

**The Impact of a Brief Mindfulness Program with a Small Group of Middle School
Students**

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To my mom, who has always been by my side and has done everything in her power to
get me where I am today.

And to Steve, who I would not be on this journey without and gave me hope when I had
none.

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ABSTRACT

Historically, the study of mindfulness has mostly focused on how it can benefit adults. Research has expanded to focus on how mindfulness can benefit children; however, most studies reviewed involve resource-heavy programs that continue over many weeks. The purpose of this study was to determine the effectiveness of a brief intervention that focused on the breathing and sensory components of mindfulness, and its impact on mild anxiety symptoms among a small group of middle school students. Seven children who, per parent report, experienced nonclinical levels of anxiety participated in two teaching sessions: (a) one to teach about the mindfulness exercises, and (b) the second to explicitly teach about symptoms of anxiety followed by a two-week self-monitoring session, where they independently practiced the mindfulness techniques in response to anxiety symptoms. The techniques were moderately effective at reducing anxiety symptoms and the participants and their parents viewed the intervention as socially valid.

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CHAPTER I

INTRODUCTION

Overview

Mindfulness is an effective method to reduce anxious behaviors in children (Hooker & Fodor, 2008). Currently, many methods to increase mindfulness in children take long periods of time and can require specialized training and/or resources, such as specific program materials and funds for expensive programs. To school psychologists, identifying brief, effective interventions that can be implemented easily are crucial when trying to help children effectively self-regulate. Being able to swiftly identify either internalizing or externalizing behaviors and giving children tools to better self-regulate themselves can change attitudes towards school, relationships, and the children themselves. Furthermore, many interventions are time and resource intensive. Professionals within schools have full workloads and accepting a new program may be more difficult if it requires a lot of time and cost. A brief intervention that can positively impact students, give them the tools they need to improve their own internalizing and externalizing behaviors, while minimizing the amount of time needed to teach new skills and the cost to do so, can be implemented more easily within the already-existing structure of a school day. This study determined the effectiveness of a brief, resource-conscious mindfulness intervention among a small group of middle schoolers.

Mindfulness

Mindfulness is the act of paying purposeful attention to oneself, at a particular moment, without judgement (Kabat-Zinn, 1994). This traditionally Buddhist practice has found its way into Western culture and great literary works for nearly 200 years, with authors such as Emerson (1836), Thoreau (1854), and Whitman (1871), emphasizing the importance of living for oneself while also developing a harmonious sense of self with one's environment in the movement known as American Transcendentalism (Kabat-Zinn, 1994). Most forms of mindful meditations taught today come from an eastern perspective, finding roots in yoga and Buddhism (Hooker & Fodor, 2008).

In the 1990s, mindfulness meditation was made more mainstream in western culture by Dr. Jon Kabat-Zinn (Kabat-Zinn, 1994). He developed Mindfulness-Based Stress Reduction, or MBSR, which reflects Eastern Buddhist practices. It has been widely studied and has been consistently successful in improving the lives of patients with physical and psychological problems (Klich, 2019). Dr. Kabat-Zinn's research and guidance to mindfulness has influenced a movement of meditative practices, and he has several books teaching others simple, everyday mindfulness techniques. Most of the research reviewed in this thesis acknowledges Dr. Kabat-Zinn and his contribution to the mindfulness and meditation fields.

Mindfulness has entered the fold as a practiced technique to reduce maladaptive behaviors in children; Fuchs et al. (2017) reviewed 31 studies that included children with different disabilities, including Attention Deficit/Hyperactivity Disorder (ADHD) and Autism Spectrum Disorder (ASD), who received MBSR therapies. The participants

demonstrated decreased negative emotions such as anxiety and depression and increased positive emotions like self-esteem after the MBSR treatments. MBSR also helped improve executive functioning deficits, behavioral regulation, and coping skills for children with ADHD.

Some schools have utilized mindfulness as an alternative to detention and other disciplinary practices. A school in Baltimore opened a “Mindful Moment Room” that allows children to meditate, calm down, and regather themselves when behavioral problems, such as anger, become an issue (Bloom, 2016). In this particular area, crime, violence, and poverty are very elevated; these factors can be major stressors in children’s lives, and difficulty managing emotions related to these stressors can severely impact a child’s ability to calm themselves and behave functionally (Keller, et al., 2017). Post-intervention data showed that the rates of disciplinary actions went down dramatically, and suspensions ceased since the implementation of the “Mindful Moment Room” (Bloom, 2016).

Mindfulness and Treating Anxiety

Mindfulness has been used to treat a variety of physical and psychological issues, including anxiety. A woman with severe anxiety about dying during and after tracheostoma surgery was given a treatment including meditation trainings (Klich, 2019). The treatment protocol included breathing, thinking, emotional, and pain regulation using traditional Eastern Vispassana and Lojung techniques, which focus on attention to the inner self and nonjudgment. The participant showed marked improvement in her anxiety symptoms and fear of dying from her tracheostomy. She was also able to self-regulate

more effectively and could engage better with other people following the treatment (Klich, 2019).

A meta-analysis by Scott-Sheldon et. al (2020) showed that cardiovascular disease patients who engaged in mindfulness practices experienced significant reductions in anxiety and depression symptoms, as well as improved systolic blood pressure. According to Kummar (2018), mindfulness can also improve symptoms for Post-Traumatic Stress Disorder (PTSD) patients and can be an effective alternative for trauma-focused therapies such as exposure therapy, narrative therapy, or cognitive behavioral therapy (CBT) when they are not effective. These more traditional therapies, the authors mention, may not target the emotional dysregulation PTSD patients experience and instead tend to focus on resolving the trauma itself. Mindfulness allows the participant to not only focus on his or her own trauma, but other emotions experienced (Kummar, 2018).

Mindfulness has also been shown to reduce anxiety in children. One study showed a significant decrease in social anxiety and suicidal ideation among a population of Chinese children left behind by their parents to find work in urban areas following instruction in mindfulness techniques (Lu, et al., 2019). Another study showed that mindfulness techniques helped children redirect past- or future-oriented thinking, associated with anxiety, to more focus on the present moment (Lee et al., 2008).

The Practice of Mindful Breathing

A major component of many mindfulness practices is deep, mindful breathing. Mindfulness meditations that focus on breathing help the individual become aware of the

present moment and not concern themselves with the past or future (Hooker & Fodor, 2008). Most studies that I read had breathing exercises as a technique to allow the participant to focus on the present moment such as Keller, et al. (2017), Viglas & Perlman (2018), and Minkos et al. (2018). One study sought to understand the importance of mindful breathing for a small group of participants diagnosed with Generalized Anxiety Disorder (GAD); the researchers found that a mindful breathing technique helped decrease worry and increase quality of life over a 9-month span (Morgan et al., 2014). Focus on the breath helps center the person and bring awareness to the present moment.

Keller et al. (2017) introduced mindfulness meditations to a group of 4th grade students. Fifteen students participated in deep breathing exercises, heart rate monitoring, and guided meditations. Those who were responsive to the treatment demonstrated more positive attitudes toward school, and even those who were not as responsive noted there were beneficial effects of mindful breathing.

A different study examined the effectiveness of mindful breathing, eating, walking, seeing, and journaling. The intervention lasted for six weeks, with 18, 20-minute sessions. The experimental group of 72 kindergarten students showed increased self-regulation and prosocial behaviors, as well as a decrease in maladaptive internalizing and externalizing behaviors (Viglas & Perlman, 2018).

Two high school boys receiving special education services for Emotional Disturbance (ED) participated in mindful breathing exercises. Both boys demonstrated significant increases in academic engagement and significant decreases in disruptive

behaviors. These changes remained consistent at a six-week follow up (Minkos et al., 2018).

