

MINDFULNESS FOR THE REDUCTION OF ANXIETY, STRESS, AND DEPRESSION IN
THE PRESERVICE TEACHER COMMUNITY

by

Shelley R. Crampton

Liberty University

A Dissertation Presented in Partial Fulfillment of the Requirements for the Degree

Doctor of Education School of Behavioral Sciences

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Abstract

Teachers and students alike suffer from anxiety, stress, and depression. Mindfulness-based strategies have been indicated to help teachers and students deal with stress, anxiety, and depression. Teachers often report not wishing to add more learning strategies to their packed schedules and workload. Education in mindfulness is not easily accessible due to the time constraints of this overworked population. The criteria for participation in the study required the college students in preservice education classes to be over 18 years old, enrolled in the teacher education program, and not have participated in any mindfulness in the last six months. The study is a quantitative pretest posttest design and included 10 participants who completed the pretest, intervention, and posttest. The data was collected via the website Mindful Teacher and included a link to the intervention, Palouse Mindfulness. Palouse Mindfulness is a mindfulness-based stress reduction (MBSR) program. The data was collected, screened, and then analyzed using a paired sample *t*-test and noted, after analysis using SPSS, a reduction in the posttest scores on the depression, anxiety, and stress scales (DASS-21) after using the MBSR intervention. The factors of anxiety, stress, and depression have been associated as being significant factors in burnout as well as overall teacher health. Hopefully, MBSR could be a valuable technique for better mental health in teachers and those entering the profession.

Keywords: teaching, mindfulness, teacher education, burnout

Dedication

This dissertation is dedicated to my children Holden and Gracie; it is never too late to try to do what you love. You are my inspiration, and you can also do some great impressions.

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I cannot say thank you enough to Dr. Pamela Moore for her patience, feedback, and overall encouragement to complete this research. You have done your job exceedingly well and made it easy, tolerable, and even fun at times. Also, I would like to thank Dr. Townsend for his kind words and encouragement. I would also like to acknowledge Dr. James Snowden, who every single time I saw him, told me I could do it. And you were correct sir, I did. Thank you for being so helpful and getting me started and reminding me to finish!

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Table of Contents

Abstract	3
Dedication	4
Acknowledgments.....	5
List of Tables	10
List of Figures.....	11
List of Abbreviations	12
CHAPTER ONE: INTRODUCTION.....	13
Overview.....	13
Background.....	13
Teacher Burnout.....	13
Role of Mindfulness.....	14
Historical Context	16
Conceptual and Theoretical Context.....	19
Polyvagal Theory	20
Problem Statement	21
Purpose Statement.....	22
Significance of the Study	22
Research Questions.....	23
Definitions.....	24
Summary	24
CHAPTER TWO: LITERATURE REVIEW	25
Overview.....	25
Conceptual and Theoretical Framework.....	25
Mindfulness and Metacognition	25

Resilience	26
Polyvagal Theory	28
Palouse Mindfulness	28
Types of Mindfulness Strategies Included in Palouse Mindfulness	29
Related Literature.....	30
Pregnant Women.....	30
Cancer Patients.....	30
Life Satisfaction	31
Spectrum Disorders.....	32
Children and Mindfulness.....	33
Adolescents and Mindfulness	34
Physical Improvements in Health	35
Neurobiology of Mindfulness	36
Preservice Education Students	38
Mindfulness and Teachers	39
Critical Evaluation of Mindfulness in Schools	43
The Gap in Literature.....	44
Summary	45
CHAPTER THREE: METHODS	47
Overview.....	47
Design	47
Research Question(s)	48
Hypotheses.....	48
Participants and Setting.....	48
Instrumentation	51

Procedures.....	51
Data Analysis.....	52
Summary.....	53
CHAPTER FOUR: FINDINGS.....	54
Overview.....	54
Descriptive Statistics.....	54
Results.....	56
Data Screening.....	56
Research Questions.....	60
Hypothesis One.....	60
Hypothesis Two.....	63
Hypothesis Three.....	66
Summary.....	69
CHAPTER FIVE: CONCLUSIONS.....	70
Overview.....	70
Discussion.....	70
Research Question One.....	70
Research Question Two.....	71
Research Question Three.....	71
Implications.....	72
Limitations.....	73
Recommendations for Future Research.....	74
Summary.....	74

REFERENCES	75
Appendix A Mindfulness for the Reduction of Stress, Anxiety, and Depression in the Preservice Teacher Community	90
Appendix B Consent Form	92
Appendix C DASS-21.....	95
Appendix D Site Permission.....	96

List of Tables

Table 1 Descriptive Statistics of Study Variables: $N = 10$	55
Table 2 Scale Reliabilities for the Study Measures	56
Table 3 Paired Samples Effect Sizes	60
Table 4 Paired Sample Tests.....	63

List of Figures

Figure 1 G Power Figure.....	50
Figure 2 Pre and Postintervention Mean Differences for Depression, Anxiety and Stress	55
Figure 3 1-D Boxplot of Anxiety (Pre).....	57
Figure 4 1-D Boxplot of Anxiety (Post)	57
Figure 5 1-D Boxplot of Stress (Pre)	58
Figure 6 1-D Boxplot of Stress (Post).....	58
Figure 7 1-D Boxplot of Depression (Pre).....	59
Figure 8 1-D Boxplot of Depression (Post)	59
Figure 9 Simple Histogram of Anxiety (Pre).....	61
Figure 10 Simple Histogram of Anxiety (Post)	62
Figure 11 Simple Histogram of Stress (Pre).....	65
Figure 12 Simple Histogram of Stress (Post)	66
Figure 13 Simple Histogram of Depression (Pre).....	68
Figure 14 Simple Histogram of Depression (Post).....	68

List of Abbreviations

ASD	Autism Spectrum Disorder
DASS-21	Depression Anxiety Stress Scales a 21 question evaluation
MBI	Mindfulness-Based Interventions
MBSR	Mindfulness-Based Stress Reduction

CHAPTER ONE: INTRODUCTION

Overview

In one Gallup poll, 44% of K–12 teachers reported feeling “always” or “very often burned out” at work. This statistic demonstrates K–12 teachers as the most burned-out professionals in the U.S. workforce, with college or university professors as the second highest at 35%, and those rates are followed by government workers and those in healthcare (Marken & Agrawal, 2022). Education includes all the most burned-out populations in America. Mindfulness has been shown to relieve some elements that contribute to burnout such as depression, stress, and anxiety (Golonka et al., 2019). Mindfulness strategies have been suggested and often pushed in the educational system in recent years (McRobbie, 2021). There has been ample research on the use of mindfulness with children, adolescents, and those already in the classroom, but little mindfulness research has so far been conducted in the preservice teacher population. It is imperative to look into how the concept of mindfulness has transformed over the years and how mindfulness strategies have been implemented in schools with teachers, students, and other populations. Studying the neurobiology of mindfulness helps inform mindfulness-based strategies for use, especially within the preservice teacher population. Mindfulness based strategies have been suggested for teachers and students alike (Brown, 2017).

Background

Teacher Burnout

Berger (2022) suggested the burnout rate could be as high as 52% of teachers ready to leave the profession. Though it is difficult to find the exact cause of this burnout, some of the reasons identified are elevated behavioral issues, lack of resources, excess paperwork, an overall lack of pay, elevated stress, anxiety, and depression (Kamentz, 2022).

Scholars showed that significant overlap occurs between burnout and symptoms of depression, anxiety, and stress (Golonka et al., 2019). Depression, anxiety, and stress display symptoms similar to those found in burnout, which has been defined as emotional exhaustion and can arise in many occupational contexts (Golonka et al., 2019). Burnout can be seen in all professions, and mindfulness practices have decreased emotional exhaustion and improved mood and stress in physicians (Malik & Annabi, 2022). Mindful practices also help people learn to self-regulate, develop awareness, and be present (Siegel, 2018).

Role of Mindfulness

With K–12 teachers considered the most burned-out workers in America, citing school shootings, lack of pay, Covid protocols, and overall stress as the factors, finding a solution to managing the emotional aspects and developing a way to deal with these stressors is an imminent problem (Berger, 2022). Because teachers are among the most burned-out workers in America, it would be beneficial to alleviate some of these symptoms by addressing the factors that often lead to burnout (Marken & Agrawal, 2022). Mindfulness strategies have been shown to effectively reduce behavioral issues and decrease anxiety in adolescents in the classroom (Johnstone et al., 2020). Studies suggested that teachers who reported high levels of intrapersonal mindfulness had reduced risk of burnout. Some research also indicated that mindfulness-based stress reduction (MBSR) is associated with better physical and psychosocial health for K–12 teachers and students. In one study, Appalachian teachers were studied and indicated the higher the intrapersonal mindfulness scores, the lower the risk for burnout and secondary traumatic stress (Green, 2022).

In a study by Wigelsworth and Quinn (2020), the teachers acknowledged a need for mindfulness-based interventions (MBIs). However, they did not seem to understand the concept

of resilience for themselves and their students. While most agreed the interventions would promote a more positive environment and decrease stress levels in teachers and students, they also recognized a few problems with implementation, including student engagement, lack of time and space, and lack of knowledge on the subject (Wigelsworth & Quinn, 2020). The researcher's expectation is that teachers would be more likely to use mindfulness-based interventions if they experience those interventions directly. The studies suggest that teachers would be more likely to use interventions if they had a more extensive knowledge base (Klingbeil & Renshaw, 2018; Wigelsworth & Quinn, 2020). Teacher stress is tied to greater absenteeism, lower classroom scores, lower personal accomplishment, and lower life satisfaction (Embse et al., 2019) These circumstances can all contribute to teacher burnout, which suggests that, at the very least, mindfulness could be an option to help combat burnout (Embse et al., 2019). Mindfulness has been shown to decrease the stress associated with burnout (Embse et al., 2019). The definition of mindfulness varies but adheres to the basic principles of focused attention, open awareness, and kind intention (Siegel, 2018). These characteristics are incorporated into most mindfulness techniques, including calmness and gratitude (Sutton, 2022). Mindfulness as a therapy is an exciting prospect that has gained popularity and interest in the psychological and neurological community (Van Dam et al., 2018). Mindfulness strategies come in various forms and modalities, one avenue for understanding MBSR is a free website called Palouse Mindfulness, <http://palousemindfulness.com>. The characteristics found in this website serve as a guide to implementing and using MBSR. Several studies have shown that mindfulness is effective in treating depression, anxiety, and stress reduction (Zimmer-Gembeck et al., 2021). One significant facet of mindfulness is building a more resilient mindset, changing a person's relationship with pain and discomfort, and enhancing meaningful life experiences (Lewis, 1989;

Shapiro, 2020). The use of mindfulness has been shown to reduce stress and rewire the brain to a more regulated state of being (Goh, 2020).

Another essential aspect of mindfulness that facilitates resilience is learning to respond positively to difficult emotions and sensations (Janssen et al., 2018; Trousselard, 2014).

Resilience can be defined as a person's ability to overcome life circumstances. Counselors have found that awareness, meditation, being intentional, and living in the present moment are beneficial assets to those who struggle with various mental illnesses (Crego et al., 2021).

Resilience seems to facilitate and sustain positive changes in brain functioning (Kwak et al., 2019). Mindfulness has been shown to positively affect the neural changes that foster resilience (Kwak et al., 2019). Knowledge of the historical context and background of mindfulness is essential when evaluating whether and why mindfulness is a necessary treatment in a given situation.

Historical Context

Mindfulness is a concept and practice that has been around for many years. The idea is believed to have originated with Indian and Tibetan Buddhist monks and Japanese Zen meditators in the mid-19th century (Nisbet, 2017; Sun, 2014; Wilson, 2014). The word mindfulness seemed to have been predated by some sources before Buddhism and Hindu practices and was viewed initially in Christianity as spiritually mindful of God's presence (Aitken, 2013). The term is closely linked to gratitude and being continually aware and thankful to God (Grymeston, 1992). Trousselard (2014) argued that mindfulness cannot be reduced to Hinduism and Buddhism but has direct ties to Christianity, Islam, and Judaism. There is also a connection to mindfulness from a Christian perspective (Aitken, 2013).

Aitken (2013) noted that Christianity has used mindfulness and meditation practices as far back as the 13th century, which would point to Christians developing the practice before the monks. Christians who practice mindful approaches state that it helps to slow down and engage with and enjoy the presence of God and focus more on His beauty (Aitken, 2013). The process for this type of mindfulness includes imagery of God and other peaceful images. It can also include viewing nature as God's beautiful creation and focusing the mind on these images to bring a sense of peace. Being in the present moment and being aware is not a particularly religious idea but can also be thought of in a spiritual context (Moore, 2019). Mindfulness is not only a practice of the mind in theory alone; it also demonstrates its efficacy in improving mental and physical health, as well as cognition (Moore, 2019). The goal is to merge one's religious beliefs with science that supports mindfulness as a valuable tool for healing and personal/spiritual growth (Kabat-Zinn, 2011). The use of mindfulness in all religious aspects illustrates its diversity for any spiritual application.

Mindfulness uses thought and intention to cultivate awareness to overcome stress and pain in the body and the mind (Kabat-Zinn, 2013). The practice did not emerge in the United States until the 1960s when reforms to immigration policies allowed many Asians to emigrate. These immigrants brought these customs in various forms with them during this decade of immigration.

Jack Kornfield, Joseph Goldstein, and Sharon Salzberg founded the Insight Meditation Center in Barre, Massachusetts (Wilson, 2014). Jeff Wilson (2014) of the University of British Columbia noted that the American movement integrated more Western ideas and downplayed the views of chanting and focused more on meditation, mindfulness, and combining those with psychology and psychotherapy. The concept of mindfulness has spiritual as well as physical

benefits. Mindfulness training is not about avoiding bad or negative feelings but learning to face and deal with those feelings and thoughts in a nonjudgmental way (Moore, 2019). The goal has always been to train the mind to not be as emotionally reactive to the events in daily life (Kabat-Zinn, 2013).

