments, and integrating mindful awareness in daily life. “The overall goal of the program is to cultivate emotional balance through the practice of mindfulness..” (p. 38). The program sessions were twice a week during the seniors health classes for about five weeks. The class time ranged from 32-43 minutes, a total of 42 sessions were taught by the primary researcher with some support from an assistant who trained and grant-funded.

Students had the choice to complete the pre and post-tests without penalty. The lessons start with a short introduction of the topic and activities to promote discussion in class. The program provides also contains workbooks and CD’s for students to practice meditation at home. Using a 20-item Positive and Negative Affect Schedule with an addition of 4 items to fill a perceived gap in the scale’s measured constructs. A five point Likert scale was used to measure the items on the test with the higher scores showing greater perceived effect within the subscale.

A Ruminative Response Scale was used to measure ruminative responses to a depressed mood. Two factors of the RRS used in the study comprised of reflective pondering and moody pondering. Items were measured on a four point Likert scale, higher scores indicated a greater degree in the trait.

A 10 item checklist from the Somatization Index of the Child Behavior Checklist was also used to gauge frequency of somatic complaints. Once again a higher score means a greater perceived frequency of complaint.

The results of the test found that the program and control groups did not show any substantial difference in pretest scores. Mean gain scores (pre and post-test) were compared between the two groups to assess the effectiveness of the program. Those who participated in the program showed a significant decrease in negative affect and a significant increase in feeling calm, relaxed, and self-accepting. The process evaluation showed that 86.5% of those who participated in the program were satisfied or very satisfied with the BREATHE program. The most important skill learned according to participants was how to handle stressful thoughts and feelings better. Only three mean scores were noteworthy: SICBC Total, item on dizzy and overtired increased for those who practiced mindfulness outside of class for four or more days a week compared to those who practiced only in class. These students reported that the experience of being still helped them notice their feelings of fatigue.

The findings show that this program may be a successful way to educate students on how to use mindfulness to manage negative emotions and understand thoughts and feelings better. Students in the treatment group also reported a decrease in tiredness and aches and pains from pretest to posttest.

Some problems with the study is that only homogeneous students were sampled and need to be tested on students of different gender, ethnicities, and social classes. Also the results may vary because they used juniors as a control group and seniors as the treatment group, older students may have better cognitive and emotional maturity. The teacher may be a variable for program effectiveness depending on her training. The trial was also relatively short and difference may be seen during a long-term program. The Carnegie Task Force on Education (1989) wrote in its landmark report: "School systems are not responsible for meeting every need of their students. But when the need directly affects learning, the school must meet the challenge (as cited in Adelman & Taylor, 2006, p. 296). This is why utilizing a program such as BREATHE to help students could prove very beneficial. "A report by the U.S. Surgeon General (U.S. Public Health Service, 2000) reported that one in ten children suffers from a mental health condition that meets diagnostic criteria, and one in five suffers from problems that significantly impair day-to-day functioning. Most young people with mental health problems do not receive treatment, and those who do receive services access the services primarily through their schools (Burns et al, 1995; Rones & Hoagwood, 2000).

The Effects of a Mindfulness-Based Education Program on Pre-and Early Adolescents' Well Being and Social and Emotional Competence by Kimberly A. Schonert-Reichl and Molly Stewart Lawlor

A quasi-experimental study was used to estimate the effectiveness of the Mindfulness Education (ME) program. This program is teacher taught as a preventative intervention that focuses on the development of social and emotional ability and positive emotions. This program had daily lessons in which students engage in mindfulness training three times a day. Students in

4th and 7th grade were drawn from public education classrooms (246 total) in 12 elementary schools from a large urban school district. The mean age of participants was 11.43 with 57% identified English as the first language. Analyses revealed no significant differences between the ME program and control group. Students represented a diverse range of socioeconomic status.

Teachers were told about the program and that participation was voluntary. Six willing teachers were selected for training completed pretest and posttest self-reports that measure optimism, self concept and positive and negative affect. Parents received permission slips with information about the program. Students completed Resiliency Inventory (RI; Song 2003). This test assesses six dimensions of resilience. Teachers rated pre- and early adolescents who participated in the ME program using a five-point Likert-type scale and compared it to those who did not and saw a significant increase in optimism. Classroom social competence behaviors also showed improvement.