A study by Lu et al.(2018) examined the effectiveness of a mindfulness intervention among 69, 5th grade Chinese students. The intervention took place over eight sessions, two times a week, for four weeks and involved implementing awareness of inner mechanisms through mindful breathing and eating. The students showed decreased internalizing behaviors and decreased externalizing behaviors.

Faraji et al. (2019) conducted a 12-session intervention program focusing on awareness of thoughts, emotions, and experiences through the senses, specifically focusing on breathing and sensory exploration. The researchers found that for ten students in third, fourth, and fifth grade, bullying tendencies were decreased.

Effectiveness of Sensory Exploration when Performing Mindful Meditations

Other important components of mindfulness meditations often used are sensory exploration exercises. Sensory exploration involves attentive concentration on what one is experiencing and perceiving through the five senses, including touch, taste, sight, hearing, and smell. Specifically, mindful sensory exploration has the person pay purposeful attention to what he or she is experiencing, as well as paying attention to body movements and thoughts that may occur. Commonly, mindful eating is used for children as it is a more concrete technique. As seen in several studies already (Keller et al., 2017; Viglas & Perlman, 2017; Lu et al., 2018; Faraji et al., 2019) mindful eating and other forms of sensory focus can allow children to be present in the current moment in a way that is tangible.

A group of twenty-five children aged 9-12 experiencing difficulty with internalizing and externalizing problems were introduced to a mindfulness-based cognitive therapy. The group met for 90-minute sessions over 12 weeks; the exercises included meditation, conversations about the activities, family exercises, and sensory exploration. Children who had been experiencing anxiety symptoms showed altered past- and future-oriented thinking and increased present-moment thinking. Students also reported using the skills they had learned to help reduce anxiety symptoms in their day-to-day lives (Lee et al., 2008).

Another study reported using mindfulness skills to increase attention for 58 Israeli children. The group were taught skills that focused on the senses and increasing awareness of internal mechanisms; the sessions were 45 minutes and lasted for 10 weeks. The group overall showed less impulsiveness and improved selective attention than the control group (Tarrasch, 2018).

Bringing Awareness into Mind

Another important area of focus when practicing mindfulness is the awareness of not only the body, but of thoughts and emotions. After all, mindfulness is the act of paying purposeful attention to oneself, at a particular moment, without judgement (Kabat-Zinn, 1994). This kind of deliberate, conscious attention to not only one's surroundings, but the internal environment is necessary when being mindful. However, this is not an automatic skill, especially for children.

One effective way to support younger participants using mindfulness techniques is to supplement mindfulness techniques with a system following Habit Reversal Design,

or HRD. HRD is a systemic way to explicitly teach goals for participants, then allow the participants to practice and become more independent in the targeted skill. The systems used in HRD has shown to be an effective tool for children to become more self-aware of their internal environments and has been an effective tool for behavior awareness and change. HRD focuses on training participants to become more aware of the target behaviors, learn competing behaviors, and build social supports or reinforcements (Allen, 1998; Teng et al., 2006; Woods & Twohig, 2002).

A study by Teng et al. (2006) researched effectiveness of HRD with 25 college students experiencing chronic skin-picking. The students were photographed pretreatment to record the number of skin-picking sites on the skin, then were asked to record the number of skin-picking incidents for one week. The students were randomly assigned to either a control group or experimental group. The experimental group underwent the HRD training, where they were instructed on the procedures. The students were taught what skin-picking was and were helped to become more aware of their habits and why they occurred. After 80% accuracy in identifying the antecedents and functions of the skin-picking behaviors was met, the participants were taught competing behaviors (fist clenching) when they felt the need to skin pick. The participants practiced the techniques until they performed the competing behavior instead of the problem behavior with 80% accuracy. They were then asked to identify another participant to positively reinforce with praise when the person accurately performed the competing behavior and provided prompts when the identified person engaged in skin picking behaviors. The participants continued to self-monitor their skin picking behaviors and record instances for a week. The experimental group had significant decreases in skin picking behaviors

from pretreatment to posttreatment, with a 77% decrease. The control group experienced a 16% decrease in skin-picking behaviors. HRD has shown to be an effective tool in bringing awareness to unwanted behaviors and training healthier substitute behaviors, evident in a variety of studies (Allen, 1998; Bruni et al., 2019; Viefhaus et al., 2020; Woods & Twohig, 2002).

Using Brief Sessions to Train Mindfulness Techniques

There is a multitude of evidence showing that mindfulness is an effective way to reduce maladaptive or problematic behaviors in children. However, many of the interventions described in previous studies take considerable lengths of time. If a school does not have the proper resources allocated to a mindfulness program, it can be difficult to implement a mindfulness intervention with fidelity without appropriately trained staff. There are few studies that examine the effectiveness of brief mindfulness sessions, though they do exist.

A study conducted by Johnson et al. (2013) examined the effectiveness of a single-day mindfulness exercise among a group of 92 college students. The students were randomly selected into three groups: a mindfulness intervention group ($n = 41$), a sham ($n = 25$), or fake, intervention group, and a group assigned to listen to an audiobook ($n = 26$). The mindfulness group improved on measures of curiosity, awareness, and negative states such as tension, confusion, and distress.

A school in the United Kingdom designed a mindfulness program called Paws b, specifically tailored to meet the needs of the students in the school. The intervention consisted of six hours of lessons, either six 1-hour sessions or twelve 30-minute sessions.

One week of intervention helped a small group of 10- and 11-year-olds regulate emotions and feel more engaged in the present moment (Hutchinson et al., 2018).

Summary of Mindfulness Research Reviewed

Research in the area of child mindfulness suggests that teaching children mindfulness strategies can help alleviate internal and external symptoms, such as anxiety or disruptive behaviors, increase academic engagement, and increase positive attitudes about school and relationships with others. When children start being aware of their own internal and external processes, work through them without judgement, and are taught self-regulation techniques, improvements in social-emotional, academic, and behavioral factors have been observed. The techniques demonstrated in the studies have also shown to be appropriate and effective for children. Mindful breathing and activating the five senses can allow children to become more self-aware of their current states and being present with the current moment can help them understand how they interpret and perceive the world around them. This is something that children do not often experience (Hooker & Fodor, 2008). Becoming mindful of how the mind and body reacts to the environment can help children better control potentially unconscious reactions to stress and other negative emotions. By increasing self-awareness through mindfulness, children can become more aware of their behavior and better regulate themselves when stressed or upset.

This study examined the impact of a brief mindfulness intervention that included two sessions consisting of mindfulness meditations and explicit instruction on anxiety and its characteristics. Most studies reviewed examined the effectiveness of a series or program

of mindfulness interventions among large groups of children, but those require time and resources that not all school-based providers have. Finding an effective, short-term intervention that can be implemented in 2-3 sessions can be valuable to educators, school counselors, and school psychologists. Mindfulness as a tool for children to learn and use to help regulate their behaviors can be a valuable asset in the child's toolbox. If a child can learn to use mindfulness to decrease anxiety, for example, more mental energy can be used to further academic, social, and behavioral success, rather than being spent on nervousness or rumination. If a brief mindfulness intervention can be found to be effective, it could be integrated into other interventions such as a counseling or behavior support plan or be used as an independent intervention on an as-needed short-term basis.

Testable Hypotheses

1. It was hypothesized that parents will view their children as less anxious post-intervention when compared to preintervention levels.
2. It was hypothesized that the children in the group will learn how to implement the techniques learned in the sessions in day-to-day life.
3. It was hypothesized that the students will be able to identify scenarios in their life where the mindfulness techniques will be useful.