Dr. Kabat-Zinn is considered the most prominent source for the reinvention of mindfulness and started an institute to study and develop the practice for the everyday person interested in meditation. Kabat Zinn has a doctorate in molecular biology and is an avid meditator who learned the earlier work of the Monks (Nisbet, 2017). He found the applications of mindfulness to be highly beneficial in all aspects of life and not limited to the spiritual application (Moore, 2019). Mindfulness has evolved from a spiritual practice of Hinduism and Buddhism through yoga to its use in mindfulness-based clinical applications. Dr. Kabat-Zinn was interested in how mindfulness could affect stress and other medical issues. He studied mindfulness for years and was interested in self-observation and a deeper understanding of self-awareness. He admired the works of Ven Nyanponika Theran and Thich Nhat Hanh and their commitments to meditation and other mindful practices (Trousselard, 2014). Kabat-Zinn wanted to secularize the tradition and make it more accessible to the public. He did this by reforming the more spiritual components and making the methods shorter in duration than the previous week and month-long retreats (Nisbet, 2017). He also sought to make the language easier to understand and develop a system for medicine and psychology. He initially used mindfulness strategies to treat patients in a chronic pain unit who were not responding to pain medication.

In 1979, studies from leading universities released research that backed his theory about mindfulness as a therapy and pain reduction strategy. Kabat-Zinn wrote *Full Catastrophe Living* nine years after he developed the Stress Reduction Clinic (Kabat-Zinn, 2011). This book is

considered the guidebook for modern mindfulness application. The research validated the efficacy of the treatment (Kabat-Zinn, 1990). He is known as the man who fostered the current movement of mindfulness techniques in psychology (Trousselard, 2014).

The mindful revolution has included a more simplified version of the spiritual practice (Nisbet, 2017). Some scholars believe that the transformation of mindfulness was necessary for its acceptance as a secular practice (Sun, 2014). The use of mindfulness has its roots in traditions of other religions, chanting, and cosmology (Wilson, 2014). Kabat-Zinn shortened the meditations and designed the practice to fit Western culture (Nisbet, 2017). Mindfulness within the current social context has been touted as the one-size-fits-all practice for everything from improving test scores to transforming into a happier life (Sun, 2014). This overselling has brought both applause and criticism in equal measure. Thus, scientific and academic studies were and are needed to decide the efficacy of the use of mindful approaches to treatment. Kabat-Zinn (2011) transformed mindfulness from a spiritual practice to a more medical practice.

Conceptual and Theoretical Context

MBSR programs emphasize finding comfort and relief for physical and emotional pain by learning to be more aware (Siegel, 2018). Mindfulness techniques underline the concept of being more aware of the body and its relationship to pain and trauma (Kabat-Zinn, 2013). The modern psychological movement, especially regarding trauma and psychological conditions, acknowledges and focuses on the relationship between mind and body. Pain is often stored in the body, and there needs to be an element of the treatment of the body to pursue and find healing for various traumas and stresses (van der Kolk, 2015). Newer studies suggest that for effective stress relief, the client and clinician must address the issues within the body and the cognitive issues involved in trauma and mental illnesses (van der Kolk, 2015).

Some studies suggest mindfulness is an effective form of treatment in addressing the interplay between the body and mind (Krusche et al., 2013). Mindfulness was not viewed initially as a medical treatment; for this reason, it has been imperative to find scientific data to support the efficacy of this treatment (Davidson & Dahl, 2018). The key aspects of mindfulness allow a person to become more socially engaged, grounded, and able to heal (Carpenter et al., 2019). Mindfulness is thought to be an essential tool to achieve a homeostatic state and increase vagal tone (Porges & Dana, 2014). Increasing research shows mindfulness does produce positive outcomes; however, further research is needed to determine which populations can benefit from mindfulness-based therapies.

Polyvagal Theory

Mindfulness is used with many different psychological theories. One theory that espouses mindfulness as an effective therapy is the polyvagal theory by Stephen Porges. This theory addresses the nervous system as the conduit for healing. The notion of the theory is that the brain and body send signals back and forth, and once either mental illness or trauma damages the system, a person gets stuck in the sympathetic or dorsal vagal system rather than the socially engaged and balanced ventral vagal (Porges, 2021). The designs can be found in the vagus nerve, the nerve that runs from the base of the brain to the rest of the body. This nervous system disruption causes the person to go into a survival mode, including fight/flight (sympathetic vagal) or freeze, (dorsal vagal). When a person gets stuck in these systems, they are unable to engage and heal. The socially engaged nervous system (ventral vagal) requires the nervous system to function in a grounded and less reactive way (Porges & Dana, 2014). Mindfulness is a powerful tool to help people into homeostasis or a balanced and functioning nervous system (Siegel, 2018).

Problem Statement

The use of mindfulness as a point of intervention has been shown to decrease antidepressant use, lower anxiety levels, and reduce perceived stress levels (Embse et al., 2019; Krusche et al., 2013). Another study indicated mindfulness was as effective for treating anxiety as the antidepressant Lexapro with the subjects who had clinically diagnosed severe anxiety disorders. The same study indicated mindfulness was at least as effective and 30% more effective in some cases (Hoge et al., 2022). This is significant to show that mindfulness can be effective for the issues of stress, anxiety, and depression even when administered in various formats.

Research indicated that when students graduate and transition into the classroom, they often experience higher levels of depression and are more vulnerable to a decline in overall health (McClellan et al., 2017). The pandemic has also heightened the difficulties faced by this population (Roman, 2020). The COVID-19 protocols, illnesses, and even deaths have given teachers a new level of regard for mental health information (Roman, 2020).

There has been a rise in the stress levels of students and teachers alike (Bouchrika, 2022; Embse et al., 2019). Teachers are increasingly becoming more anxious, stressed, and depressed, requiring a solution to the mental health conditions resulting in burnout (Santamaria et al., 2021). Teachers have found themselves seeking to help students deal with the pandemic's disruption of the typical classroom experience while also personally experiencing the pandemic fallout, increased job duties, escalated behavioral issues, and lack of support in the classroom (Santamaria et al., 2021). It can be challenging to find a solution that can be both secular and educational simultaneously in public school settings (Hyland, 2016). The problem is that studies using mindfulness strategies with teachers in a college teacher education program are limited.

Purpose Statement

The goal of this study was to see if the scores on the DASS-21, which assess anxiety, stress, and depression, would decrease from pretest to posttest after using the MBSR intervention. The DASS-21 considers the aspects often associated with teacher burnout, such as stress, depression, and anxiety (McClellan et al., 2017). Many schools are pushing for more mindfulness training programs, and studies indicate that better classroom behaviors are associated with more mindfulness-based classrooms (Bakosh et al., 2016).

Many teachers have mixed feelings about the use of mindfulness in the classroom. Most studies indicate teachers can see the benefits but also lack the educational training and the time to address this issue (Wigelsworth & Quinn, 2020). The study sought to help teachers see mindfulness as effective and teach them that it can also be of value to them personally. Teachers might be more willing to use an approach they have already included in their own lives, especially if they see a reduction in their depression, anxiety, and stress levels. Results of a 10-item assessment using the Perceived Stress Scales showed positive weekly changes when medical students used mindfulness (Baer et al., 2012). Although several groups have been sampled in these mindfulness studies, there is a gap in the literature in that studies have yet to report sampling college students who aspire to become teachers. This present study sought to address that gap and, if the findings were significant, show the benefits of preparing teachers-to-be to carry more mindfulness practices into their classrooms as certified teachers.

Significance of the Study

The findings from this study can be beneficial to all learning environments, teachers in the classroom, students, and even those who seek to find a solution to the common issues of depression, anxiety, and stress. Existing literature supports mindfulness as a viable solution to

many mental health issues, and this study seeks to add to the populations for which mindfulness can be used. Another recent study showed the benefits of mindfulness in treating physician burnout (Malik & Annabi, 2022). This study assessed the value of mindfulness training for college students enrolled in the teacher's education curriculum.

The study added to the existing literature that supports the notion that mindfulness is a valuable tool for various populations. Students, people with autism spectrum disorders (ASD), teachers, Korean nursing students, occupational workers in the Netherlands, and even cancer patients, as well as other various other populations, have been studied and have shown success with MBIs (Amundsen et al., 2020; Bakosh et al., 2016; Dehgan et al., 2021; Himmelstein & Saul, 2015; Kraemer & McLeish, 2019; Nissen et al., 2020; Pagni et al., 2020; Song & Lindquist, 2015). Studying mindfulness-based interventions could be beneficial to those in the education program and the students they teach. One study showed when mindfulness is used in the classroom, children often display better classroom behaviors (Tobin, 2018).

Research Questions

RQ1: Will those who practiced Palouse Mindfulness have lower scores on the DASS-21 posttest for anxiety than on the pretest?

RQ2: Will those who practiced Palouse Mindfulness score lower on the DASS-21 posttest for stress than on the pretest?

RQ3: Will those who practiced Palouse Mindfulness have lower scores on the DASS-21 posttest for depression than the pretest?

Definitions

1. Anxiety: An anticipation of future doom, a physical and emotional reaction that triggers a response in the nervous system (American Psychological Association, 2022)
2. Depression: A mood disorder that causes emotional and physical disturbances with low energy, pervasive sadness, and lack of interest in pleasurable living (American Psychological Association, 2022).
3. Depression stress anxiety scales-21(DASS-21): This tool is a measurement that does not lend itself to an official diagnosis but shows “a categorical conception of a psychological disorder” (Lovibond & Lovibond, 1995, p. 2)
4. Mindfulness-based stress reduction: An 8-week intensive mindfulness training program for the reduction of stress (Kabat-Zinn, 2013).
5. Stress: Any change that produces an emotional or psychological strain (World Health Organization, 2022)

Summary

Resilience is a key component in combatting burnout (Janssen et al., 2018). Burnout is a significant issue in the teacher population, and mindfulness has been shown to reduce the factors contributing to burnout (Krusche et al., 2013). The goal of this study is to show mindfulness can reduce depression, anxiety, and stress scores among those entering the field of education.

CHAPTER TWO: LITERATURE REVIEW

Overview

Studies regarding mindfulness have been conducted using various populations. This study seeks to determine if some of the most stressed people, such as teachers and college students, could find these strategies beneficial. Research shows mindfulness is an effective strategy in treating addiction, pain management, stress among nursing students, teachers, and students in the classrooms.

Conceptual and Theoretical Framework

Mindfulness and Metacognition

Some studies, including Kudesia (2019), claimed mindfulness is a metacognitive process. The American Psychological Association (2022) defines metacognition as awareness of one's cognitive functions, often involving conscious attempts to control those processes. Mindfulness includes present awareness, meditation, and being intentional in thoughts and actions (Siegel, 2018). The proposed study will evaluate the literature to define mindfulness populations that have been studied, demonstrate the neurobiology of mindfulness strategies, and assess the impact on teachers and students already within the classroom.

Kudesia (2019) sought to compare two models of mindfulness in practice and how mindfulness cultivates resilience, defined as a person's ability to overcome a significant life event. The study's results suggest the process of metacognition is a valuable part of mindfulness. Kabat-Zinn (2013) presented mindfulness as an intentional thought process that includes metacognition which provides the framework of the practice and defines how it has become a tool practitioners use to treat various symptoms and illnesses. Those include reducing stress, anxiety, and depression. Over the last 55 years, mindfulness strategies have significantly

increased in the literature of psychiatric and psychological publications and other medical journals (Baminiwatta & Solangaarachchi, 2021). The literature points to mindfulness as an effective therapy, and the research has developed a following over the last few years (Baminiwatta & Solangaarachchi, 2021). Several studies, within a meta-analysis of employees, indicated that MBSR can effectively treat employee health and reduce burnout (Janssen et al., 2018). Since teachers and college students both have high stress and equally high burnout rates, it seems clear that mindfulness strategies could significantly decrease stress, anxiety, and depression in this group (Ji et al., 2022; Marken & Agrawal, 2022).

There is also the question of how much mindfulness is enough. While the amount of time in any form of treatment can be challenging to study, some studies indicate any use of any mindfulness-based interventions showed promise. One study with teachers showed that, in most behaviors assessed, the addition of seven once-weekly sessions after completing the original 5-week curriculum did not add significant benefit beyond what was gained from the initial intervention (Black & Fernando, 2014). However, one outcome—paying attention—continued to rise in accord with the added sessions, while attention flattened among teachers who did not receive the other sessions (Black & Fernando, 2014). It is essential to consider a possible ceiling effect on the teacher-reported rubric, which may be masking added benefits from added sessions.

Resilience

Resilience is a person's ability to overcome a significant life event (Kudesia, 2019). Resilience is a crucial component in overcoming stress, anxiety, and depression (Kudesia, 2019). One study noted that the amount of time devoted to mindfulness intervention was not a significant factor in effectiveness (Kwak et al., 2019). Short-term mindfulness interventions were assessed with meditation to determine the increase in resilience among the group who used

mindfulness with intensive 4-day meditation. The results suggested the long-term effects were even more significant with the shorter-term intervention of 4 days of intensive meditation and training, meaning that mindfulness still has a lasting impact on the client even with a shorter intervention time than the usual 8-week intervention (Kwak et al., 2019). Also noted in the study was that the effects lasted even after the interventions had stopped. This lasting effect of mindfulness-based interventions promises to promote mindfulness as a valuable intervention tool. Other studies suggest that mindfulness effectively regulated emotion in an 8-week mindfulness course and lowered depression and anxiety scores (Routhier-Martin et al., 2017). These studies add value to mindfulness as an effective therapy and it can be interpreted that the length of the training seems not to have a significant impact on the benefits of mindfulness training.