A Self-Description Questionnaire was also used to measure self-concept. A 24-item Positive and Negative Affect Schedule (PANAS; Watson et al, 1988) with emotion words. Teachers also completed a 31-item Teacher's' Rating Scale of Social Competence (TRSC; Kam & Greenberg, 1998) for each student. A ten-lesson curriculum was used, these were guided by research and theory. Students were also given a daily "ME Program" diary to write down how they felt and how they used the skills they learned in other classes and at home. Students began the program by sitting in a comfortable position and listened for the bell or chime to begin their breathing exercise and become mindful in the present. This was practiced three times a week for three minutes each practice for ten weeks which included a new topic each week.

The results appeared positive when the data was analyzed. Teachers commented on seeing considerable growth in self-awareness and that helped the class become more cohesive.

There was also significant improvement in concentration, attention, and social emotional competence. "Overall, the results of this evaluating study of the ME program, a universal preventive intervention designed to foster students' social and emotional learning, provide some encouraging evidence of modest positive effect. As hypothesized, students exposed to the ME program, in contrast to controls, evidenced significant improvement in teacher rated social and emotional competence." Limitation of the study were the small number of classrooms didn't provide sufficient statistical power. Another limitation was the use of teacher behavior rating rather than direct observation of student behavior and absence of extended follow up assessments to see if positive impact has sustained long term

The Effectiveness of a School-Based Training as a Program to Prevent Stress in Elementary School Children by Eva van de Wejer-Bergsma

“Studies on the effects of mindfulness intervention on mental health and behavioral problems in children will show promising results, but are primarily conducted with selected samples of children. The few studies investigating school-based interventions used self-selected samples, provided training outside of the classroom, and did not report longer term effect. The immediate and longer-term effects of a class-based mindfulness intervention for elementary school children were investigated as a primary prevention program (MindfulKids) to reduce stress and stress-related mental health and behavioral problems.” (van de Weijer-Bergsma, Langenberg, Brandsma, Oort, & Bögels, 2014, p. 239)

This study took place in Amsterdam for children 8-12 years old from three participating elementary schools who were contacted by trainers and signed up if they were interested. Eight classes (third, fourth, and fifth grade) participated within twelve-thirty minute sessions that were delivered in 6 weeks using an experimental waitlist controlled design. Results of the test were from a baseline, pretest, posttest, and follow-up assessment. The pretest was given 1 week before program and post-test was given one week after program, a follow up was done 7 weeks after the completion of the program to analyze long term effects. Children, parents, and teachers also filled out questionnaires. After permission slips were given a total of 199 children participated (mean age 9.92).

Mental well being was evaluated using child-reported measures of emotional awareness and happiness. Mental health problems were assessed with parent reports measuring their child's problem behaviors, anxiety and sleep problems. Teachers reported on any change in class environment.

The program started with a mindfulness trainer visiting each class for 12 sessions of 30 minutes each during six weeks (two sessions per week). After each session student were also given activities to take home to practice further.

Child Report The Dutch 10-item Non-Productive Thoughts Questionnaire for Children assesses ruminative and repetitive thoughts. Items are scored on a Likert-type scale; high scores

reflect more ruminative thoughts. The questionnaire has good internal consistency and correlates with related constructs, such as circular thinking, anxiety and depression. The Dutch 30-item Emotion Awareness Questionnaire assesses six parts of children's emotional functioning. The items were scored on a Linkert-type scale. Two items of a four item Subjective Happiness Scale were applied; higher scores mean more feelings of happiness. The Dutch version of Screen for Child Anxiety Related Emotional Disorders assesses children's anxiety symptoms and has good discriminant validity (Bodden et al. 2009). Parents specify how frequently their child experiences each anxiety symptom on a Linkert-type scale. Higher scores on the scale reflect more symptoms of anxiety.

A 30-item Social Competence and Behavior Evaluation was used to assess child behavioral function, again scores were rated on a Linkert-type scale, higher scores on specific question types meant more problems or more social competence. Another scale called Sleep Disturbance Scale for Children was also used to assess sleep problems, items were scored on a Linkert-type scale with higher scores reflecting more sleep problems. Lastly Teacher Report About Class Climate was used to assess social climate in the classroom, high scores reflect a better social climate.