CHAPTER II

METHOD

Settings and Participants

A small group of seven middle school-aged students were recruited via word of mouth with the help of work colleagues volunteered to participate in the study. There were four boys and three girls who participated. After obtaining approval from the Institutional Review Board (IRB), informed consent and assent were obtained online through Qualtrics (see Appendix A). Both the parents and child participants met me via Zoom to go over the consent form, ask questions, and complete the online consent procedures. The group participated in three total sessions: (a) one session to learn the mindfulness techniques, (b) one session to learn how to identify when mindfulness practices may be needed when experiencing anxiety, and (c) one session post-intervention where I asked the participant about their experience with the mindfulness intervention and using it in practice. Across all seven participants, there were 13 total sessions; some participants had their sessions concurrently as they were in the same household but not all were able to meet at the same time. The participants also engaged in self-monitoring his or her use of the mindfulness activities to relieve anxiety. After engaging in the self-monitoring period, the third session consisted of questions about the usefulness, application, and social validity of the meditations to help mediate anxiety symptoms. The post-intervention interviews were conducted with one participant each. See Appendix A for a copy of the intervention checklist that lists pre-intervention, intervention and post-intervention procedures

Due to the COVID-19 pandemic the intervention was implemented virtually using an online telecommunications app, Zoom. Materials were presented via screenshare and distributed via parent email.

Pre-Intervention Procedures

A BASC-3 Flex Monitor scale was completed by parents before the mindfulness intervention to obtain a quantitative measure of the students' observable anxious behaviors. See Appendix B for a copy of the Flex Monitor form used. Participants also completed the Child and Adolescent Mindfulness Measure (CAMM) after parent consent was received to participate in the intervention but before the mindfulness intervention was started. See Appendix C a copy of the CAMM.

Measures

BASC-3 Flex Monitor scale. Examiners can use the BASC-3 Flex Monitor tool to select items from the broadband BASC-3 to develop a valid and reliable short scale that specifically assesses the target behaviors of interest. The Flex Monitor comes in self, parent, and teacher forms and is appropriate in identifying target anxiety behaviors (Reynolds & Kamphaus, 2020). I used the Flex Monitor tool to create a scale with 30 questions about apparent symptoms of anxiety, including worrying, nervousness, headaches and stomach pain, and self-doubt. The scale also asks question about specific situations, such as, "Is the child is nervous around other adolescents or worries before exams?" Higher T scores indicate desired level of functioning. Scores above 40 are average; scores between 30 and 40 are at-risk, and scores below 30 are clinically significant. The scale has a reliability coefficient of .93 for ages 12-14.

Child and Adolescent Mindfulness Measure (CAMM). The CAMM (Appendix C), developed by Greco et al. (2011) is a 10-item assessment of mindfulness for children ages 10 to 17, measuring mindfulness as a trait characteristic (used with permission; see Appendix D). The scale ranges from Never True to Always True on a 5-point Likert scale and with high internal consistency ($\alpha = .81$). Means and standard deviations for the CAMM are not available; higher scores indicate higher levels of mindfulness, while lower scores indicate lower levels of mindfulness. The CAMM has been verified as valid and reliable for non-clinical children and adolescents by Kuby et al. (2015). The validation study included private school students ($n = 593$) in Western Australia. The CAMM was given to the participants and compared to a variety of other scales; the study showed the CAMM had a Cronbach's alpha of $\alpha = 0.84$ for internal consistency and strong convergent validity with the *Penn-State Worry Questionnaire for Children (PSWQ)* ($\alpha = 0.50$), the *Positive and Negative Affect Subscale of the Positive and Negative Affect Scale for Children (PA/NA)* ($PA \alpha = -0.13$; $NA \alpha = 0.49$), and the *Strengths and Difficulties Questionnaire Self-Report Total Score (SDQ-S-TD)* ($\alpha = 0.52$).

Another study conducted with an adolescent Turkish sample ($n = 211$) found that the CAMM also had high internal consistency ($\alpha = .80$) after being compared to the *Mindful Attention Awareness Scale-Adolescent Version (MAAS-A)* ($\alpha = .82$, $r = .79$), the *Self-Compassion Scale* ($\alpha = .93$), and the *Difficulties in Emotion Regulation Scale (DERS)* ($\alpha = .93$, $r = .88$ (Sünbül, 2018)).

Intervention

Session one. The first session consisted of breathing and sensory exercises. Per the integrity checklist, the session began with a brief introduction into mindfulness: the act of paying purposeful attention to oneself, at a particular moment, without judgement (Kabat-Zinn, 1994). An outline of the session and the goals of the intervention was discussed. Afterwards, the first activity was introduced, beginning with a demonstration of proper breathing techniques. After the “Mindful Minutes” meditation (Appendix E), the participants were introduced to a variation of the “Raisin Meditation” (Appendix F). The session took roughly 30 minutes.

The breathing exercise included the “Mindful Minutes” meditation developed by the University of Houston Yoga and Mindfulness Lab (Esat et al., 2019) (used with permission from authors; Appendix G).

The sensory exercise consisted of a modification of the “Raisin Meditation” (Hooker & Fodor, 2008). Instead of a raisin, the objects of focus included items nearby the participants during the session; items used included pens, pencils, snack foods, drumsticks, a watch, and an apple. The sensory meditation was conducted twice to allow the participants to practice with multiple items. This was to promote generalizability for the mindfulness practices to the classroom and to prevent the participant from relying on one specific object.

Session two. The second session took place shortly after the first session., between 1-2 days; for one participant, due to scheduling difficulties seven days passed between the first two sessions. The purpose of this session was to help the participants identify

when implementing the learned mindfulness exercises could be helpful or effective. The procedure followed a Habit Reversal procedure design in that the students were explicitly taught what anxiety is, vocabulary to describe their anxious feelings, and were taught how to use the competing behaviors (the mindfulness techniques). Due to time constraints and the nature of completing the study virtually, 80% accuracy in replacing the anxious behaviors or positive reinforcement from other participants could not be completed. However, the techniques were modeled and role-played until the participants acknowledged they understood how to implement the mindfulness exercises. After the anxious symptoms were explicitly taught, as per HRD, the participants self-monitored their ability to implement the mindfulness techniques when feeling anxious. (Teng et al., 2006). The students were taught what anxiety behaviors look like and were shown examples of different forms of the behaviors, including what may be said or thought, and physical symptoms. Next, participants were asked to identify and acknowledge their anxious behaviors and what possible antecedents could be occurring as a group. After the students accurately identified their behaviors, the students were coached on how to implement the mindful meditations. The coaching steps were as follows: (1) I modeled what someone might do, feel, or think, if an anxious behavior is occurring; (2) I modeled the implementation of the mindfulness techniques; (3) after the anxiety instruction, there was time in the session to practice the techniques with opportunities for feedback.

Self-Monitoring. Following the first 2 intervention sessions, the students self-monitored by recording the situations where they felt anxious and the times they implemented the mindfulness techniques. The purpose of the self-monitoring component was to ensure the participants learned to be aware of their own anxious behavior and

recognize when to apply the mindfulness techniques. The participants were given a table indicating the days of the self-monitoring period, with sections for the anxious incidences and boxes where they indicated which technique they chose. The participants also indicated whether or not the technique of their choice helped reduce their anxiety symptoms. They were given two weeks to self-monitor. One week into the self-monitoring phase, I contacted the parents to ensure their children were still engaging in the self-monitoring portion of the study. The forms were gathered at the third session via text and email. An example of the self-monitoring form can be found in Appendix G.

Post-Intervention Data Collection and Follow-Up

Session Three. This session was a follow-up via a Zoom meeting to determine the effectiveness of the mindfulness practices and to what extent the students practiced the techniques and took place after the self-monitoring phase ended. The participants were individually asked about their experiences with the mindfulness techniques, and their responses were recorded. A list of the interview questions can be found in Appendix I. The parents were then given another Flex Monitor form to complete to determine any changes in observable anxiety symptoms in the participants.

Maintenance

Two weeks after the third session, there was a final follow-up to determine if there was maintenance of the intervention. The participants' parents were contacted and asked if their children were continuing to use the techniques they learned in the intervention.