The survey by Kudesia (2019) indicated the process of metacognition is a valuable part of mindfulness and helps those who practice mindful strategies while also improving cognitive functioning and resilience. Kabat-Zinn (2015) presented mindfulness as an intentional thought process and a valuable tool and defined this practice's Buddhist origins and purposes. Over the last 55 years, mindfulness has significantly increased in the literature of psychiatric and psychological publications and other medical journals. The literature points to mindfulness as an effective therapy, and the research has developed a following over the last few years (Baminiwatta & Solangaarachchi, 2021). Janssen et al (2018) indicated that MBSR had significantly positive outcomes in emotional exhaustion, anxiety, stress, occupational stress, and depression. Improvements in the study were found in the areas of personal accomplishment, sleep, and self-compassion (Janssen et al., 2018). The versatility of the treatment in how it is delivered, whether via the Internet or in person, as well as the versatility of the length of

treatment, seems to be the reason for the push for more mindful interventions within the school system (Hyland, 2016). It is also essential to understand the theories that drive the use of mindful interventions.

Polyvagal Theory

The polyvagal theory uses mindful interventions to help calm the nervous system, build resilience, and foster metacognition. The theory uses these elements to help those with anxiety, stress, depression, and even PTSD (Porges, 2021). The theory was developed by Stephen Porges and identifies the biological features that contribute to balancing the nervous system. This term of balance is often referred to as homeostasis (Porges & Dana, 2014). This theory aims to find ways to help a person be less reactive to stress and other mental health maladies (Porges & Dana, 2014). Mindful interventions help a person become more socially engaged and better able to deal with the daily stresses of life (Porges, 2021). One form of mindfulness is an exercise program called mindfulness-based movement, and the exercise uses the polyvagal theory as the theoretical framework (Lucas et al., 2016). The thought is that mindfulness movements increase neural activity in the brain and activate the systems that produce positive emotion and social engagement (Lucas et al., 2016). The idea of the Polyvagal theory is to decrease the flight, flight, and freeze responses of the vagal nerve that occur when the nervous system is activated by fear or stress. The theory uses mindfulness, grounding, and vagal exercises to promote a calm nervous system. The theory forms the framework for why the brain response, resilience, and metacognition are essential factors in why mindfulness seems helpful.

Palouse Mindfulness

Palouse Mindfulness is a free website that provides information about mindfulness, including mindfulness techniques and strategies. The website's founder, Dave Potter, is not only

a certified MBSR instructor but also a retired professional psychotherapist and a daily meditator for the past 30 years (Potter, 2022). The purpose of Palouse Mindfulness is to provide a place where people can learn about mindfulness for free without having to attend live sessions (Potter, 2022).

The website includes videos and instructions and provides the opportunity to become certified in MBSR by submitting documents upon completion of the 8-week course. The site contains video instructions and articles on the benefits of mindfulness, resources, crisis hotlines, books, teacher training, and information.

Types of Mindfulness Strategies Included in Palouse Mindfulness

Palouse Mindfulness incorporates several types of mindfulness strategies and interventions. Most interventions include focused breathing, which involves focusing on your breath and letting your mind attune to your breathing instead of focusing on the issues (Behan, 2020). Grounding is also a component of mindfulness and involves being present and accessing the five senses to bring a person back to the present moment. Another intervention is Yoga, which connects the mind and body (Potter, 2022). Interventions of Palouse Mindfulness include raisin meditation, sitting meditation, and body scan. All these interventions are ways of connecting the mind with the present moment and increasing awareness of how the body feels (van der Kolk, 2015). Mindfulness has been shown to shape the fronto-limbic areas of the brain, contributing to changes in activity and structure. Mindfulness interventions focused on these areas of the brain appear to foster better emotional regulation and stress reduction (Tang et al., 2015).

Related Literature

There are many issues that respond well to mindful strategies. Those issues range from medical ailments to mental health issues to physical wellness. This includes a range of populations studied, from children to adolescents, and adults. Those are also in various careers and stages of life.

Pregnant Women

There is a significant amount of literature on mindfulness and the benefits of mindful strategies (de Vibe et al., n.d.). The use of mindfulness in an 8-week program significantly improved pregnant women's overall mental health as measured by the DASS-21 (Zemestani & Nikoo, 2020). Also, in this study, the mental health gains were reported to have lasted at least a month after the intervention had ceased. These women could not have any other medications due to pregnancy. Pregnant women have high incidences of mood and anxiety disorders, and mindfulness decreases these issues in these women (Zemestani & Nikoo, 2020).

Cancer Patients

There also seems to be efficacy in treating those with medical ailments and the anxiety that accompanies those issues. One study looked at mindfulness using movement and found that mindfulness techniques promoted greatly improved mindset and better life satisfaction in those living with cancer (Lucas et al., 2016). Lucas et al. (2016) showed that cancer patients who used mindfulness had lower anxiety and lower depression scores than those who did not use the strategies (Lucas et al., 2016). The authors indicated that those who used mindfulness-based movement promoted the idea of safety within the group and per the polyvagal theory were better able to build meaningful and helpful supportive relationships. These support systems and movements have been shown to be helpful for those battling cancer (Lucas et al., 2016). The

author noted there was a significant reduction of stress in the mindfulness-based groups.

Dehghan et al. (2021) looked at the relationship between COVID-19 anxiety and mental health in patients with cancer. The results highlighted the importance of implementing effective

interventions to help clients overcome fear in medical circumstances (Dehghan et al., 2021).

These results indicated the efficacy of mindfulness in various careers and facets of life. Another study highlighted the effectiveness of mindfulness with cancer patients via the Internet as the

conduit for treatment (Nissen et al., 2020). The authors concluded there was as much

effectiveness via the internet with mindfulness as those who participated in person. The

preliminary findings suggest that internet mindfulness-based cognitive therapy is a helpful

intervention for cancer patients/survivors suffering from anxiety symptoms (Nissen et al., 2020).

Nissen et al. (2020) highlighted the characteristics that mindfulness promotes across several studies. Mindfulness via the Internet displayed the flexibility of the treatment.

Life Satisfaction

Mindfulness also addresses the social elements of living and how life satisfaction and other mental health issues are promoted by those who use mindful strategies (Ridderinkhof et al., 2017). There is a significant link between mindfulness interventions and prosocial behaviors, and mindfulness cultivates a helping nature among the participants (Donald et al., 2019). The authors suggested mindfulness is more strongly linked to prosocial behaviors; though this link was based on self-reports and not rated by objective measures. One study reported a strong correlation between prosocial and positive behaviors, indicating that those who practice mindfulness also seem to have better social skills than those who do not (Donald et al., 2019). There appears to be a correlation between dispositional mindfulness with adolescents regarding better social skills and levels of happiness (Zimmer-Gembeck et al., 2021). Adolescents who possess dispositional

mindfulness, the natural capability of a person to maintain awareness and focused attention, were lower in peer reactivity, stress responses, depression, and anxiety (Zimmer-Gembeck et al., 2021). These prosocial behaviors can be beneficial to addressing behavioral issues often seen within the classroom and increase present-moment awareness, which fosters learning (Mackenzie et al., 2020).

Other studies indicated self-esteem significantly increased in those who used mindfulness-based interventions (Himmelstein & Saul, 2015). The incarcerated youth Himmelstein and Saul analyzed indicated less aggressive behaviors. Song and Lindquist (2015) assessed the effectiveness of MBSR in Korean nursing students. Those who participated in MBSR reported decreased depression, anxiety, and stress (Song & Lindquist, 2015). This population is known to exhibit high stress levels, and the results were significant with mindfulness use.

Spectrum Disorders

A few studies showed mindfulness is beneficial for children on the spectrum and the parents of those children. One study showed that both the children and the parents showed improvements (Ridderinkhof et al., 2017). The children were noted to have increased positive social behaviors, longer focused attention, and improved behaviors in children and adolescents on the spectrum. The same study pointed out that parents who used mindful interventions showed improvements with reduced depression, stress, and anxiety (Ridderinkhof et al., 2017). Another study of interest addressed the issue of adults with autism spectrum disorder (ASD). Those on the spectrum commonly exhibit symptoms of depression and anxiety and assess how mindfulness can address those issues in that population (Ridderinkhof et al., 2017). The MBSR group demonstrated significant reductions in depression, but neither group significantly changed reported anxiety (Pagni et al., 2020). Only the MBSR group increased activity of correct social

effect during self-reflection, and the increase correlated with the alleviation of depression (Pagni et al., 2020). These studies indicated that mindfulness is of significant value in lessening mental health symptoms and increasing prosocial behaviors in those on the spectrum.

Studies in recent years using functional magnetic resonance imaging (fMRI) of the brain have shown that those who practice mindfulness can keep the same brain functioning even after mindfulness is not active (Powell, 2018). Those who practiced mindfulness also showed reduced anxiety and depression symptoms and an increased sense of purpose in life (Crego et al., 2021). Mindfulness techniques indicate efficacy as a powerful coping skill for stress reduction in Korean nursing students (Song & Lindquist, 2015). These students responded positively to the mindfulness strategies. Since it is understood that stress and trauma linger in the body, it is imperative to know the physical benefits of mindfulness techniques as well as to alleviate some of the stressors in the body (van der Kolk, 2015).

Children and Mindfulness

One study indicated that quarterly grades improved with elementary schools using mindfulness in the classroom (Baer et al., 2012). This study also revealed better classroom behaviors and a calmer, safer learning environment. Another study suggested that children showed improved sleeping patterns after using mindfulness interventions (Digitale, 2021). Stanford School of Medicine's study showed that the children gained a half hour of REM sleep, which is beneficial for cognitive and developmental functioning (Digitale, 2021).

One of the challenges of implementing mindfulness with young children is helping teachers and administrators understand that mindfulness is more than asking students to keep quiet and pay attention (Moreno, 2017). Moreno suggested that educators must begin seeing failure as a valuable tool. One part of mindfulness training focuses on fostering loss as a starting

new philosophy. Mindfulness with younger children in schools also has been a tool for self-regulation (Moreno, 2017). In another study on elementary students from ages 7–11, mindfulness showed an increase in life satisfaction and a more positive outlook. The results were reevaluated after three months and still showed the same benefit (Amundsen et al., 2020). Primary school children have only sometimes been included in studies on mindful training. The 6-week mindful program for elementary school children improves this age group and enhances emotional regulation (Amundsen et al., 2020). The mindfulness training programs for schools seem to be helpful in the student population and valuable for those with learning disabilities, attention deficit hyperactivity disorder, and ASD (Routhier-Martin et al., 2017).

Adolescents and Mindfulness

In a small study by Johnstone et al. (2020), the students in a health class showed decreased anxiety when using mindfulness compared to students who only had the typical health class without mindfulness training among adolescents. These students self-reported fewer symptoms of anxiety (Johnstone et al., 2020). These students did not significantly differ in depression and stress levels (Johnstone et al., 2020). Other studies suggested that addiction in adolescents who used mindfulness training prevented relapse better than those who did not use the interventions (Himmelstein & Saul, 2015). Another pilot study indicated that when specific mindfulness-based strategies were used and compared with those in a regular health class, those who had the intervention showed a reduction in anxiety, stress, and depression than those with a standard health class (Johnstone et al., 2020). The symptoms in children and adolescents seem to be evident, and it is essential to assess the physical improvements.

Physical Improvements in Health

Stress has a significant physical effect on the body and is a catalyst for fatigue, sleeplessness, and poor social functioning (van der Kolk, 2013). This is also noted in the tenets of the polyvagal theory and why self-regulation is important (Porges & Dana, 2014). The goal of mindfulness is not only to alleviate the pressure on the mind but also to alleviate some of the adverse effects on the body. One survey of people living with asthma found they could better describe the presenting symptoms and had a better quality of life and less anxiety while using mindfulness strategies (Kraemer & McLeish, 2019). Mindfulness promotes the idea of being present in the moment, and this principle seemed to help clients lessen the fear associated with having an episode but did not affect the ability to control the asthma episodes (Kraemer & McLeish, 2019). Kraemer and McLeish (2019) suggested that the client's state of mind (use of mindfulness) jeopardized the effectiveness of coping with negative symptoms. The authors showed that mindfulness significantly reduced stress, depression, and anxiety. The results regarding direct physical outcomes were less robust, not finding vital significance. Meta-analyses using standardized mean differences showed a slight reduction in stress and anxiety. Still, the effects on physical products (blood pressure, albuminuria, stress hormones) were less significant in vascular patients (Abbott et al., 2014).

Mindfulness used in addiction looks to combine the treatment's physical and mental aspects. Treating the whole person is beneficial when treating various addictions. Cognitive behavioral therapy has long been thought to be one of the most valuable treatments for mental health issues. Evidence suggests that MBSR is more effective in preventing relapse than cognitive behavioral therapy (Vidrine et al., 2016). Mindfulness is an approach that many are integrating into treatment and the preliminary results seem promising. Brain connectivity could

have something to do with effective results. Calming the brain reactivity and less stress helps improve the brain areas that deal with addiction (Vidrine et al., 2016). Mindfulness can be highly beneficial in lessening the symptoms that often accompany addictions.

The self-awareness that comes from mindfulness also seems to help adolescents manage addictive tendencies and promote self-regulation (Himmelstein & Saul, 2015). The use of mindfulness concerning addiction should be further assessed. The goal of stress reduction and fewer incidences of relapse are of significant value in treating addiction (Garland & Howard, 2018). Some studies found that mindfulness interventions decreased cravings and created less aversion to pain, which are essential in the treatment of addiction (Garland & Howard, 2018). This type of research into using MBIs is relatively new and understudied. The goal is that the MBSR changes neural activities and will be a valuable tool for this population.