The initial expectation was to see no change between the baseline and pretest and after program an expectation of a decreased in ruminative thoughts, and an increase in sense of coherence and feelings of happiness. There is also a decrease in anxiety, sleep difficulties, and aggression expected along with an increase of teacher-reported social climate.

The study showed that it is feasible to incorporate mindfulness training in the classroom which will let all children benefit from the program. There also appeared to be a long-term effect which was discovered during the follow up exercise. It is believed that the prolonged effect was due to children continuing mindfulness into their everyday lives which strengthened their skills over time.

In the Classroom, a New Focus on Quietening the Mind by Patricia Leigh Brown

Published in The New York Times June 16, 2007

Oakland, California, June 12

A small number of schools are slowly embracing the concept of mindfulness as they did yoga five years ago. Stanford University and the Mindfulness Awareness Research Center at the University of California, Los Angeles, are trying to measure the effects.

At Piedmont Avenue Elementary School, a five-week pilot program with a mindful coach visiting the classroom twice a week for 15-minute sessions on how to have “gentle breaths and still bodies. A Tibetan bowl rings to announce the beginning and end of sessions. This technique that is being used is adapted from the work of Jon Kabat-Zinn, the molecular biologist who established the secular use of mindfulness at the University of Massachusetts in 1979. He used mindfulness to help medical patients cope with chronic pain, anxiety, and depression. The founder of the foundation InnerKids Susan Kaiser Greenland, trains school children and teachers in the Los Angeles area call mindfulness “the new ABC’s –learning and leading a balanced life.” “As Stanford, the psychology department is assessing the feasibility of teaching mindfulness to families. “Parents and teachers tell kids 100 times a day to pay attention,” said Phillippe R. Goldin, a researcher. “But we never teach them how.”

The pilot program at Piedmont has a student population of 65 percent black, 18 percent Latino and includes a large amount of immigrants. The principal was motivated to try out the program after observing a class at another local school. Dr. Amy Saltzman, a physician in Palo Alto, California is the co-director of the mindfulness study at Stanford said the early findings showed better control of attention and “less negative internal chatter” as one child in the program described it. “A recent study of teens by Kaiser Permanente in San Jose, California found that meditation techniques helped improve mood disorders, depression, and self-harming behavior like anorexia and bulimia”.

Mindfulness is taught in 25 classes a week at eight schools in Lancaster, Pa., where the district has a substantial poverty rate, 75 percent of students qualify for free lunch. Many school districts are now open to pilot programs like the one being done at Piedmont Elementary in hopes to relieve students of everyday anxieties and pressure and help them gain control of their minds.

A randomized controlled pilot trial of classroom-based mindfulness meditation compared to an active control condition in sixth-grade children by Willoughby B. Britton

This study is 6-week pilot trial at an independent Quaker school in Providence, RI to look at the effect of a non elective, classroom-based, teacher taught, mindfulness meditation intervention on standard clinical measure of mental health and the effects in middle school children. 101 healthy sixth graders (55 boys, 46 girls) were chosen at random to attend either an Asian history course with daily mindfulness meditation practice (intervention group) or an African history course with matched experimental activity (active control group). The Youth Self Report, a modified State-Trait Anxiety Inventory, and the Cognitive and Affective Mindfulness Measure (revised) were used as measures for data. All participants also completed questionnaires before and after the trial.

Consent forms were sent to parents for all student participants of trial. The acceptability of mindfulness was assessed by student journals (about 12 entries) that were analyzed by the Qualitative Solutions and Research International Nvivo software program. At the end of each session students were encouraged to “write about your experience with the meditation today” on index cards and given to the teacher for analysis. A modified Spielberger State –Trait Inventory was used to assess positive and negative effects of the program.

It was predicted that students in the mindfulness training would have reduction in anxiety and depression related symptoms as well as stress and improve mental traits. Results suggest that mindfulness education may produce both unique and non-specific self-harm than controls. With this it is believed that mindfulness training may yield benefits that are shared by other novel activities. However, there was no significant difference between the trial groups. It important to point out that there were a number of limitation on trial including: measurement, sample selection, intervention related limitations, treatment fidelity, parallel changes in groups, dosage, and teachers. A larger sample trial for a longer duration of time would be key to determine long term results.