CHAPTER III

RESULTS

Session Checklist Results

A session integrity checklist was created to ensure a guideline was in place so the interventions could be implemented as similarly as possible, since the participants were not present for the sessions simultaneously. The following is a summary of the results of the session checklist and the integrity of following it.

Session one.

Participants' parents were asked to complete the BASC-3 Flex Monitor form; six out of seven parents completed this step. The participants were asked to complete the CAMM before the mindfulness intervention began; six out of seven participants completed this step. All seven participants attended the first session and practiced the mindfulness techniques. They discussed how they felt after both technique demonstrations. Most participants used at least one food item for the sensory exploration exercise, though two used only nonedible objects.

Session two.

All steps were completed for each participant.

Post-intervention.

Parents were given another Flex Monitor scale to determine any changes in observable anxiety symptoms in the participants; six out of seven parents completed this

step. Interviews were conducted with all seven participants, and all completed the self-monitoring forms.

Analysis

The qualitative and quantitative data (the Flex Monitor data, the CAMM data, and the self-monitoring data) were consolidated and analyzed. A one-way paired samples *t* test was conducted to analyze the significance between the pre- and post-test Flex Monitor forms. The self-monitoring data was analyzed via item analysis; the different techniques were compared for each participant and whether each or both techniques were considered most or least effective.

Table 1

List of Scores

Participant	CAMM	Flex Monitor Pre-Test	Flex Monitor Post-Test
P1	--	42	50
P2	16	43	41
P3	29	--	--
P4	10	37	31
P5	17	59	57
P6	14	50	59
P7	23	48	57

Flex Monitor Forms

A one-directional paired samples *t* test ($\alpha = .05$) indicated that the average number of anxiety symptoms did not significantly change from preintervention levels ($M = 46.5$, $SD = 7.66$, $n = 6$) to postintervention levels ($M = 49.2$, $SD = 11.11$, $n = 6$), $t(5) = -0.97$, $p = .189$, Cohen's $d = -0.395$.

Table 2

Descriptive Statistics for BASC-3 Flex Monitor Forms

Variable	N	Mean	Median	Standard Deviation	Standard Error
Pretest Score	6	46.5	45.5	7.66	3.13
Posttest Score	6	49.2	53.5	11.11	4.53

Note: The BASC-3 Flex Monitor Form uses T scores and has a mean of 50 and a standard deviation of 10. Average values have a range from 41 to 100; at-risk scores have a range from 31 to 40; clinically significant scores include scores 30 and below.

Five participants remained in the average range from the pretest to the posttest; one participant (P4) had pretest and posttest scores in the at-risk range. While there were no significant changes (meaning one standard deviation of difference), three participants demonstrated almost a standard deviation of change; P1 had a change of +8 T score points, P6 had a change of +9 T score points, and P7 had a change of +9 T score points. A visual representation of the score changes can be seen in Figure 1 in Appendix L.

Child and Adolescent Mindfulness Measure Comparison

Participant One.

Participant One (P1) did not complete a CAMM.. When speaking to the parent, I was told that the child already had a grasp on mindfulness tactics as it is a skill taught in their school.

Participant Two.

P2 indicated they had a mindfulness score of 16 out of a possible 40 on the CAMM, indicating lower levels of mindfulness before the intervention.

Participant Three.

P3 indicated they had a mindfulness score of 29 out of a possible 40 on the CAMM, indicating higher levels of mindfulness before the intervention.

Participant Four

P4 indicated they had a mindfulness score of 10 out of a possible 40 on the CAMM, indicating low levels of mindfulness before the intervention.

Participant Five

P5 indicated they had a mindfulness score of 17 out of a possible 40 on the CAMM, indicating lower levels of mindfulness before the intervention.

Participant Six

P6 indicated they had a mindfulness score of 14 out of a possible 40 on the CAMM, indicating lower levels of mindfulness before the intervention.

Participant Seven

P7 indicated they had a mindfulness score of 23 out of a possible 40 on the CAMM, indicating moderate levels of mindfulness before the intervention.

Self-Monitoring Form Results

Participant One.

P1 indicated they were anxious three times throughout the self-monitoring period; on day 1, day 5, and day 10. Symptoms felt included feeling “fidgety”, and it was hard for them to focus. P1 used the grounding technique once and the breathing technique twice; they indicated the techniques were effective each time.

Participant Two.

P2 indicated they were anxious four times throughout the self-monitoring period; on day 2, day 4, day 7, and day 9. Symptoms included headaches and tension. P2 used the grounding technique twice and the breathing technique three times. They indicated the grounding techniques were effective, but the breathing techniques were not.

Participant Three.

P3 indicated they were anxious four times throughout the self-monitoring period, on day 1, day 4, day 8, and day 10. Common themes in anxious symptoms included being anxious for the bus. Fear was a common symptom. P3 indicated other anxious symptoms included pacing, fidgeting, checking themselves, shallow breathing, and leg-shaking. P3 used both grounding and breathing techniques over the self-monitoring, and twice used both to help relieve anxiety symptoms. They found the techniques were mostly effective, except when P3 kept engaging in checking behaviors.

Participant Four

P4 recorded they were anxious four times during the two-week self-monitoring period, (day 2, day 4, day 7, and day 10) though they told me they were anxious more times that were not recorded. They reported they frequently had headaches, hyperventilated, felt very anxious, and possibly “fidgety.” The scenarios involved interacting with others, including knocking on people’s doors and asking for help. P3 used both techniques during the period, though they used the breathing technique more frequently. They indicated that the techniques were helpful in relieving anxiety symptoms.

Participant Five

P5 reported anxious symptoms on day 7 and day 14 of the self-monitoring period. Symptoms include feeling scared and nervous for different sporting events. P5 only used the breathing technique, and it was effective on day 7, but not day 14.

Participant Six

P6 reported seven instances of using the mindfulness techniques on day 1, day 2, day 3, day 4, day 6, day 7, and day 9. Two of the instances were due to their sibling making them angry, four were due to fear of a wasp in their shoe, and one due to receiving shots. When afraid of the wasp, P6 experienced rapid breathing as a symptom. For these occurrences, they used the breathing techniques and found them effective. When their sibling made them angry, they yelled as a consequence. One day they used the breathing technique and found it ineffective, but the next day they used the grounding

technique and it worked better to help their feelings of anger. When P6 had to receive shots, they used the breathing technique, but found it did not relieve the pain they experienced.

Participant Seven

P7 reported six events on their self-monitoring form, on day 1, day 2, day 3, day 5, day 9, and day 11. They indicated five events where they became mad and frustrated because of different situations, including sports events, frustration with family members, and an item of theirs breaking. They indicated one incident where they had to back up the family truck and they felt anxious. On four occasions, they used the breathing and grounding techniques together and found it helped their symptoms. On one occasion, they used the breathing technique when angry at their mother and did not feel better, but when they were nervous about backing the truck up, breathing helped relieve the anxious symptoms.

Participant Interviews

Participant One.

P1 indicated they preferred the breathing technique over the grounding technique as they felt it was easier to implement, though both were effective at relieving anxiety symptoms. P1 noted they used the techniques consistently when they felt anxious. When asked if they would continue to use the mindfulness techniques in the future to help with anxiety, they answered yes and they would recommend the techniques to others.

Participant Two.

P2 indicated they preferred the grounding technique over the breathing technique, as touching a tangible object helped make the techniques more “real” for them. They noted that the techniques they used were most effective for helping with headaches and tension, and least effective with stomachaches. When asked if they would continue to use the mindfulness techniques in the future to help with anxiety, they answered yes and they would recommend the techniques to others.

Participant Three.

P3 indicated they preferred the breathing technique over the grounding technique as it helped them feel calmer than the grounding technique. They noted that although they used the techniques consistently when feeling anxious, the techniques were not completely effective at relieving anxiety symptoms. When asked if they would continue to use the mindfulness techniques in the future to help with anxiety, they answered “maybe”, if their anxiety was severe. They indicated they would recommend the techniques to others.