Neurobiology of Mindfulness

How mindfulness strategies work has long been puzzling. In recent years, the brain has been better understood, and the regions of the brain have been more easily examined (Sevinc et al., 2020). The role of the hippocampus in context-dependent recall of extinction is well recognized. Extinction is when a behavior that once existed disappears, usually with an intervention of some kind (Li, 2022). However, little is known about how intervention-induced changes in hippocampal networks relate to improvements in extinction learning. Extinction learning is facilitated in the brain when self-regulation or other benefits of mindful strategies occur. One study hypothesized that mindfulness training creates an optimal exposure condition by heightening attention and awareness of present-moment sensory experience, leading to enhanced extinction learning, improved emotion regulation, and reduced anxiety symptoms. It is crucial to assess the effects of these treatments to differentiate which diseases have a robust

somatic component and which are more biological (Gunes et al., 2019). The complex mental state of mindfulness is likely to be supported by large-scale brain networks. Future research should not be restricted to activations in single brain areas but assess a broader range of brain functioning in other brain areas (Tang et al., 2015). While the exact mechanism for change is unknown, it does show changes in the brain's blood flow when implemented.

Similarly, practitioners engaging in intentional mindfulness appear to demonstrate functional and structural differences from controls in the emotion regulation network, which parallel behavioral differences ranging from attentional abilities to psychological well-being (Wheeler et al., 2017). When engaging in emotionally charged tasks, people high in dispositional mindfulness display more significant activity in the prefrontal cortex, anterior cingulate cortex, and insular cortex and lesser activity in the amygdala than those low in dispositional mindfulness (Kong et al., 2020). Less activity in the amygdala demonstrates the mindful ability of the brain to recover and have less anxiety. The amygdala is the alert center of the brain (Porges, 2021). In addition, the polyvagal theory supports the ability of mindfulness strategies to calm this region of the brain (Porges, 2021).

One study looked at individuals with no mindfulness experience seeking to determine if the hippocampal functioning changed after eight weeks of MBSR. This therapy was done weekly and for 2-hour didactic sessions. The authors found that mindfulness heightened attention and awareness and fostered resilience (Sevinc et al., 2020). There was increased hippocampal connectivity and activity in the brain when mindfulness was used, contributing to safe learning. Safe learning creates a safe emotional environment where children can learn and grow within the classroom site. This increased activity in the brain is essential because MBSR reduces anxiety levels in the hippocampal region, which helps create a safe emotional environment for children

who might not have experienced that safety in the past (Sevinc et al., 2020). This study investigated how MBSR increases attention and brain acuity in many areas. Brain imaging showed increased stability in the amygdala in meditators. The amygdala is considered the alarm or danger center of the brain, and less activity and more stability help the person feel secure and better able to learn (Sevinc et al., 2020). Evidence shows that meditation decreases age-related thinning of areas in the brain that involve awareness and attention (Jensen et al., 2012).

Functional magnetic resonance imaging was used to assess the brain areas related to prosocial behaviors activated in the brain. The imaging studies indicated the brain showed mindfulness changed the brain's neural systems (Kong et al., 2020). The imaging studies showed a change in the connectivity associated with behavior and that brain functioning changed when mindfulness was a part of the program. This connectivity in the brain is significant in understanding that mindfulness can vary and is hard-wired into the brain. These new imaging techniques have been of substantial value in defining the brain regions affected when mindfulness is used.

Preservice Education Students

Approximately 18% of those seeking teacher education chose an alternative certification program instead of the traditional 4-year teacher program (King & Yin, 2022). After they have received their bachelor's degrees in another subject, these students receive their teaching certificate in an alternative program outside of the college setting. The students in the present study are those seeking certification through a traditional education program, specifically those in a comprehensive teacher education program pursuing teaching as the primary career path. Non-institutions of higher learning certification programs have increased enrollment over the last several years, while institutions of higher learning have shown an overall decline (King & Yin,

2022). The statistics reported a general decline in both types of teacher education in those who complete the programs. Smith (2022) cited low pay, pandemic stressors, funding deficits, and overall poor mental health as the primary reasons for the decline and the teacher shortage (Smith, 2022). In a 2018 poll of the public's attitudes toward public schools, for the first time, most Americans reported they did not want their children to become teachers (National Educational Association, 2022).

Preservice education students are college students who intend to enter the teaching field. One study that assessed Chinese preservice education teachers noted the need for more research on the preservice teacher population (King & Yin, 2022). The authors noted this population seemed to struggle with the ideals presented in the courses, low pay, and high-stress levels, yet students reported not being presented with solutions to these issues (King & Yin, 2022). While there has been a decline in the number of teacher education students, American colleges in general have seen an overall increase in the demand for mental health treatment (Abrams, 2022). In 2020–2021, over 60% of college students met the criteria for at least one mental health issue (Abrams, 2022). These statistics are worrying for preservice education students because a teacher's job requires mental, visual, and emotional care of students and dealing with being overstimulated themselves (National Educational Association, 2022). The American Association of Colleges for Teacher Education reported that between 2008–2009 and again in 2018–2019 the number of people completing teacher education programs declined by almost a third and the downward trend has continued (American Association of Colleges for Teacher Education, 2022).

Mindfulness and Teachers

Young teachers in the teacher training program learning to use mindfulness strategies were evaluated as to whether their emotional competency in dealing with behavioral issues in the

classroom improved (Garner et al., 2018). The teachers could better deal with the behavioral difficulties in the classroom after practicing mindfulness. The study supported the idea that teachers who take part in mindfulness-based practices will show improvements in life satisfaction and less stress. This study did not assess actual classroom settings but used scenarios to evaluate responses after using mindfulness. Compared to preteachers who used mindfulness, teachers who did not use mindfulness-based strategies showed less favorable responses regarding classroom behaviors (Garner et al., 2018). Another study showed that preservice educators must self-assess how they deal with behavioral issues and stress within and outside the classroom (Li et al., 2019).

A study focusing on how teachers view and make meaning of mindfulness and relate it to teaching and learning in their classrooms found that relationality was higher in the teachers who participated in the mindfulness program than those who did not (McRobbie, 2021). Another study assessed actual teacher experiences with mindfulness. The study suggested that the teachers showed a better relationship with time management after using mindfulness. They also felt more empowered and aware in the classroom (Mackenzie et al., 2020).

In another study, mindfulness was shown to reduce stress and lessen teacher burnout (Hwang et al., 2019). Mindfulness helped teachers exercise self-compassion and positive care for themselves. It also contributed to better sleeping patterns and positive teacher/student relationships (Hwang et al., 2019). Another study used meta-analysis to define and describe the well-being of teachers using mindfulness strategies. Mindfulness positively affected all parameters under study (Zarate et al., 2019). The studies indicated a significant effect on the positive feelings associated with mindfulness, moderate decreases in stress and anxiety, and some decrease in feelings of burnout and depression (Zarate et al., 2019).

A systematic review article on how mindfulness works assessed 19 papers on mindfulness in education. The review concluded that the stress levels of educators in those studies were consistently increasing and becoming an economic problem for many countries (Lomas et al., 2017), thus further highlighting the urgent need for a solution to these issues. National Statistics indicate that up to 40% of new teachers will leave their school or the profession entirely within the first five years of teaching (Green, 2022). The use of mindfulness by these educators is a valid working possibility for reducing burnout and stress, but more research in this area is needed (Lomas et al., 2017). The 2017 review found that using mindfulness to increase retention and decrease burnout among teachers was effective. Those with higher levels of intrapersonal mindfulness, people with focused attention and awareness traits, significantly reduced the risk of burnout (Green, 2022). New online educator mindfulness scores were measured, showing that the greater the alignment with mindfulness, the greater the engagement and novelty of the materials the participants created (Stewart & Bower, 2019).

The teachers in most studies needed to be adequately monitored for their proficiency in mindfulness training. The teachers' reports typically lack detail, and this is a consistent issue in most studies (Emerson et al., 2019). Another study showed that the teachers' self-reported measures on interpersonal and intrapersonal mindfulness assessments were revealing and might be the key to helping confront the issue of burnout (Frank et al., 2015). Self-report measures can be challenging to assess because they lack objectivity but can be practical for their ease of distribution and for supplying valuable information (International Encyclopedia of Social Sciences, 2022). Self-report measures are an important way to assess how teachers respond to the classroom's mindfulness. The idea is that the teachers have and can see firsthand what is going on in their classrooms and are better reporters on how the strategies work.

The literature suggests a need to assess various groups more thoroughly. Teachers need more information and training, and the early use of mindfulness might be a solution to this issue (Killoran, 2017). There needs to be more didactic training on mindfulness in the classroom (Killoran, 2017). Teachers are often given a worksheet or a small amount of information and are expected to become part of established widespread practices of mindfulness in their schools. But teachers need this training before ever entering the classroom. The studies indicated efficient mindfulness training effectively reduces teacher burnout and lessens behavioral issues (Wigelsworth & Quinn, 2020). The lack of definition and the inaccessibility of training could be an issue. This study would allow preservice teachers to learn the training to help reduce stress and experience the value of mindfulness. This education would alleviate the need for more time and information on mindfulness. The goal would be to assess whether preservice teachers find this training beneficial to their lives and whether they would be more likely to use it in their classrooms if taught MBSR before working in a school. There is a need for this type of study to evaluate its effect on classroom teachers.

One pilot study sought to cultivate an educational mindfulness program in schools with students while simultaneously caring for the well-being of the teachers. The Cultivating Awareness and Reliance in Education program was conducted with educators in two settings: one with already practicing teachers in a high-poverty urban setting and the other with student teachers and the supervisors in suburban schools (Brown, 2017). The results indicated the high-poverty schools showed pretest to posttest gains in mindfulness and the suburban schools did not show the same significance. The idea surfaced that mindfulness training should be tailored to fit the specific needs of diverse settings.

Critical Evaluation of Mindfulness in Schools

In a study designed to determine teachers' basic concepts of mindfulness and the barriers to its implementation in the classroom, the authors found a lack of understanding about how MBIs can be implemented in schools (Wigelsworth & Quinn, 2020). This lack of knowledge could lead to difficulty in implementing these techniques. Teachers did not want to feel burdened to teach one more thing or be required to do this intervention if it would cost them too much time (Wigelsworth & Quinn, 2020). There needed to be more clarity with the exact definition of mindfulness and the need for this technique as a quality behavioral intervention in the school system. Teachers are increasingly experiencing an elevated level of burnout and stress, and mindfulness is a promising intervention approach (Killoran, 2017). As stated above, the need for more understanding and time are issues in implementing such interventions. Mindfulness in schools is typically used to teach less reactive habits to stress but if not done properly can ignore components to lessening overall suffering (Simpson, 2017). A large facet of traditional mindfulness is interdependence, which is rarely evaluated in schools or the American practice of mindfulness. Models of mindfulness more extensive in scope might help understand why mindfulness is so important (Simpson, 2017). With the studies in the classroom showing that mindfulness improves life satisfaction, positive outlook, and better self-regulation, the reasons for these mindfulness strategies seem to work (Amundsen et al., 2020; Digitale, 2021; Moreno, 2017).

Teachers look to find effective ways to promote self-regulation and improve the lives of their students. One teacher wrote of her personal experience with high school students and the use of mindfulness in her classroom. She tested the students using a questionnaire and assessed them after using mindfulness strategies in her classroom for a week. In her studies, 93% of

students in her classroom reported the mindfulness approach to be helpful as opposed to 50% preintervention. Overall, the students' attitudes toward mindfulness improved after the week-long study, including their moods and attitudes toward mindfulness in general (Brew, 2022).

The current thinking in education is that school-based mindfulness should be implemented to help students and teachers with social-emotional learning. Some argued the push for peace and calm contradicts the school agenda for competition and success (Moreno, 2017). Others asserted it is a necessity for the well-being of the students, especially those who come into schools having had adverse educational experiences (Garland & Howard, 2018).

The Gap in Literature

While several studies indicated the benefits of mindfulness in the classroom, few, if any, show how mindfulness training affects college students who aspire to become teachers. The gaps in these studies are specific to the student-teaching population or preservice teachers. If shown to be significant, knowledge gained from such research could be beneficial for carrying more mindful practices into their classrooms.

There is some skepticism about mindfulness and criticism of its impact on schools. An article by Primdahl (2021) is rich with arguments for and against mindfulness and the evolution of mindfulness over the past few years. The author highlighted the need for specific interventions, not just temporary relief skills (Primdahl, 2021). One study evaluated the use of mindfulness and its implications in educational research, while most studies addressed teacher stress and burnout. McCaw (2019, p. 1) argued for and against "thick and thin" mindfulness approaches. The long-term effects of mindfulness and how it impacts stress and resolution were needed by examining several studies that have included this as a practice. Findings partly supported the hypothesis that lower baseline mindfulness predicted more remarkable

improvement following MBSR and emphasized the importance of assessing multiple mindfulness techniques given their unique, contrasting relations to outcomes (Gawrysiak et al., 2018).

Mindfulness can go against specific religious and career orientations. When mindfulness training has been incorporated into military and police environments, for example, it can be detrimental to the acuity necessary to respond to challenging situations (Cleveland, 2019). Some aspects of mindfulness contradict religious beliefs. Some argue that mindfulness and its roots in Buddhism go against Christian principles (Wilson, 2014). One author suggested mindfulness is the antithesis of Christianity and separates the created from the creator. The author noted that Buddhist origins can be a source of dark thoughts and dangerous since Christians should avoid all pagan origins (Broyles, 2021). Another Christian scholar claimed that mindfulness has no place in education. Another author suggested that the concepts have been separated from their original context and have used a more secular approach since the 1970s (Lundh, 2021). Some critics have criticized the modern mindfulness movement, claiming it has deviated too much from the original spiritual practice, and some in the Buddhist way of life find offense in the modernization of the spiritual practice (Gajaweera, 2017). The critics and proponents alike see there is a surge in the use of mindful interventions, and it has been largely secularized in the West.