Research Question

How can the practice of mindfulness meditation be used to affect middle school students' levels of anxiety?

Methods

The setting of this study is Somerset Middle School in Somerset, MA. Indicators (2013-14) from the MA Department of Elementary and Secondary Education are as follows: attendance rate = 95.7%, Average # of days absent = 7.5, Absent 10 or more days = 29.1, Chronically Absent (10% or more) = 8.1, Unexcused Absences greater than 9 = 0.0, and Retention Rate = 0.3. Somerset Middle School contains 633 students. Of the 633 students 93.5% are White, 0.8% are African American, 1.9% are Asian, 1.9 % are Hispanic, 0.2% are Native Hawaiian, Pacific Islander, and 1.7% multirace. Within this population of 633 students there are no ELL students, but 1.1% are not native English speakers. Students with disabilities make up 16.3% of the population. High needs students make up 26.3%. Finally, economically disadvantaged students make up 12.5% of the student body.

“The mission of Somerset Middle School is to respond to each adolescent’s intellectual, physical, and emotional needs. Diversity is the basis of a sound middle school program. The function for our educational program is student-centered. The children are the basis for every decision made at Somerset Middle School. [Our] efforts will focus on challenging children intellectually. We seek to develop necessary social and civic skills, stimulate emotional growth, and have the children more aware of the physical changes taking place during early adolescence. A commitment to involve parents in all aspects of their child’s education is a necessity. The pride and respect the children feel for the school and themselves will be carried by them into the community itself.” (Somerset Middle School Handbook, p. 2)

The study will focus on four 6th grade science classes taught by a female teacher with 9 years of experience and three 8th grade English classes taught by a female teacher with 10 years experience. All classes will include both regular education and special education students, but ratios of each subpopulation may differ.

Two 6th grade science classes and two 8th grade English classes will be randomly assigned to participate in the Learning to BREATHE curriculum. While the remaining two 6th grade science classes and one 8th grade English class will participate in a daily brainteaser from Braingle HD, a brainteaser app created by Toodledo for Apple products.

The participation will run for approximately 5-10 minutes a day for 6 weeks. Prior to beginning the study, an informative letter and consent form (See Appendix C) will be sent home to students who have been randomly selected to participate in the Learning to BREATHE curriculum. Students whose parents do not give consent will be doing the daily brainteaser.

At the start of the study, all students will be given the Spence Children’s Anxiety Scale (SCAS) (See Appendix A). The SCAS will be used to measure student anxiety. The Cognitive

and Affective Mindfulness Scale- Revised (CAMS-R) (See Appendix B) will be given only to the students participating the Learning to BREATHE curriculum. The CAMS-R will measure the student's personal ability to regulate attention, remain in the present moment, and be open-minded towards the present-moment. The data collected from these tests will provide a baseline for students' levels of anxiety and mindfulness levels.

Learning to BREATHE is a program that was created for adolescents because of the pivotal developmental period they experience where they are forming an identity and learning how to regulate their emotions. It is a school-based program that "provides for exploration of emotion regulation strategies and invites students to consider the usefulness of these tools for their lives. The discussion and practice sessions complement adolescents' increased capacity for introspection, while maintaining sensitivity to adolescents' internal pressure for social conformity and tendency to social comparison." (Broderick & Metz, 2009, p. 38) This mindfulness-based training program has six central themes: (1) body awareness; (2) understanding and working with thoughts; (3) understanding and working with feelings; (4) integrating awareness of thoughts, feelings, and bodily sensations; (5) reducing harmful self-judgments; and (6) integrating mindful awareness into daily life (Hölzel et al., 2011). Each of these six themes are intended to be 45 minutes long once a week, but can easily be modified to fit the schedule of the school, which will be done for this study. The lesson for each theme includes a presentation of the topic, a group activity surrounding the theme, guided discussion about the importance of the lesson, and finally a mindfulness practices following the theme of the lesson. (Hölzel et al., 2011)