Participant Four

P4 told me they recorded that they felt anxious four times during the self-monitoring period, but they had felt anxious more times and did not write the incidents down. When asked if they used the techniques even if they did not write the event down, they said they did, and they felt relief from their anxious symptoms. They thought the techniques were very effective at helping with their different anxious behaviors, such as

hyperventilating and headaches. P4 indicated they thought they would prefer the grounding technique, as they resonated with it more during the practice session, but found that the breathing technique was preferable as it was faster to have access to and was helpful when talking to others. P4 noted that the grounding technique required them to “zone out”, and they could still focus on their environment with the breathing technique. They indicated that they would continue to use the techniques in the future to help with anxiety and that they would recommend the techniques to others.

Participant Five

P5 felt anxious twice during the two-week period and noted that the breathing technique was effective each time they used it. They felt the breathing technique was easier than the grounding technique. P5 noted they may continue to use the techniques in the future to help with anxiety symptoms and they would recommend the techniques to others.

Participant Six

P6 noted they used the mindfulness techniques very consistently during the two-week period, using them all seven times they felt anxious or angry. They felt the techniques helped most of the time, however when they were angry the techniques weren't as effective. They preferred the breathing technique to the grounding technique, as it was easier, they breathe all the time as it is, and they can do it while sitting down. P6 said they may continue to use the techniques in the future, but they weren't sure if they would recommend them to others.

Participant Seven

In their interview, P7 indicated that they preferred the breathing technique over the grounding technique. They said it helps them calm down better, and the grounding didn't seem to help as well. They used the techniques relatively consistently during the self-monitoring period. They indicated they would continue to use the techniques in the future and said they would recommend the mindfulness techniques to other people they know.

Maintenance*Participant One*

P1 indicated they continued to use the breathing techniques after the third session. In one example, they were worried about something they had said to a friend and used the breathing techniques to help calm themselves down. P1 noted that they use the breathing technique when they get nervous in social situations. They noted that the breathing exercise was easier, as the grounding technique required you to "feel stuff" and it was not "as easy." P1's parent hadn't noticed improvement in anxious symptoms specifically, however with prompting, they indicated P1 has been more open to new situations since the study was completed.

Participant Two

P2 indicated that they continued to use the techniques and preferred the grounding technique over the breathing technique, as the physical contact with an object appeared to help relieve anxiety symptoms. They used the techniques weekly while finishing

assignments. They indicated that the tangibility of holding the object and connecting to it helped calm down their anxious symptoms more effectively than the breathing technique. P2's parent noted that they liked the nature of the study and how the participants had the opportunity to choose whichever technique they liked best. They also enjoyed how anxiety was discussed as being natural and accepting anxiety without judgement.

Participant Three

P3 became more intentional with their thoughts after the intervention when they experienced anxiety. They preferred to use the breathing technique and are better able to identify and describe anxious feelings. As the parent stopped replying to emails, I reached out to their recruiter, who was able to ask them my questions through text.

Participant Four

P4's parent noted that they continued to use both the breathing and sensory techniques and has been helpful for their anxiety. Their parent said they were happy their child participated in the study, as they think it helped improve their anxious symptoms.

Participant Five

P5's parent indicated that they did not continue to use the techniques, as they did not have as much of a need as others and does not get anxious often. However, the parent noted that they think the mindfulness techniques will be useful for many students.

Participant Six

According to P6's parent, the techniques were helpful for P6's anxiety symptoms as long as the anxiety-inducing incidents are not sudden; for example, if in an argument

with another person, P6 may forget to use the techniques, but if they have time to think about it, they are more likely to engage in the breathing exercises. The parent thinks the mindfulness intervention is an appropriate way to get children to slow down and better regulate out-of-control emotions.

Participant Seven

P7 indicated they still use the mindfulness techniques whenever they experienced anger towards other people. They said the breathing exercise calms them down. P7's parent indicated that P7 may be more open to using the mindfulness techniques more if they were not so concerned with how others perceived them; in other words, they wanted to appear "cool" to others, as they are a teenager about to enter high school. The parent also said they can see their child using the breathing techniques but not wanting others to know.

Hypotheses

Hypothesis 1: Parents will view students as less anxious post-intervention compared to pre-intervention levels.

When reviewing the Flex Monitor data from pre-intervention and post-intervention, parents overall did not view their children as being less anxious than before the intervention. The Cohen's d of -0.395 indicates that there was a change in the opposite direction than was hypothesized. Half of the participants' behaviors improved, and the other half were observed to have increased anxiety symptoms. As a whole, the data does not support this hypothesis.

Hypothesis 2: The students in the group will learn how to implement the techniques learned in the sessions in day-to-day life.

The participants implemented the mindfulness techniques taught during the sessions during the self-monitoring session independently. Per their self-monitoring forms, each participant used the techniques in a variety of scenarios for a variety of anxiety symptoms, including sporting events, tests, and interactions with other people. Based on the self-monitoring forms and the interview data, the participants learned how to implement the different techniques in ways that were most effective to them. This data supports Hypothesis 2.

Hypothesis 3: The students will be able to identify scenarios in their life where the mindfulness techniques will be useful.

All seven participants were able to identify different scenarios where the techniques were and were not useful. All seven participants used the techniques in a variety of environments for a variety of causes: fear of missing the bus, projects, statewide testing, performing well in sporting events, difficulty with family members, fear of getting injured, and interacting with strangers. One participant indicated that the techniques were not useful when having to check themselves consistently before practice. Another participant found the grounding techniques helpful for their anxiety symptoms, but not the breathing techniques. Another participant found the breathing technique was not effective when they were nervous about performing well in their martial arts class but was effective when they were nervous about performing well at a baseball game. Two other participants found that the techniques were not always helpful when they were

angry at others but were more effective when they were nervous about different events. All seven participants implemented the techniques in ways that were most effective for themselves. Most of the participants also noted that they would continue to use the techniques going forward, though one was not sure. The self-monitoring data and the interview data support this hypothesis.

CHAPTER IV

DISCUSSION

The purpose of this study was to determine the effectiveness of a brief mindfulness intervention among a small group of middle-school aged students. Important elements of the study include that the sessions were short, there were only two teaching sessions, and there was virtually no cost in implementation. However, because of the COVID-19 pandemic, my study remained virtual. Despite this, I believe the children demonstrated adequate levels of attention and participation in the study. My impression was that the older participants (teenagers) thought practicing the techniques was silly but found that they were helpful in everyday situations. Younger participants (preteens) seemed more open to practicing the techniques and appeared more engaged than their older counterparts. There did not seem to be a gender difference when using the techniques, but female participants seemed initially more open to using the mindfulness techniques than male participants. Older male participants appeared more reluctant than either older or younger female participants to engage in the techniques, especially the sensory exploration technique. This data is based on my observations during the teaching sessions. Despite this, all participants, regardless of age or gender, practiced the techniques at least twice during the two-week self-monitoring period, and all reported benefits to using the exercises when experiencing anxiety.

Had the study been in-person, I think I would have gotten similar results, but I would have received more engagement from the participants and their parents. I believe if the study had been completed in a school setting, the techniques may have appeared more

tangible, and the students may have been more comfortable to ask questions. I also could have implemented the social positive reinforcement from HRD and been able to do more with the role-playing component of the study. Overall, there was appropriate participation from the students, and I received valuable data from them and their parents.