Summary

In this chapter, I discussed the effectiveness of mindfulness in various settings and with various populations. I discussed the principles of how mindfulness works in the brain as a process of metacognition and stress relief and pain management (Kabat-Zinn, 2013; Kudesia, 2019; Kwak et al., 2019). I also included how mindfulness has been shown to be effective in

depression, anxiety, and exhaustion. I discussed Palouse Mindfulness and the neurobiology of mindfulness and how these changes can be seen in brain scans.

In the chapter, I also discussed how the use of mindfulness is effective with different populations. The use of this intervention showed significant usefulness in those with Adult Spectrum Disorders, Korean nursing students, teachers, those who suffer from addiction, and students of various ages (Himmelstein & Saul, 2015; Garland & Howard, 2018; Lomas et al., 2017; Ridderinkhof et al., 2017). The literature suggests that mindfulness has been successful as an intervention and will be in the preservice community as well.

CHAPTER THREE: METHODS

Overview

Teacher education students are college students already at risk for high levels of stress and burnout and remain an at-risk group during their careers as educators (Embse et al., 2019). The present study is essential for determining the effectiveness of using an MBSR program as a preventative and powerful means of reducing these symptoms in the preservice teacher population. I introduce the design, procedures, instrumentation, and sample participants in this chapter. These study elements are designed to assess the efficacy of MBSR in reducing depression, anxiety, and stress in this population.

Design

In the study of the effectiveness of MBSR, I utilized a pretest-posttest design and included within-group measures. I selected participants from undergraduate teacher education students currently enrolled at a local state university. The group participated in a 4-week MBSR training course using the online Palouse Mindfulness program for the study. Kwak (2019) indicated the mindfulness intervention's length seems beneficial even if the intervention is shorter than the usual eight weeks (Kwak et al., 2019). This is a subject for examination, which is why I used a 4-week intervention to potentially decrease the dropout rate within the study.

Within-group design helps minimize error due to each participant serving as their control (Hepper et al., 2016). The design was valuable because all participants were exposed to the same treatments and assessments. The design allows for a smaller sample size (Hepper et al., 2016). The method is also used to test a variable among participants. This is the purpose of using the quasiexperimental pretest-posttest and is used in research to nullify the effects of other confounding variables (Shuttleworth, 2009).

Research Question(s)

RQ1: Will those who practiced Palouse Mindfulness have lower scores on the DASS-21 posttest for anxiety than on the pretest?

RQ2: Will those who practiced Palouse Mindfulness score lower on the DASS-21 posttest for stress than on the pretest?

RQ3: Will those who practiced Palouse Mindfulness have lower scores on the DASS-21 posttest for depression than the pretest?

Hypotheses

H1_a: Those who participated in the Palouse Mindfulness training will see no change in DASS-21 scores for anxiety.

H2_a: Those who participated in the Palouse Mindfulness training will have no change in the DASS-21 scores for depression.

H3_a: Those who participated in the Palouse Mindfulness training will see no change in the DASS-21 scores for stress.

The literature review indicated mindfulness strategies would affect depression, anxiety, and stress levels (Santamaria et al., 2021), which is why I assumed MBSR in the form of Palouse Mindfulness would result in lower DASS-21 scores.

Participants and Setting

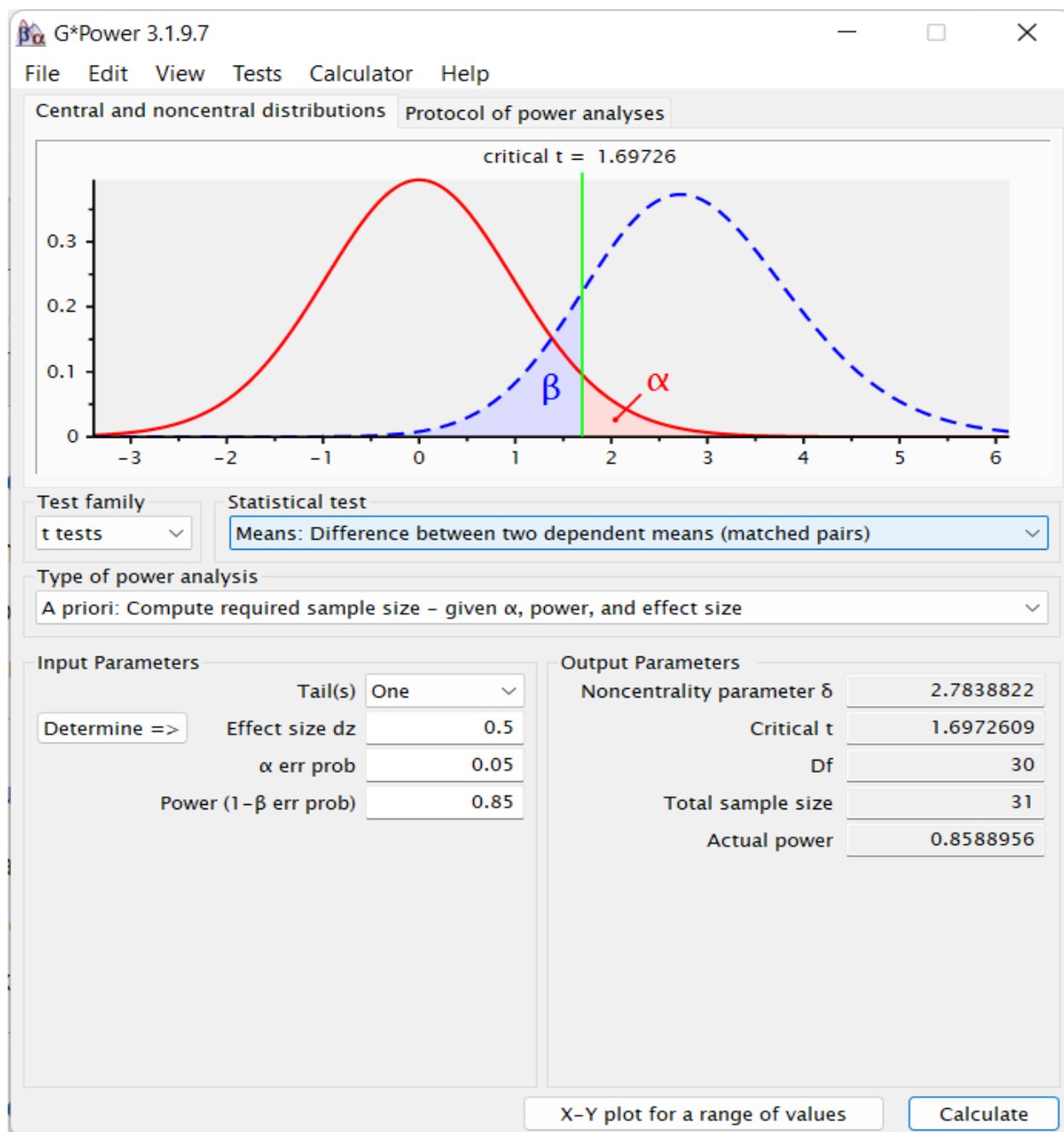
Participants for this study were adult college students in the teacher education program at a local university. Appendix D contains site permission for this study. The criteria for participation consisted of students who had been accepted into the teacher education program, were 18 years old and older, and had not participated in MBSR within the last six months. I used multistage sampling to select a university in the south. From that population group, I asked those

who met the criteria in the teacher education program to participate in the study. Over 150 were enrolled in the teacher education program, and 16 agreed to participate in the study but only 10 completed all aspects of the study. I determined the sample size using the G power program (Faul et al., 2007). The minimum number of participants was 31 at 85% G power with a .05 effect size (See Figure 1). Optimally, the research would have included at least 31 participants (85%) but the goal is 40 students to accommodate for attrition due to dropouts. In the initial assessment (pretest), I evaluated stress, depression, and anxiety levels using the DASS-21 online via the Mindful Teacher website.

This study consisted of the initial instructions via the website Mindful Teacher and assessment of stress, depression, and anxiety levels for all participants preintervention and postintervention using the DASS-21. The sample size was ($N = 10$), and for 85%, 31 participants were needed. These teachers have been accepted into the teacher education program and have not participated in mindfulness in the last six months and were 18 years old or older.

Figure 1

G Power Figure



Instrumentation

I collected the demographics at the onset of the study, including gender, income, religious affiliation, level of education, and marital status. The factors were not included in the study. I measured depression, anxiety, and stress using the DASS-21 found in Appendix C. The scale has 21 items in three scales. The DASS-21 is a shortened version of a longer questionnaire that uses a 4-point Likert scale:

- 0—Did not apply to me at all
- 1—Applied to me to some degree, or some of the time
- 2—Applied to me to a considerable degree or a good part of the time
- 3—Applied to me very much or most of the time

I multiplied the total scores for each of the scales by two. The possible range is from 0–42, with higher scores indicating depression, anxiety, and stress (Lovibond & Lovibond, 1995). The DASS formerly was a 42-item psychometric scale shorted to a 21-item scale. The DASS-21 has been used in clinical and nonclinical settings. The assessment has shown validity compared to other measures of depression, anxiety, and stress scales (Antony et al., 1998). The reliability and validity of the DASS and DASS-21 have been replicated in clinical and nonclinical settings (Henry & Crawford). The DASS-21 indicated a Cronbach alpha value of 0.81 for depression, 0.89 for anxiety, and 0.78 for stress subscales in previous research (Coker et al., 2018). The DASS-21 is in the public domain, and permission is not required for research (American Association of Colleges for Teacher Education, 2022).

Procedures

The Internal Review Board of Liberty University granted permission for the study. I approached the Dean of the Education Department to request permission to access the students

enrolled in the program. The students had the option to participate via the website. The website contained instructions assessing eligibility for participation in the study. The eligibility requirements included participants who were 18 years old and older, enrolled in the teacher education program, and who had not participated in MBSR training in the last six months. The students who met the inclusion requirements filled out the informed consent.

After approval to participate and demographics and informed consent were completed, the intervention began in the spring semester of the 2023 school year. Participants took a pretest evaluation using the DASS-21. I then instructed the students via the website to access mindfulness materials with a link to Palouse Mindfulness. The participants used the mindfulness training for four weeks and were encouraged to use daily mindfulness techniques for the study and used weekly logs from the Palouse website to document their progress. The website coordinator emailed the participants at the end of four weeks to participate in the posttest evaluation. During the posttest, the students were asked if they used the intervention daily and used the weekly logs provided on the Palouse website. I then collected and evaluated the data to determine the significance of changes from pretest to posttest.

Data Analysis

I used a quasiexperimental design with a pretest and posttest. The sample included 10 participants, 18 years old or older, enrolled in the teacher education program. The website calculated the scores for the DASS-21 anonymously via the website. The participants created identifier codes and completed the pretest and the posttest via the website. In analysis, I used SPSS to verify that the data was complete and evaluated the comparison using SPSS.

In statistical analysis, I used a paired sample *t*-test to determine the difference between the pretest and posttest scores. While causality cannot be determined in this design, a relationship

or association between the intervention and the outcome can be determined (Hepper et al., 2016). The paired *t*-test compares two samples taken from the same population. In this case, I used SPSS to test the data. The SPSS outcomes using a paired sample *t*-test and descriptive analysis showed the relationship for each pair of variables to determine whether the mean of these two variables, the pretest/posttest scores, are different (Bobbit, 2020).

Summary

I sought to determine whether mindfulness use is consistent with a reduction in the DASS-21 scores for depression, anxiety, and stress. After using the MBSR Palouse Mindfulness intervention, I assessed the participants' scores to determine if there was a meaningful change in pretest and posttest data for the preservice teacher population. Results showed that mindfulness is a valuable tool in decreasing depression, anxiety, and stress, which all contribute to burnout. The instruments were reliable and the data collection occurred via the Mindful Teacher website. I collected and analyzed the data through the SPSS to determine the relationship between mindfulness techniques within a group of preservice teachers and the techniques' effect on depression, anxiety, and stress.

CHAPTER FOUR: FINDINGS

Overview

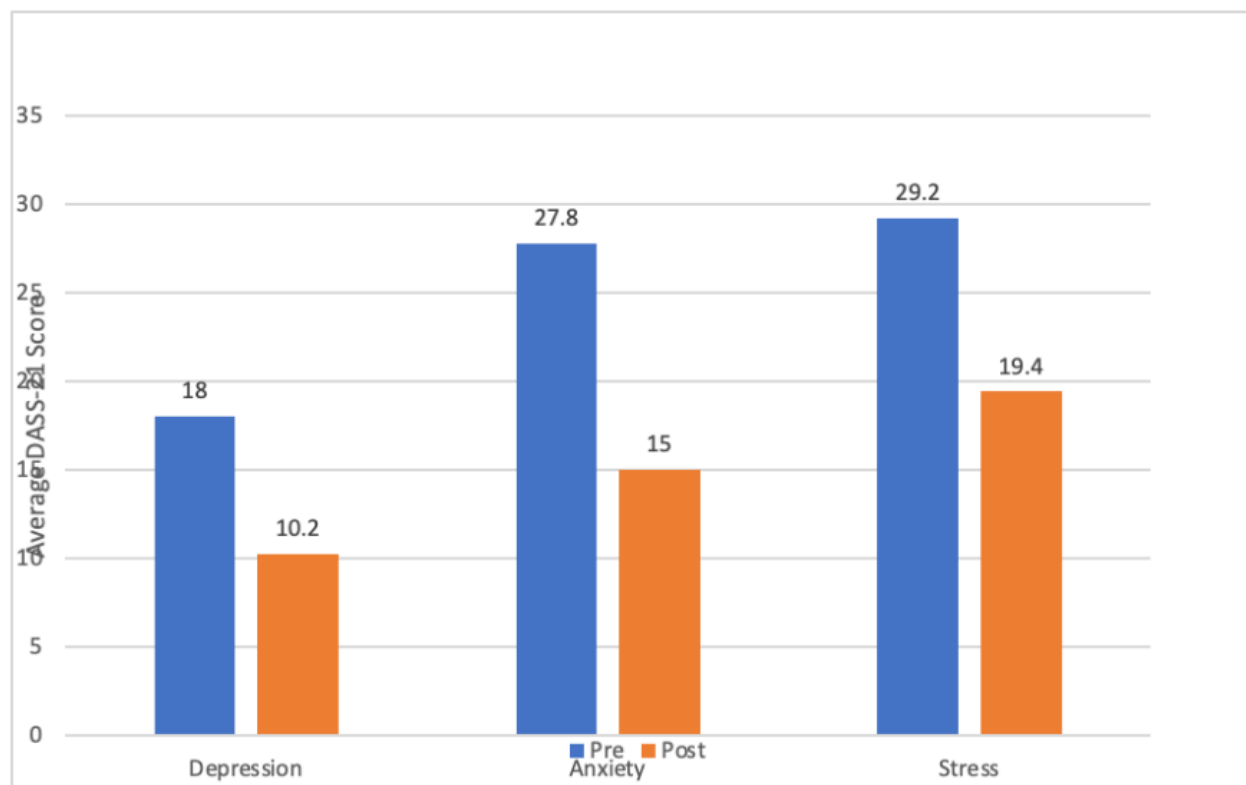
In this chapter, I present the results of a questionnaire study conducted with 10 participants. First, I overview the descriptive statistics that summarized how centrally located most scores were for each variable (i.e., measures of central tendency), how dispersed the scores were across each variable (i.e., measures of variability), and how well each variable formed a normal distribution (i.e., skewness and kurtosis variables). Next, I present scale reliability statistics that provide information on how strong the internal consistency was among the scale items. Last, I discuss the findings of the paired samples *t*-test, which supplied information as to whether each hypothesis was statistically supported.