For this study, only the mindfulness practices following the themes of each of the six lesson will be utilized. This study will begin in October. Students whose class has been selected to participate in the mindfulness curriculum will be informed of the study and what the Learning to BREATHE curriculum was designed for. They will be sent home with a letter and consent form to read and signed by a parent or guardian. On October 5th, 2015 the actual mindfulness practices will begin. During the first week students in the mindfulness classes will be conducting mindfulness practices based on the body scan theme. Every day of the first week students will begin class with a 5-10 minute body scan mindfulness practice guided by their teacher. Once the practice is complete, the teacher will begin either the science class or English class as it is normally conducted. The students whose class is participating in the daily brainteaser will begin class with a 5-minute brain teaser from Braingle HD. After the time limit the teacher will reveal the correct answer to the class and will then begin class normally. At the end of the week, the class participating in the Learning to BREATHE program will journal on an index card about their personal experience with mindfulness for that week. The index cards will be collected and later analyzed. During the 2nd week the same format will be followed. The theme of the mindfulness practice for this week will be about mindfulness of thoughts. Week three will follow with mindfulness practices centered around mindfulness of emotions. The 4th week will have students doing their mindfulness practices about loving. Kindness will be the theme for the mindfulness practices in week 5. The final week of the Learning to BREATHE program focused on mindful movement practices.

At the conclusion of the 6-week study, all students will retake the SCAS to see if either brainteasers or mindfulness had an effect on anxiety levels and if so, what kind of effect. Students who participated in the Learning to BREATHE curriculum will retake the CAMS-R to gauge their level of mindfulness at the conclusion of the curriculum to see if their levels had changed since the start of the study and if so how. The results will also reveal if there are any correlations between the levels of student anxiety and their levels of mindfulness.

Data Collection Techniques

Due to the nature of the research question, quantitative and qualitative data collection techniques were used as the primary research methods for this study. Quantitative data collection tools will include the Spence Children's Anxiety Scale (SCAS) and the Cognitive and Affective Mindfulness Scale- Revised (CAMS-R). The qualitative data collection tool that will be used in this study is the weekly journal entries from students participating the Learning to BREATHE curriculum.

1. Spence Children's Anxiety Scale (SCAS) (See Appendix A)

“The Spence Children's Anxiety Scale was developed to assess the severity of anxiety symptoms broadly in line with the dimensions of anxiety disorder proposed by the DSM-IV. This measure consists of 44 items, of which 38 reflect specific symptoms of anxiety and 6 relate to positive, filler items to reduce negative response bias” (Spence, n.d., SCAS: Child Version, Overview). Items on the questionnaire are randomly ordered. Ratings of 0-4 are used to rate each symptom listed. A study conducted by Spence, Barrett, & Turner (2013) indicates the “construct, convergent and divergent validity of the SCAS as an indicator of anxiety symptoms among a community sample of young adolescent. Data were consistent with a model based largely on DSM-IV diagnostic categories of anxiety disorders in children. Overall, the SCAS was found to have acceptable psychometric properties in terms of internal consistency, convergent and divergent validity. Test–retest reliability was weaker but satisfactory. In sum, the SCAS is likely to be a clinically valuable tool in the assessment of anxiety among young adolescents” (p. 623).

2. Cognitive and Affective Mindfulness Scale (CAMS-R) (See Appendix B)

According to Feldman et al. (2007), “the Cognitive and Affective Mindfulness Scale (CAMS-R) is a 12-item measure that assesses subjective ability to regulate attention, maintain an awareness of present-moment experience, and maintain an accepting or nonjudgmental attitude toward present-moment experience” (as cited in Britton, B.W., Lepp, N.E., Niles, H.F., Rocha, T., Fisher, N.E., & Gold, J.S., 2014, p. 267-268). Statements are presented and participants rate each statement based on a 4-point Likert scale (1 = rarely/not at all to 4 = almost always). Total scores on the scale range from 12 to 48 (Britton et al., 2014). According to Brown & Ryan (2003), the CAMS-R has strong correlations to other measures of mindfulness, such as the Mindful Attention Awareness

Scale. “The CAMS-R has been shown to have good reliability and validity in large heterogeneous student samples (Feldman et al., 2007) as well as in adolescents (Huppert & Johnson, 2010)” (as cited in Britton et al., 2014)

3. Student journal entries

Students participating in the Learning to BREATHE curriculum will journal once a week for 5 minutes on their experiences with the mindfulness for the week including whether or not they used any mindfulness techniques throughout the day, the situation it was used in, and the result. Teachers will collect the journals at the end of the week to review the students' experiences, any questions the students may have, how well they understand the mindfulness curriculum, and any other feelings they may be having.