The students actively participated in the practice sessions, and opinions were mixed between preferring the breathing technique and the grounding technique at those times. Two participants noted that the grounding technique allowed themselves to experience what was going on with their body, rather than the worry that was going on in their mind. They felt that the grounding techniques made the practice more tangible than breathing. The majority of the participants initially preferred the breathing techniques, as the exercise seemed easier to do in the moment than trying to find an object to use with meditation. This preference seemed stable when analyzing the self-monitoring data and the interview data, though most participants tried using both during the period. Most studies reviewed contained a breathing component to the interventions conducted; because breathing is such a core component of living, learning how to focus on the breath and better regulate emotions may be more accessible and easier to perform than conducting sensory exercises. Additionally, if a child has anxiety about social perceptions, they may be more willing to conduct breathing exercises they would be better able to hide, rather than focusing on a tangible item that may warrant comment from others.

Looking at individual Flex Monitor scores, there are some changes in the desired direction. The cause of the changes in the opposite direction are unknown, but I suspect

that the parents may have observed increased anxious behaviors due to the nature of the self-monitoring portion of the study. The participants had increased awareness of their symptoms, and therefore may have presented more strongly than before the study began. Based on the comparison of pre- and posttest BASC Flex Monitor scores, there was not a significant difference found in pre- and post-intervention anxiety symptoms as observed by parents. However, this is not surprising given the level of anxiety symptoms initially reported. As most of the participants did not demonstrate significant levels of anxiety, the fact there was some improvement observed is important to note. The participants appeared to benefit from the intervention regardless of anxiety levels either pre- or posttest. Because of this, the intervention may be beneficial as a preventative strategy before anxiety symptoms become more significant. The benefits seen from children with nonclinical levels of anxiety show that they can still improve on their levels of mindfulness and any anxious symptoms they experience.

Another aspect to consider is that although the participants' parents did not indicate clinical levels of anxiety on the BASC Flex Monitor forms, some anxious symptoms were identified. This suggests that the Flex Monitor forms do not tell the whole story about the child; even though the children are not diagnosed with an anxiety disorder, they still experience anxiety they identify as problematic and unwanted. Studies reviewed showed that children of many ages, from a variety of settings, showed meaningful responses to mindfulness interventions with long-term effects. Several studies discussed the improvement in self-regulation and decrease of internalizing symptoms; this was observed in the participants of this study. P6 and P7's self-monitoring experience showed that the mindfulness techniques were effective not only for anxiety-

producing scenarios, but also in situations where they experienced anger. This means that the intervention explored in this study could be meaningful for not only reducing anxiety, but a variety of different internalizing and externalizing emotions. These findings coincide with results from Fuchs et al. (2017), Lu et al. (2019), Viglas & Perlman (2018), Minkos et al. (2018), and Faraji et al. (2019), which all demonstrated changes in internalizing and/or externalizing behaviors after a mindfulness intervention.

The results from the study lend way to possibly working as a preventative program. Students with differing anxiety levels can participate in this intervention and find meaningful differences in how they experience anxiety in everyday life; if used appropriately, children can learn how to self-regulate in healthy ways where they can perform better in school and in social relationships. Another interesting aspect was that one participant experienced more anxiety during the intervention but felt that they were better able to handle their anxiety symptoms. I noticed that the participant who had the more severe anxiety symptoms (P4) had the largest increase in anxiety symptoms. The cause for this is unknown, but in their interview and on their self-monitoring form, they said there were in several anxiety-producing situations, though not all were recorded on the self-monitoring form. This may have led to an increase in what their parent observed, which may have led to a lower score on the Flex Monitor form. However, both the participant and their parent felt that they were better able to manage their anxiety symptoms after the intervention and found the breathing and sensory techniques helpful. The effect size indicated there was a change in the opposite direction of what was hypothesized. Individual differences may be a reason for this change.

Participant interviews noted that in general, the mindfulness techniques were helpful in reducing anxiety symptoms, with the breathing technique being the most popular. The participants noted that it was easier to implement and faster; only one participant noted that they preferred the grounding technique over the breathing technique. There were several situations where the techniques were not effective, and a common theme I found was that the techniques were not as effective when the participants felt as if they had no control over the situation, as with the checking behaviors, fear about others' perceptions of them such as at sporting events, and when becoming frustrated about other peoples' behaviors and/or actions. The techniques were very effective when dealing with fear and headaches, according to the participants.

There appears to be meaningful social validity to the techniques; most of the participants indicated that they would continue to use the techniques to relieve anxiety symptoms, and they would recommend the techniques to others. The participants all noted that they struggled with anxiety for different reasons, whether it was for exams, sport events, or asking for help in public. Most participants noted that the techniques helped some with managing anxiety symptoms, though they were not always effective in all situations. The participants struggled with normal levels of anxiety and found some relief when needed, but their anxiety levels did not match those from reviewed studies who suffered clinical levels of anxiety. This is important to note because if students are placed in a preventative mindfulness intervention such as the one in this study, they can learn to manage their anxiety in a healthy way before their anxiety reaches clinical levels. Parents also seemed to think that the techniques helped, though the way they helped were depended on the individual child. One parent believed it helped a lot with anxious

behaviors, while another did not see a change; however, there was a difference in openness to new situations.

The participants used the vocabulary that was reviewed regarding anxious symptoms during the second session consistently in the self-monitoring forms. This suggests that the students were more aware of what they were experiencing in these episodes and had adequate language to describe what they felt. When instructed to engage in mindful techniques to compete with anxious behaviors as per HRD, the participants noted changes in their anxious symptoms. The participants continued to use the vocabulary they learned in the anxiety session throughout the two-week self-monitoring period and in the interviews. This can be very helpful, as the participants will be able to continue to use the language they learned to help not only themselves, but other people they know as well.

Regarding length and number of sessions, the participants appeared to grasp the concept of mindfulness and how to counteract anxiety symptoms in two brief sessions. While the level of accurate implementation of the strategies during self-monitoring is unknown, the participants noted differences in anxious behaviors before and after implementing the techniques themselves. Based on their usage of the techniques and their reports on how it helped, the two teaching sessions seem adequate for basic mindfulness instruction. The research conducted by Johnson et al. (2013) and Hutchinson et al. (2018) support using a brief intervention to help increase self-regulation, mindfulness, and decrease internalizing behaviors. The seven participants in my study felt that they were better able to manage their anxiety symptoms after two sessions, indicating that a small

number of sessions teaching mindfulness exercises to minimize anxiety can be effective, even in a virtual environment.

Based on the results from the self-monitoring and interview data, I believe that this study was an informative first step and shows the positive potential of establishing a brief mindfulness program for middle school-aged children. While that same effect was not seen in the Flex Monitor forms, the children themselves seemed to believe that the mindfulness techniques were helpful in relieving anxiety symptoms. The parents also thought the intervention was helpful with anxious symptoms in their children, although the Flex Monitor form rating results do not consistently agree with these observations. Further exploration of using a brief mindfulness program can determine if these techniques would be useful for preventative programs; if used in schools, the intervention can be a helpful preliminary step in introducing techniques to self-regulate not only anxiety, but also anger, as observed in P6 and P7's self-monitoring form. If children can learn to regulate their own emotions, that can lead to a variety of positive outcomes, such as improved relationships with others and improved attitudes about school.

Limitations

There are several limitations to this study. First, the sample size was very small and this limits the generalizability of the results. Second, not all participants completed each section of the study. Third, due to the nature of the virtual intervention, I could not verify if the participants accurately engaged in the mindfulness practices during the self-monitoring phase and integrity checks could not be performed regarding the accurate implementation of the techniques themselves. For example, the sensory exercise followed

a series of steps, and I was not able to observe the participants and whether they followed the series of steps or not. I also could not determine if the participants were correctly implementing the mindfulness component of the techniques, including conscious exploration of the breath and the senses. Finally, due to the average level of anxiety symptoms displayed by the participants, ceiling effects may have hindered significant growth in relieving anxious symptoms. There was also a negative effect size for the group, however the reason for the negative direction of growth is unknown. It should be noted that the way I created this Flex Monitor form was to make average scores higher and more significant scores lower; to avoid future confusion, maintaining congruence with the BASC-3 would be a more appropriate way to understand the scores for people more familiar with the existing layout.