Descriptive Statistics

Table 1 provides the minimum and maximum scores, mean, median, standard deviation, skewness, and kurtosis scores for the following three subscales: depression, anxiety, and stress. The depression preintervention scores had the largest range (range = 30), whereas the stress preintervention scores and the anxiety preintervention scores were tied for having the smallest range (range = 16). On average, participants tended to report higher levels of stress before intervention ($M = 29.20$, $SD = 5.90$) and anxiety before intervention ($M = 27.80$, $SD = 6.07$). The lowest average scores were reported for depression postintervention ($M = 10.20$, $SD = 7.27$) and anxiety postintervention ($M = 15.00$, $SD = 7.50$; See Figure 2). Nearly all variables had the same level of variability, as the standard deviations ranged from 5.90 to 7.50. One exception was the depression preintervention scores, with the most significant standard deviation of 10.87.

Figure 2

Pre and Postintervention Mean Differences for Depression, Anxiety, and Stress

**Table 1**

Descriptive Statistics of Study Variables: N = 10

	Min	Max	Mean	SD	Skewness	Kurtosis
Depression (Pre)	2.00	32.00	18.00	10.87	-0.39	-1.63
Depression (Post)	2.00	24.00	10.20	7.27	0.65	-0.33
Anxiety (Pre)	18.00	34.00	27.80	6.07	-0.33	-1.64
Anxiety (Post)	0.00	28.00	15.00	7.50	-0.38	1.31
Stress (Pre)	20.00	36.00	29.20	5.90	-0.58	-1.40
Stress (Post)	10.00	28.00	19.40	6.33	-0.02	-1.18

Table 2 shows all study variables' internal reliability (Cronbach's α). Strong reliability are those that have a Cronbach's α of 0.65–0.8 or higher (Goforth, 2015). The Cronbach's α for the depression preintervention, depression postintervention, and anxiety postintervention variables indicated strong internal reliabilities, as the Cronbach α 's ranged from 0.75 to 0.88. However, there was weak internal consistency for the anxiety preintervention, stress preintervention, and stress postintervention variables, as Cronbach α 's ranged from 0.38 to 0.61.

Table 2

Scale Reliabilities for the Study Measures

Subscales	Number of scale items	Cronbach α
Depression (Pre)	7	0.88
Depression (Post)	7	0.75
Anxiety (Pre)	7	0.38
Anxiety (Post)	7	0.77
Stress (Pre)	7	0.59
Stress (Post)	7	0.61

Results

Data Screening

I received the data via an Excel spreadsheet and input it into IBM SPSS. I checked the pretest and posttest scores for pairings and proofread the initial screening. I assessed for missing values and outliers. A visual inspection showed no suspicious patterns using the boxplots showing no outliers (see Figures 3–8).

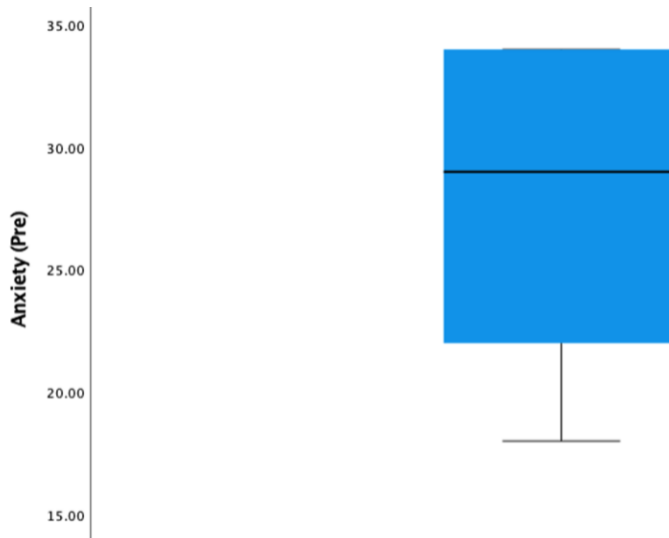
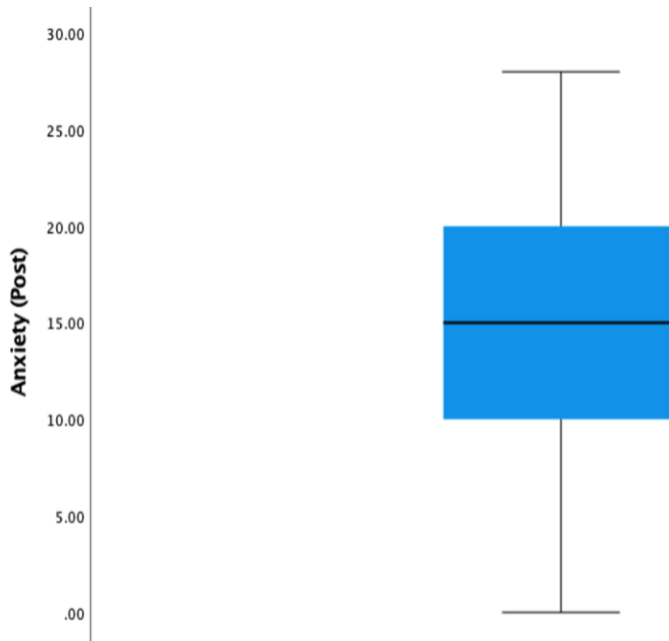
Figure 3*1-D Boxplot of Anxiety (Pre)***Figure 4***1-D Boxplot of Anxiety (Post)*

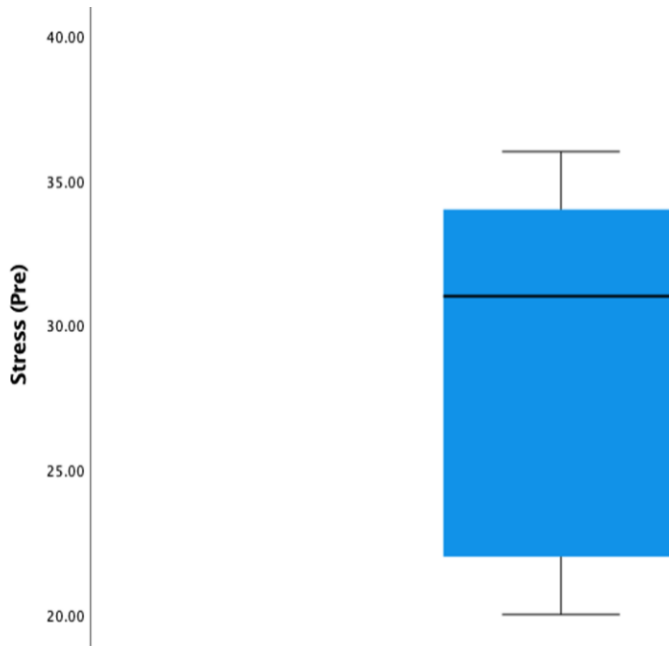
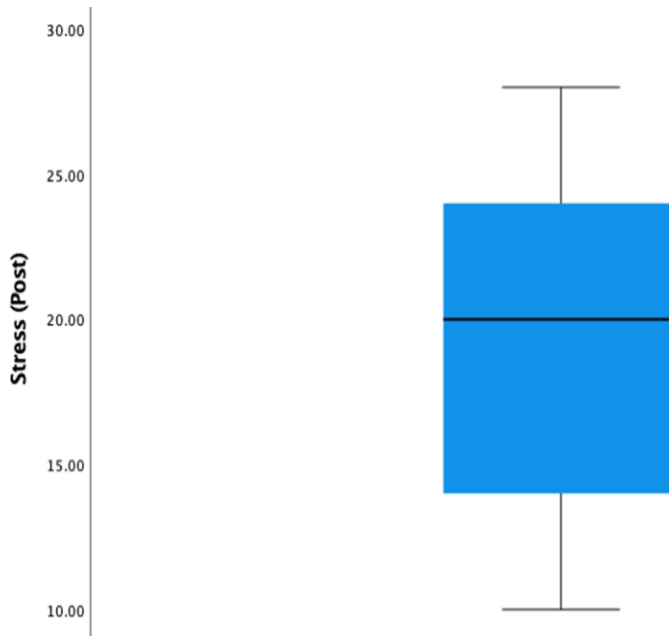
Figure 5*1-D Boxplot of Stress (Pre)***Figure 6***1-D Boxplot of Stress (Post)*

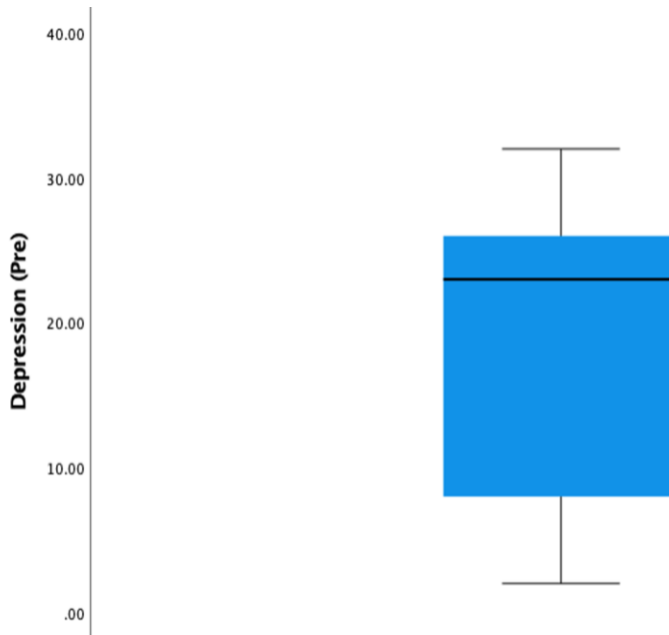
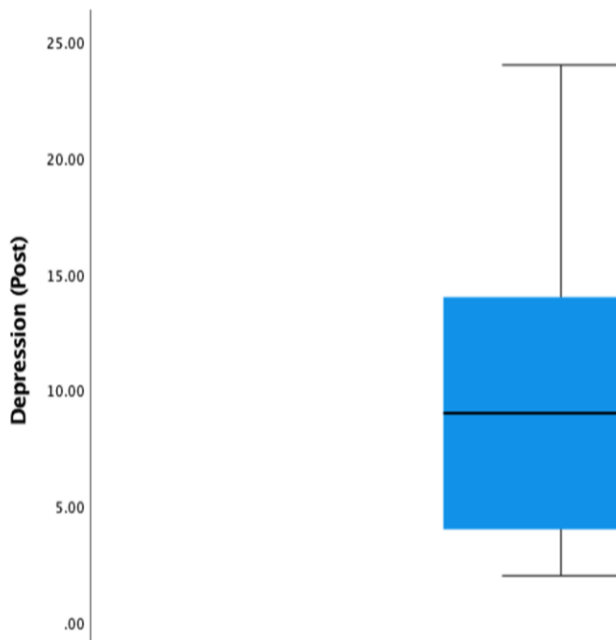
Figure 7*1-D Boxplot of Depression (Pre)***Figure 8***1-D Boxplot of Depression (Post)*

Table 3*Paired Samples Effect Sizes*

			Standardizer ^a	Point estimate	95% Confidence Interval	
					Lower	Upper
Pair 1	Depression (Pre)— Depression (Post)	Cohen's <i>d</i>	7.14609	1.092	0.279	1.868
		Hedges' correction	7.46214	1.045	0.268	1.789
Pair 2	Anxiety (Pre)— Anxiety (Post)	Cohen's <i>d</i>	8.95420	1.429	0.513	2.309
		Hedges' correction	9.35022	1.369	0.492	2.212
Pair 3	Stress (Pre)— Stress (Post)	Cohen's <i>d</i>	6.14275	1.595	0.624	2.531
		Hedges' correction	6.41442	1.528	0.597	2.424

Research Questions

I created research questions for this study to help resolve teacher burnout rates and shortages in education (Embse et al., 2019). I aimed to find a solution that could be implemented before the teachers entered the classroom. Studies indicated that MBSR can reduce factors that contribute to burnout, such as anxiety, stress, and depression (Hwang et al., 2019; Zarate et al., 2019). I sought to understand if there would be a significant effect shown on the DASS-21, a reliable measure for these factors, pre- and post-Palouse Mindfulness intervention. The pretest and posttest data indicated whether the MBSR can positively affect the preservice participants' studies.