Data Analysis Techniques

Both quantitative data and qualitative data will be analyzed to begin to understand the effects of mindfulness on student anxiety levels. The Spence Children's Anxiety Scale is scored by assigning each frequency a point value: Never = 0, Sometimes = 1, Often = 2 Always = 3. The maximum possible score a child can receive is 114. The test contains 38 anxiety scores that are scored and positive filler items (numbers 11, 17, 26, 31, 38, and 43) that are not scored or counted in the total score. To score the test, all responses from the 38 anxiety questions are totaled. The higher the test score, the greater the level of anxiety. (Spence, n.d., SCAS: Child Version, Scores and Administration) The scores from the test will not be used to determine whether a student has an anxiety disorder, but just to determine what their typical anxiety level is. Scores from the Spence Children's Anxiety Scale taken before the study and at the end of the study will be compared. The difference between the scores will be calculated. The greater the difference the more effective the brainteaser/mindfulness was on reducing anxiety.

The Cognitive and Affective Mindfulness Scale- Revised (CAMS-R) is scored using the following scale: Rarely/Not at all = 1, Sometimes = 2, Often = 3, Almost Always = 4. The responses from all questions are added up to gain a total score. Question 6 however is reversed scored. The greater the total score, the greater the mindfulness qualities of the participant. Scores from the CAMS-R taken before the study and at the end of the study will be compared. The difference between the scores will be calculated. The greater the difference the more mindfulness the student developed through the study. These scores will be compared to the SCAS scores to determine if there is a correlation between levels of anxiety and levels of mindfulness.

Journal entries from students participating in the mindfulness program will be collected at the end of each week during the 6-week study. Entries will be read by the respective teacher to identify central themes surrounding the students' personal experiences with mindfulness. A tally will be kept for each student with the number of times they used any mindfulness technique. Categories of situations that mindfulness was used in will be noted as well as the outcome. This data will be compared to their final CAMS-R score to see if there is a correlation between their level of mindfulness and use of mindfulness. This analysis will then be compared to the

difference in SCAS scores to determine the relationship between the frequency of mindfulness use and levels of anxiety.

Conclusion

In conclusion, the potential outcome of this study is derived from before and after SCAS scores from all students, CAMS-R before and after scores from students participating in the mindfulness program, and weekly journal entries from students participating in the mindfulness program. Based on information gathered from literature reviews, the likely results for this study would be a direct correlation between the use of mindfulness and anxiety levels. The more mindful and student is, the less anxiety they experience.

Considerations need to be made when interpreting the analyzed data from this study. First, this study was conducted over the course of 6 weeks and results revealed decreases in anxiety levels for students who participated in the Learning to BREATHE mindfulness practice immediately after the program ended. Long lasting effects on anxiety would require studies to be conducted over significantly longer periods of time. Next, this study was conducted with two teachers as facilitators of the Learning to BREATHE mindfulness practice. These teachers were not formally trained in mindfulness or the Learning to BREATHE curriculum. Results from the study may be affected by this factor. Finally, brain development between 6th and 8th grade students may have an effect on results gathered.

Results from this study have the potential to translate to the teachers facilitating the mindfulness practice as well. Further studies would need to be conducted to see if similar effects would present.

“Recent years have witnessed a growing portion of school- aged children experiencing a myriad of social, emotional, and behavioral problems that interfere with their interpersonal relationships, school success, and their potential to become competent adults and productive citizens” (Schonert-Reichl & Stewart Lawlor, 2010, p. 137). This study as well as many others on the effects of mindfulness-based education could serve as positive evidence for the implementation of a mindfulness-based education program at Sunshine Middle School intended to help students deal with the overwhelming expectations of middle education today.

Appendix

Appendix A: Spence Children's Anxiety Scale (SCAS)

Appendix B: Cognitive and Affective Mindfulness Scale (CAMS-R)

Appendix C: Learning to BREATHE parent consent form

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