Implications for Future Research

Studies that take place in-vitro could potentially be more effective than virtual practices, as learning and practice would take place where the facilitators could better observe the participants' progress and ensure treatment integrity. Larger studies taking place in school settings could also allow for a larger group of students to benefit from the intervention. Studies could focus on differences between age groups, genders, or regional status; are there differences in mindfulness acceptance between different high schoolers and middle schoolers, or between income classes? Focusing on more specific demographic data could help identify potential groups who would be more willing to participate. Furthermore, the group who participated in this study did not experience clinical levels of anxiety. This study could be replicated with children diagnosed with

anxiety disorders or other psychological disorders; this way, there would be no ceiling effects that would hinder growth and improvement.

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APPENDICES

Appendix A

IRB Approval Letter

IRB
INSTITUTIONAL REVIEW BOARD
 Office of Research Compliance,
 010A Sam Ingram Building,
 2269 Middle Tennessee Blvd
 Murfreesboro, TN 37129
 FWA: 00056331/IRB Reg#: 0003571

MIDDLE
TENNESSEE
 STATE UNIVERSITY

IRBN001 - EXPEDITED PROTOCOL APPROVAL NOTICE

Thursday, March 18, 2021

Protocol Title **The Impact of a Brief Mindfulness Program with a Small Group of Middle School Students**

Protocol ID **21-2112 7qv**

Principal Investigator **Morgan Reavis (Student)**

Faculty Advisor **Monica Wallace**

Co-Investigators **NONE**

Investigator Email(s) **mar7p@mtmail.mtsu.edu; monica.wallace@mtsu.edu**

Department **Psychology**

Funding **NONE**

Dear Investigator(s),

The above identified research proposal has been reviewed by the MTSU IRB through the **EXPEDITED** mechanism under 45 CFR 46.110 and 21 CFR 56.110 within the category (7) *Research on individual or group characteristics or behavior*. A summary of the IRB action is tabulated below:

IRB Action	APPROVED for ONE YEAR		
Date of Expiration	3/31/2022	Date of Approval: 3/17/21	Recent Amendment: NONE
Sample Size	FIVE (5)		
Participant Pool	Target Population 1: Primary Classification: General Minors between 13 to 14 years of age Specific Classification: Experience Symptoms of Anxiety Target Population 2: Primary Classification: Adults (18 years or older) Specific Classification: Parent of Target Population 1		
Type of Interaction	<input type="checkbox"/> Non-interventional or Data Analysis <input checked="" type="checkbox"/> Virtual/Remote/Online interaction <input type="checkbox"/> In person or physical interaction – Mandatory COVID-19 Management		
Exceptions	1. Contact information is allowed to conduct this research. 2. Online parental consent and child assent are permitted. 3. Virtual observation and data collection from minors are approved.		
Restrictions	1. Mandatory ACTIVE Informed Consent and Child Assent. 2. Other than the exceptions above, identifiable data/artifacts, such as, audio/video data, photographs, handwriting samples, personal address, driving records, social security number, and etc., MUST NOT be collected. Recorded identifiable information must be deidentified as described in the protocol. 3. Mandatory Final report (refer last page).		
Approved Templates	IRB Templates: Parental Consent and Child Assent Templates Non-MTSU Templates: Recruitment Email		
Research Inducement	NONE		
Comments	NONE		

Post-approval Requirements

The PI and FA must read and abide by the post-approval conditions (Refer "Quick Links" in the bottom):

- **Reporting Adverse Events:** The PI must report research-related adversities suffered by the participants, deviations from the protocol, misconduct, and etc., within 48 hours from when they were discovered.
- **Final Report:** The FA is responsible for submitting a final report to close-out this protocol before **3/31/2022** (Refer to the **Continuing Review** section below); **REMINDERS WILL NOT BE SENT**. Failure to close-out or request for a continuing review may result in penalties including cancellation of the data collected using this protocol and/or withholding student diploma.
- **Protocol Amendments:** An IRB approval must be obtained for all types of amendments, such as: addition/removal of subject population or investigating team; sample size increases; changes to the research sites (appropriate permission letter(s) may be needed); alternation to funding; and etc. The proposed amendments must be requested by the FA in an addendum request form. The proposed changes must be consistent with the approval category and they must comply with expedited review requirements.
- **Research Participant Compensation:** Compensation for research participation must be awarded as proposed in Chapter 6 of the Expedited protocol. The documentation of the monetary compensation must Appendix J and MUST NOT include protocol details when reporting to the MTSU Business Office.
- **COVID-19:** Regardless whether this study poses a threat to the participants or not, refer to the COVID-19 Management section for important information for the FA.

Continuing Review (The PI has requested early termination)

Although this protocol can be continued for up to THREE years, The PI has opted to end the study by **3/31/2022**. The PI must close-out this protocol by submitting a final report before **3/31/2022**. Failure to close-out may result in penalties that include cancellation of the data collected using this protocol and delays in graduation of the student PI.

Post-approval Protocol Amendments:

The current MTSU IRB policies allow the investigators to implement minor and significant amendments that would fit within this approval category. **Only TWO procedural amendments will be entertained per year** (changes like addition/removal of research personnel are not restricted by this rule).

Date	Amendment(s)	IRB Comments
NONE	NONE	NONE

Other Post-approval Actions:

The following actions are done subsequent to the approval of this protocol on request by the PI/FA or on recommendation by the IRB or by both.

Date	IRB Action(s)	IRB Comments
NONE	NONE	NONE

COVID-19 Management:

The PI must follow social distancing guidelines and other practices to avoid viral exposure to the participants and other workers when physical contact with the subjects is made during the study.

- The study must be stopped if a participant or an investigator should test positive for COVID-19 within 14 days of the research interaction. This must be reported to the IRB as an "adverse event."
- The MTSU's "Return-to-work" questionnaire found in Pipeline must be filled by the investigators on the day of the research interaction prior to physical contact.
- PPE must be worn if the participant would be within 6 feet from the each other or with an investigator.
- Physical surfaces that will come in contact with the participants must be sanitized between use
- **FA's Responsibility:** The FA is given the administrative authority to make emergency changes to protect the wellbeing of the participants and student researchers during the COVID-19 pandemic. However, the FA must notify the IRB after such changes have been made. The IRB will audit the changes at a later date and the FA will be instructed to carryout remedial measures if needed.

Data Management & Storage:

All research-related records (signed consent forms, investigator training and etc.) must be retained by the PI or the faculty advisor (if the PI is a student) at the secure location mentioned in the protocol application. The data must be stored for at least three (3) years after the study is closed. Additional Tennessee State

data retention requirement may apply (refer "Quick Links" for MTSU policy 129 below). The data may be destroyed in a manner that maintains confidentiality and anonymity of the research subjects.

The MTSU IRB reserves the right to modify/update the approval criteria or change/cancel the terms listed in this letter without prior notice. Be advised that IRB also reserves the right to inspect or audit your records if needed.

Sincerely,

Institutional Review Board
Middle Tennessee State University

Quick Links:

- Post-approval Responsibilities: <http://www.mtsu.edu/irb/FAQ/PostApprovalResponsibilities.php>
- Expedited Procedures: <https://mtsu.edu/irb/expedited/procedures.php>
- MTSU Policy 129: Records retention & Disposal: <https://www.mtsu.edu/policies/general/129.php>

Appendix B

Session Checklists

Session one.

- Mindfulness was introduced to small group of participants. This included what mindfulness is, the purpose of mindfulness, and how it can be implemented in everyday life.
- The first activity, “Mindful Minutes,” was administered. Proper breathing techniques were demonstrated.
- A brief discussion followed the mediation (“What did you think of that? How do you feel now?”)
- The second activity, the variation of the “Raisin Meditation,” was implemented. The participants had the choice between two nearby objects, preferably a food item and a non-food item. The activity was repeated twice to promote generalization. A brief discussion followed the mediation (“What did you think of that? How do you feel now?”)