Hypothesis One

This section addresses Research Question One and tests the null hypotheses.

RQ1: Will those who practiced Palouse Mindfulness have lower scores on the DASS-21 posttest for anxiety than on the pretest?

H1₀: Those who practiced Palouse Mindfulness see no change on the DASS-21 for anxiety than on the pretest.

H1a: Those who participated in the Palouse Mindfulness training will have lower scores on DASS-21 scores for anxiety.

Assumptions for T-Test

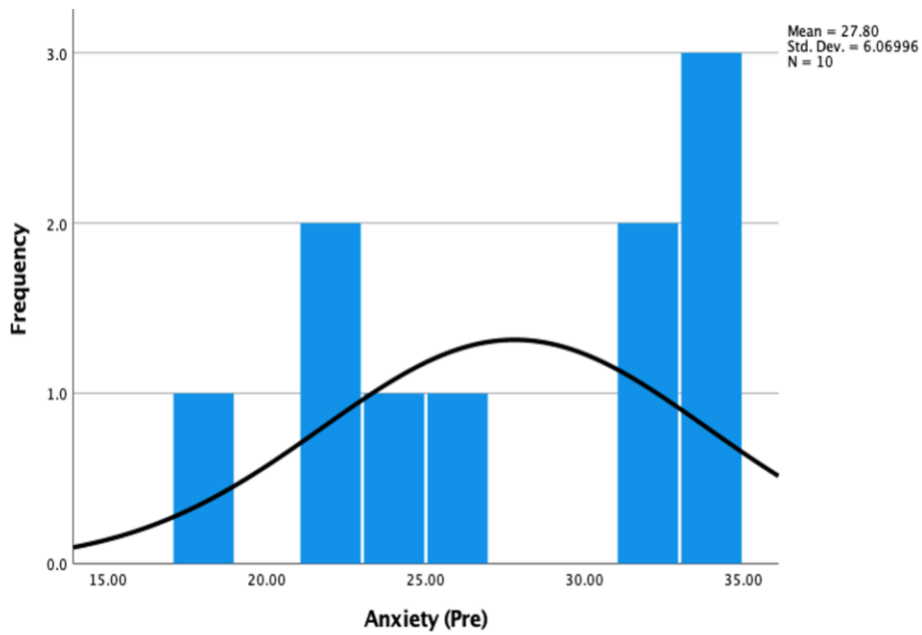
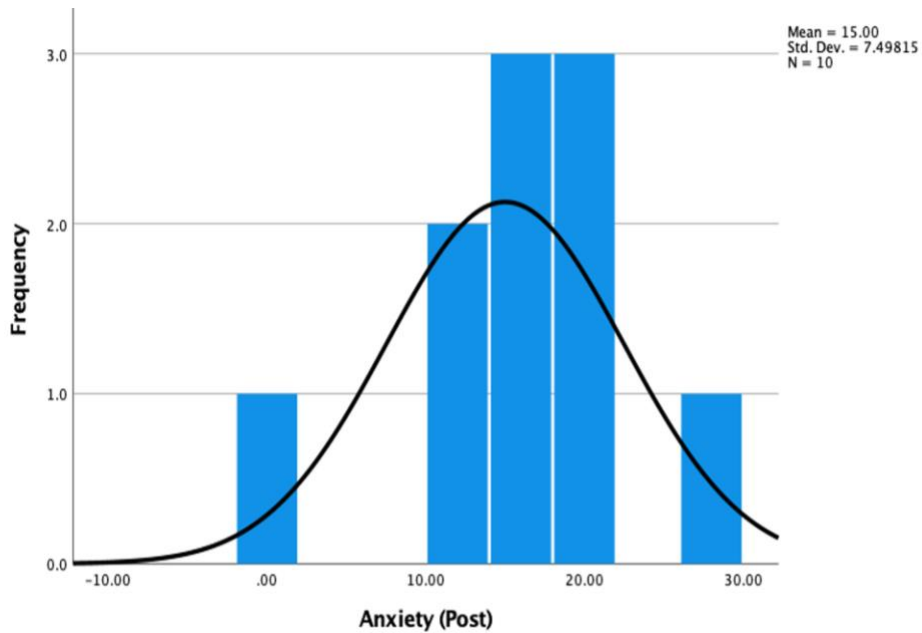
Due to the small sample size, I created a visual inspection and a histogram. Visually, this sample was normally distributed and is within the limits of skewness and kurtosis, as shown in Table 1. Skewness indicates the symmetry of a variable's score distribution. Normal distributions have a skewness value of 0, which means perfect symmetry. Skewness scores that fall between -1 and $+1$ are within the ideal range of normality; however, skewness values that fall between the -2 and $+2$ range are acceptable values for normality (Hippel, 2011). As shown in Table 1, anxiety had a value of .33 (pretest) and .38 (posttest).

Kurtosis indicates the steepness of the curve the distribution forms. Normal distributions have a kurtosis value of 0 (Hippel, 2011). As shown in Table 1, the kurtosis value for anxiety is a value of -1.64 (pretest) and 1.31 (posttest). Given that the skewness and kurtosis values were within normality ranges, parametric statistical analyses (e.g., paired samples *t*-test) are appropriate to use as the inferential statistical approach to test the hypotheses.

Data Analysis

The alpha level was $p < .05$. Cohen's *d* was used. Cohen's *d* convention is $d = 0.20$ is small, $d = 0.50$ is medium, and $d = 0.80$ is large. The anxiety effect was 1.43 for this sample (see Table 3).

The paired sample *t*-test was the inferential statistical test used to test the null hypothesis, which predicted individuals who practiced Palouse Mindfulness would see no change in the scores on the posttest from the pretest for anxiety. The normality assumption for the paired-samples *t*-test was met; thus, the analyses proceeded (Figures 9–10).

Figure 9*Simple Histogram of Anxiety (Pre)***Figure 10***Simple Histogram of Anxiety (Post)*

I compared the preintervention and postintervention scores for anxiety among 10 participants. The results provide statistical support for the hypotheses anxiety [$t(9) = 5.05$, $p = .001$, *two tailed*, $d = 1.60$]; scores decreased significantly for participants after they practiced Palouse Mindfulness (see Tables 3–4). As shown in Table 1, anxiety decreased 12.8 points.

Table 4

Paired Sample Tests

Pair		Paired Differences					<i>t</i>	<i>df</i>	Significance	
		Mean	<i>SD</i>	Std. Error Mean	95% Confidence Interval of the Difference				One-Sided <i>p</i>	Two-Sided <i>p</i>
					Lower	Upper				
1	Depression (Pre)— Depression (Post)	7.80000	7.14609	2.25979	2.68799	12.91201	3.452	9	0.004	0.007
2	Anxiety (Pre)— Anxiety (Post)	12.80000	8.95420	2.83157	6.39455	19.20545	4.520	9	0.001	0.001
3	Stress (Pre)— Stress (Post)	9.80000	6.14275	1.94251	5.40574	14.19426	5.045	9	0.000	0.001

Hypothesis Two

This section seeks to answer RQ2 and test the null hypothesis.

RQ2: Will those who practiced Palouse Mindfulness score lower on the DASS-21 posttest for stress than on the pretest?

H2_o: Those who practiced Palouse Mindfulness will see no change in the DASS-21 for stress.

H2_a: Those who participated in the Palouse Mindfulness training will have lower scores on the posttest than on the pretest in the DASS-21 scores for stress.

Assumptions for T-test

Due to the small sample size, I performed a visual inspection and created a histogram for the stress variable. Visually, this sample was normally distributed and is within the limits of skewness and kurtosis, as shown in Table 1. Skewness indicates the symmetry of a variable's score distribution. Normal distributions have a skewness value of 0, which means perfect symmetry. Skewness scores that fall between -1 and $+1$ are within the ideal range of normality; however, skewness values that fall between the -2 and $+2$ range are acceptable values for normality (Hippel, 2011). As shown in Table 1, the variable fell within suitable normality ranges, with stress having a value of .58 (pretest) and .02 (posttest).

Kurtosis indicates the steepness of the curve of the distribution forms. Normal distributions have a kurtosis value of 0 (Hippel, 2011). As shown in Table 1, the kurtosis value fell between the normality range of -3 to $+3$, with stress having a value of -1.40 (pretest) and -1.18 (posttest). Given the skewness and kurtosis values were within normality range, parametric statistical analyses (e.g., paired samples *t*-test) was appropriate to use as the inferential statistical approach to test the hypotheses.

Data Analysis

The alpha level was $p < .05$. I used Cohen's *d*. Based on Cohen, Cohen's *d* convention is $d = 0.20$ is small, $d = 0.50$ is medium, and $d = 0.80$ is large. The effect size is large, with stress being 1.60 (see Table 3).

I used the paired samples *t*-test as the inferential statistical test to test the null hypothesis, which predicted that individuals who practiced Palouse Mindfulness would see no change in the scores on the posttest than on the pretest for stress. The normality assumption for the paired-samples *t*-test was met; thus, the analyses proceeded (Figures 11–12).

I compared the preintervention and postintervention scores for stress among 10 participants. The results provide statistical support for the hypotheses stress [$t(9) = 5.05$, $p = 0.001$, *two-tailed*, $d = 1.60$]; scores decreased significantly for participants after they practiced Palouse Mindfulness (see Tables 3–4). As shown in Table 1, stress scores decreased on average by 9.80 points.

Figure 11

Simple Histogram of Stress (Pre)

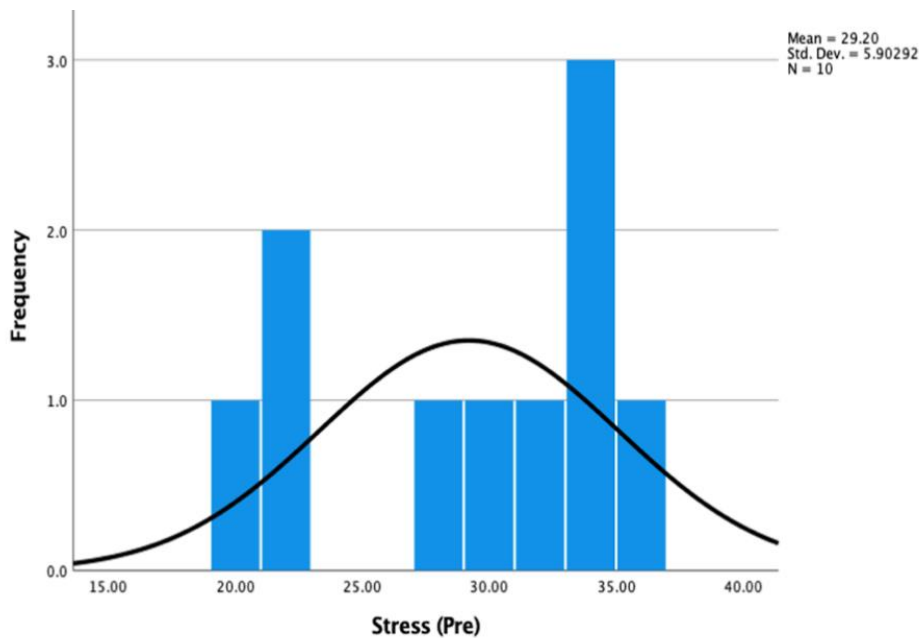
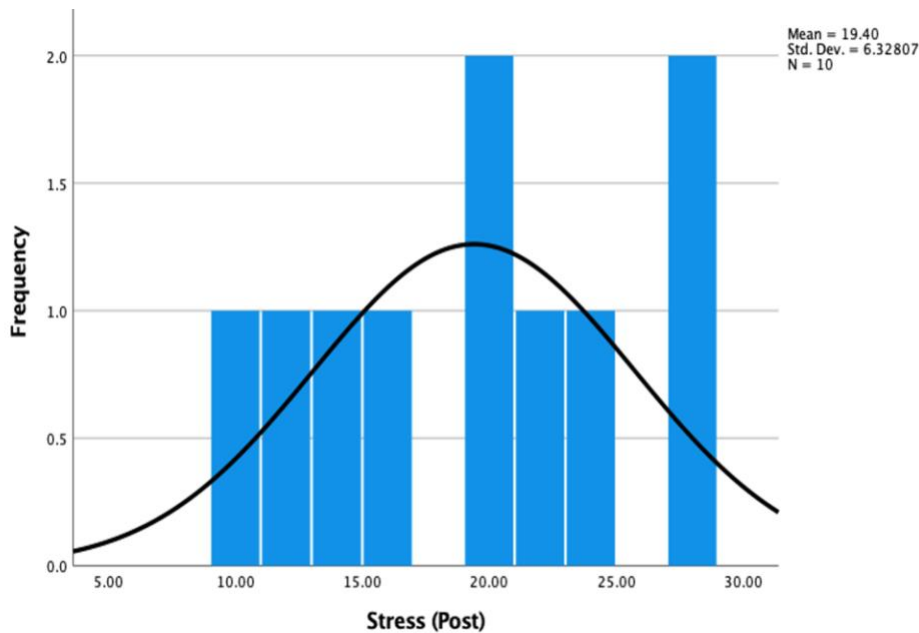


Figure 12*Simple Histogram of Stress (Post)***Hypothesis Three**

This section seeks to answer RQ2 and test the null hypothesis.

RQ3: Will those who practiced Palouse Mindfulness score lower on the DASS-21 posttest for depression than on the pretest?

H3_o: Those who practiced Palouse Mindfulness will see no change in the DASS-21 scores for depression.

H3_a: Those who participated in the Palouse Mindfulness training will have lower scores in the DASS-21 scores for depression.