Session two.

- The session began with a brief review of mindfulness and the techniques.
- Anxiety, its symptoms, and what it is was discussed with the students. I modeled and discussed some anxiety symptoms, including some things that may be said or thought and physical symptoms. The discussion of anxiety symptoms followed closely with what was identified on the Flex Monitor forms.

- The participants were asked to identify and acknowledge their own anxious behaviors and what potential antecedents could be occurring in the small group.
- The participants were coached on how to implement the mindful meditations following HRD. I modeled what I may look like if anxious, then modeled implementing a meditation technique.
- The students were asked to practice implementing the mindfulness techniques in the session through role-playing. I prompted with an anxiety-producing scenario, then allowed the participants to practice the mindfulness techniques of their choosing to help reduce the symptoms.
- After the training, I taught the students to record when they felt anxious and when they used the mindfulness techniques on a form. The students provided descriptions of when they felt anxious, why they felt anxious, and when they practiced the techniques.

Post-intervention.

- The parents will be given another Flex Monitor scale to determine any changes in observable anxiety symptoms in the participants.
- The session will take place two weeks after the second session.
- The self-monitoring forms will be collected upon the beginning of the individual sessions with the students via email and/or text.
- The participants will be interviewed about their implementation of the mindfulness techniques; I will record their responses on paper during the interviews.

- Two weeks after the third session, the students' parents will be contacted and asked if they continue to use the mindfulness techniques

Appendix C

Copy of CAMM

Child and Adolescent Mindfulness Measure (CAMM)

We want to know more about what you think, how you feel, and what you do. **Read** each sentence. Then, circle the number that tells how often each sentence is true for you.

	Never True	Rarely True	Sometimes True	Often True	Always True
1. I get upset with myself for having feelings that don't make sense.	0	1	2	3	4
2. At school, I walk from class to class without noticing what I'm doing.	0	1	2	3	4
3. I keep myself busy so I don't notice my thoughts or feelings.	0	1	2	3	4
4. I tell myself that I shouldn't feel the way I'm feeling.	0	1	2	3	4
5. I push away thoughts that I don't like.	0	1	2	3	4
6. It's hard for me to pay attention to only one thing at a time.	0	1	2	3	4
7. I get upset with myself for having certain thoughts.	0	1	2	3	4
8. I think about things that have happened in the past instead of thinking about things that are happening right now.	0	1	2	3	4
9. I think that some of my feelings are bad and that I shouldn't have them.	0	1	2	3	4
10. I stop myself from having feelings that I don't like.	0	1	2	3	4

Appendix D

Written permission to use the CAMM by the lead author, Dr. Laurie Greco

Greco, Laurie <Laurie.Greco@osumc.edu>


Tue 7/14/2020 4:24 PM

To: Morgan Reavis

Hi Morgan,

Thank you for your interest in our measure. Please feel free to use it in your work.

Laurie

The Ohio State University Wexner Medical Center

Laurie Greco, Ph.D.

Assistant Professor - Clinical Faculty

Director of Psychology Fellowship Training Program

Department of Family and Community Medicine

Rardin 242, 2231 North High Street, Columbus, OH, 43201

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laurie.greco@osumc.edu

Appendix E

Mindfulness PowerPoint Presentation



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Appendix F

Mindful Minutes Meditation

Esat, G., Smith, B., Rizvi, S., & Smoots, K. (2019). Mindfulness Practices to Enhance Hedonic and Eduemonic Well-Being. *National Association of School Psychology Conference*. Atlanta.

Let's make ourselves comfortable. Please close your eyes, try to follow my gentle instructions. (2-3 second pause)

If you'd like, you can explore your breath very curiously, like you were breathing the very first time through your lungs, as if you were a newborn baby. The first breath is a very interesting experience. You are curious about this new sensation of air filling your lungs. So the next few minutes you will feel, observe, and notice your breath as it happens. (5 second pause)

If you rest your hands gently on your belly, you can notice the feeling of your hands touching your belly. As you breathe in, what do you feel happening to your hands? (2-3 second pause)

Do you feel them rising or being pushed out? And when you let your breath out, what happens now? (2-3 second pause)

Your hands don't move on their own, they just smoothly go up and down with your breath. (2-3 second pause)

Now, if you could move your focus to the part of your nose where the air enters your body, right inside your nose, your nostrils; you may feel the air touching inside your nostrils as it enters. How does it feel? Is it cool or warm going in? (2-3 second pause)

Then, when it goes out, does it feel the same? Is the air coming from your lungs and belly a bit warmer now? (2-3 second pause)

Let's pretend that you see the cool air as it enters through your nose. You may see it as a fresh, cool color, like blue or green. (2-3 second pause)

And you could feel the fresh feeling in you as the oxygen feeds your mind and body, and gives you a type of cool energy. When the air touches your nostrils on the way out, you can imagine it as a warm color. (2-3 second pause)

Breath in cool (2-3 second pause), breath out warm (2-3 second pause)

Watch the colors as you breathe in and out. (5 second pause)

Now, please take a moment to appreciate your breath, that you can do it all the time. (5 second pause)

You might want to express your gratitude in whichever way your spirituality tells you to do so. That you are very grateful for being alive. (5-6 second pause)

Let's take one, or two, or three more deep breaths and open your eyes wide awake and ready to go on with your life being fully aware of your cool energy.

Appendix G

A Variation of the “Raisin Meditation” found in Hooker and Fodor, 2008

Bring your attention to the [object], observing it carefully as if you had never seen one before. Pick up one [object] and feel its texture between your fingers and notice its colors. Be aware of any thoughts you might be having about the [object]. Note any thoughts or feelings of liking or disliking [objects] if they come up while you are looking at it. Then lift the [object] to your nose and smell it for a while and finally, with awareness, bring it to your lips, being aware of the arm moving the hand to position it correctly [and of your mouth salivating as the mind and body anticipate eating]. [Take the object into your mouth and chew it slowly, experiencing the actual taste. Hold it in your mouth]/against your mouth. [When you feel ready to swallow, watch the impulse to swallow as it comes up, so that even that is experienced consciously]/Remove the object from against your lips and put it back on the table. When you are ready, pick up the second [object] and repeat this process, with a new [object], as if it is now the first [object] you have ever seen.

**Will be adapted depending on objects used*

Appendix H

Written permission to use “Mindful Minutes” meditation from the University of Houston

Yoga and Mindfulness Lab

Esat, Gulden <gesat@Central.UH.EDU>

Wed 10/16/2019 12:29 PM

Morgan Reavis; Syed Rizvi <syedarizvi134@gmail.com> ✉



Hi Morgan,

You can use all of the meditations we provided in the NASP training.

As far as disruptive behavior goes, I am not familiar with the research on that, because I mainly work with college students.

However, I would be happy to give you feedback on your curriculum after you put it together.

Good luck with your thesis.

Best

Gulden

Gulden Esat, M.Ed.

Doctoral Student

School Psychology

Department of Psychological, Health, & Learning Sciences

University of Houston

A Carnegie-Designated Tier One Public Research University

Appendix I

Anxiety PowerPoint Presentation



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Appendix K

List of Interview Questions (Session Three)

1. How frequently did you feel anxious during the two-week session?
2. How consistently did you implement the mindfulness techniques when you felt anxious?
3. Do you think the techniques were effective? Did they help calm down the symptoms you felt?
4. Do you have a technique you prefer over the other?
5. Do you think you will continue to use these techniques in the future to help with anxiety?
6. Would you recommend these techniques to anyone you know?

Appendix L

Figure 1

Differences in Pretest and Posttest Scores on the BASC-3 Flex Monitor Form