Assumptions for T-Test

Due to the small sample size, I performed a visual inspection and created a histogram for the depression variable. Visually, this sample was normally distributed and is within the limits of

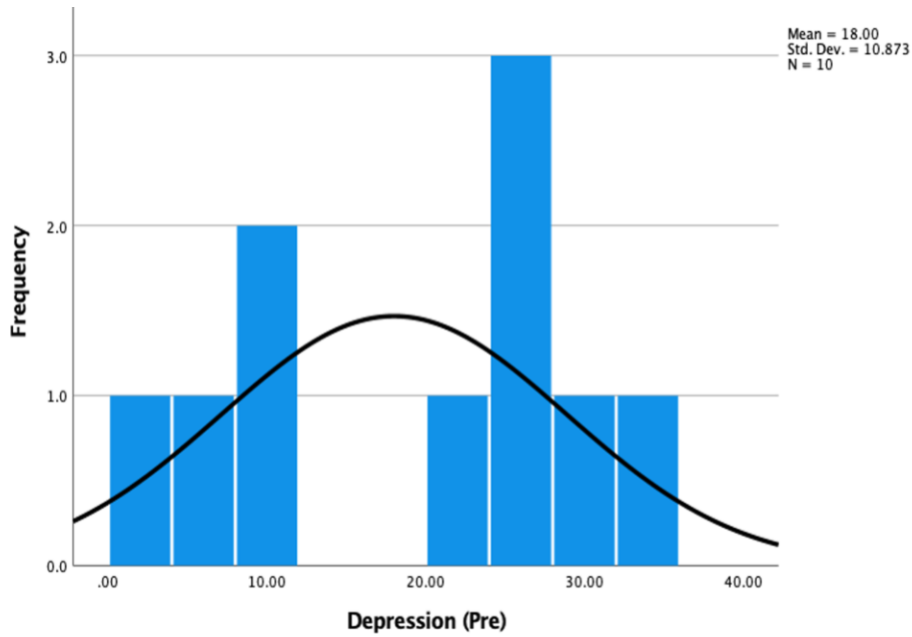
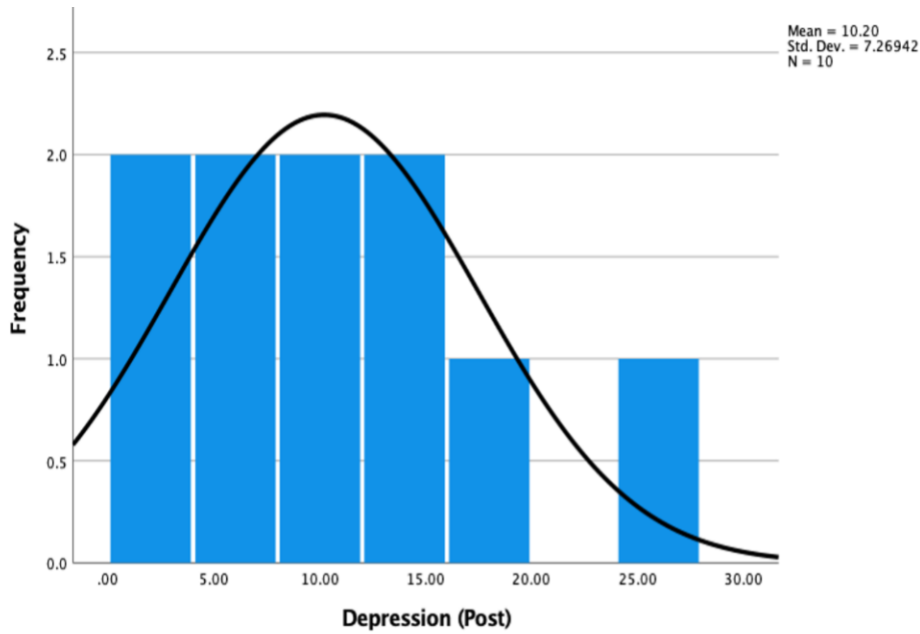
skewness and kurtosis, as shown in Table 1. Skewness indicates the symmetry of a variable's score distribution. Normal distributions have a skewness value of 0, which means perfect symmetry. Skewness scores that fall between -1 and $+1$ are within the ideal range of normality; however, skewness values that fall between the -2 and $+2$ range are acceptable values for normality (Hippel, 2011). As shown in Table 1, depression had a value of $-.39$ (pretest) and $.65$ (posttest).

Kurtosis indicates the steepness of the curve the distribution forms. Normal distributions have a kurtosis value of 0 (Hippel, 2011). As shown in Table 1, depression had a value of -1.63 (pretest) and $-.33$ (posttest). Given the skewness and kurtosis value was within normality range, parametric statistical analyses (e.g., paired samples t -test) are appropriate to use as the inferential statistical approach to test the hypotheses.

Data Analysis

The alpha level was $p < .05$. I used Cohen's d . Based on Cohen, Cohen's d convention is $d = 0.20$ is small, $d = 0.50$ is medium, and $d = 0.80$ is large. The effect size for depression is 1.09 (Table 3).

I used the paired samples t -test as the inferential statistical test to test the null hypothesis, which predicted individuals who practiced Palouse Mindfulness would see no change in the scores on the posttest than on the pretest for depression. The normality assumption for the paired-samples t -test was met; thus, the analyses proceeded (see Figures 13–14).

Figure 13*Simple Histogram of Depression (Pre)***Figure 14***Simple Histogram of Depression (Post)*

I compared the preintervention and postintervention scores for depression among 10 participants. The results provide statistical support for the hypotheses, such that depression [$t(9) = 3.45, p = .007, two-tailed, d = 1.09$] scores decreased significantly for participants after they practiced Palouse Mindfulness (see Tables 3–4). As shown in Table 1, depression scores decreased on average by 7.80 points.

Summary

In this study, I sought to add to the existing literature that mindfulness can be a valuable tool for teachers and preservice teachers. With high burnout rates, teacher shortages, and overwork, teachers are some of the most stressed-out populations in America. I sought to validate a simple solution to this crisis through MBSR. The results of the paired-sample *t*-test provides statistical evidence to support the prediction that practicing Palouse Mindfulness can reduce depression, anxiety, and stress. Evidence shows using an MBSR can reduce the scores on the DASS-21, which measures depression, anxiety, and stress. Research is lacking on MBIs in the preservice teacher community, so this community was the subject of this research study. The results, depression [$t(9) = 3.45, p = .007, two-tailed, d = 1.09$], anxiety [$t(9) = 4.50, p = .001, two-tailed, d = 1.43$], and stress [$t(9) = 5.05, p = .001, two-tailed, d = 1.60$], imply MBSR might be a valuable tool for this population (see Table 3). Burnout is linked to the areas of depression, anxiety, and stress, and the results indicated this could be a viable solution to the burnout rates occurring in the teacher population.

CHAPTER FIVE: CONCLUSIONS

Overview

In this chapter, I analyze whether MBSR via Palouse Mindfulness can be an effective intervention for reducing scores on the DASS-21, reflecting depression, anxiety, and stress. In the chapter, I will include a discussion of the results, the implications for education students, the limitations of this study, and suggestions for future research.

Discussion

The study was a quasiexperimental pretest-posttest study to determine if MBSR would result in a decrease in depression, anxiety, and stress scales using the DASS-21. Ten participants completed the pretest and the posttest. Those participants were all over 18 and enrolled in a teacher education program. I collected data via mindfulteacher.net and included a presentation about MBSR and a shortened 4-week Palouse Mindfulness course as the MBSR intervention. I shortened the length of the intervention to a 4-day intensive intervention instead of eight weeks, and evidence suggested improvement in the brain when using mindfulness for only four days according to Kwak et al. (2019). Kwak et al. (2019) found short-term mindfulness intervention was effective in creating the same neural changes as the longer-term mindfulness interventions, and the changes can last up to three months (Kwak et al., 2019).

Research Question One

RQ1: Will those who practiced Palouse Mindfulness have lower scores on the DASS-21 posttest for anxiety than on the pretest?

The results support the hypothesis that the scores showed a decrease in anxiety scores postintervention. This result was expected due to the indications seen in past research indicating that MBSR showed significance in the reduction of depression, anxiety, and stress in an 8-week

MBSR course (Routhier-Martin et al., 2017; Zhang et al., 2019). Another study assessing pregnant women saw similar effects with an MBI, which showed improved DASS-21 scores in pregnant women. These indicated the intervention has shown effectiveness in the decrease of anxiety scores with other groups and measures. The preintervention scores ($M = 25.13$, $SD = 6.37$) showed a notable change postintervention ($M = 15.00$, $SD = 7.50$). The anxiety scores had the most significant decrease in scores by 12.80 points from the pretest to the posttest.

Research Question Two

RQ2: Will those who practiced Palouse Mindfulness score lower on the DASS-21 posttest for stress than on the pretest?

There was an average decrease of 9.80 points from the pretest to the posttest after the intervention. The notable change supports the hypothesis that the DASS-21 scores decreased in stress scales postintervention by using Palouse Mindfulness. The assumption is this result would align with other studies since other MBIs also showed a decrease in stress scores on other measures and in various groups (Janssen et al., 2018). Further studies showed better life satisfaction and decreased overall stress in the employees who implemented these strategies, suggesting the same would be true in this population and intervention strategies (Dehghan et al., 2021).

Research Question Three

RQ3: Will those who practiced Palouse Mindfulness have lower scores on the DASS-21 posttest for depression than the pretest?

The scores for depression have shown the least amount of change with the use of mindfulness in other studies. However, for this study, depression showed improvement after the MBSR intervention from pretest to posttest. The depression scores dropped an average of 7.80

points. Other studies indicated MBSR was less effective as a means of decreasing the symptomology and scores for depression. Still, those studies were limited to adolescents' health class and self-report scales (Johnstone et al., 2020). The results of some studies suggested adolescents who used mindfulness strategies saw decreased depression scores (Zimmer-Gembeck et al., 2021). Another study indicated MBSR was an effective strategy for lessening depression in Korean nursing students (Song & Lindquist, 2015). The scores also decreased in those with ASD and their parents (Ridderinkhof et al., 2017).

Implications

The results of this study add to the existing literature on Mindfulness by showing the implications for those in the teaching profession. The implications could be significant in the treatment of anxiety, stress, and depression, factors contributing to burnout and, therefore, positively affecting the issues of a teacher shortage (Golonka et al., 2019). Mindfulness is a simple strategy that can be used within the classrooms and for the teachers (Bakosh et al., 2016).

The implications for Christianity can be found in how mindfulness reduces stress and mental ailments. While some argue mindfulness is pagan in origin, others say any application can be used and adapted to meet a religious context (Broyles, 2021). Mindfulness supports a Christian worldview in that it brings awareness and focus on God's creation (Aitken, 2013). Using imagery, a mindfulness technique, is a common literary technique in scripture (Aitken, 2013). Christianity uses another mindful technique of stillness and acquiring peace; even Jesus went off alone to pray and seek solace with His father (Luke 4:42; Aitken, 2013). Aitken (2013) noted monks used mindfulness as early as the 13th century to focus on God, creation, and His peace. Mindfulness strategies, especially those used in MBSR, have been secularized to regulate the brain and the body and is a more scientific practice than a religious one (Kabat-Zinn, 2013).

Limitations

The major limitation of this study was the small sample size. The sample did not allow the study to generalize to the preservice teacher population. I calculated G power at 85% power and required 31 students (see Figure 1). I had 16 students participate in the pretest; six dropped out and did not complete the posttest; the final sample size was $N = 10$. I would have tried to obtain permission from another site with preservice education students and more in-person classes to sample.

I took the sample from a pool of 18–23-year-old teacher education students. I offered a \$25 Amazon gift card incentive after I got no participants for the study. All participants received this incentive, and I told students they would receive the incentive after the completion of the study. I was allowed to attend two classes of preservice education students at the local university. While there, I gave them recruitment flyers and showed them the website. I taught them basic ideas of mindfulness, being present, assessing the body, being intentional, and cultivating awareness. I did not foresee the lack of students attending classes in person at the institution in the study, and this affected my ability to see the students in person and hand out the recruitment flyers directly. The students who met me were more interested than those who had the recruitment flyer sent to them in completing the study and using mindfulness as an intervention strategy. In-person recruitment made all the difference in participation. I recommend future researchers use in-person recruitment.

Some participants used incorrect information for the pretest and posttest identifier codes, so they could not be matched after the study. Six students could not be paired to their pretest due to using different identifier codes, which did not match up at the end of the study. I should have added measures on the website to ensure this would not happen.

Recommendations for Future Research

Future research for the college group ages 18–23 should include an incentive and consist of attending in-person classes for recruitment. It would be valuable to see how many students who showed improved scores would consider using MBSR in the classroom after seeing a decrease in their DASS-21 scores. It would be beneficial to study this age group in other occupations and compelling to assess whether the data collected from the DASS-21, considering anxiety, stress, and depression decreased significantly, would be of more significance if the full 8-week intervention was used. Future considerations might assess whether the MBSR form of mindfulness is of lesser or greater value than a different mindful strategy.

Summary

According to the findings of this study, MBSR is an asset for the reduction of anxiety, depression, and stress in the preservice teacher community. The goal was to assess if the DASS-21 scores would show a decrease in the posttest results in comparison to the pretest scores in anxiety, stress, and depression. Again, the small sample size limited these studies' overall generalizability but did support the results of other studies that show mindfulness as a valuable strategy for the treatment of depression, anxiety, and stress in other studies and with different populations (Antony et al., 1998; Bakosh et al., 2016; Baminiwatta & Solangaarachchi, 2021). Since depression, anxiety, and stress can contribute to burnout (Krusche et al., 2013), MBSR is a promising solution to help with burnout rates in this population.

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Appendix A

Mindfulness for the Reduction of Stress, Anxiety, and Depression in the Preservice Teacher Community

Are you 18 years or older?

Are you pursuing teaching as a career?

Have you participated in Mindfulness Based Stress Reduction training in the last six months?

The purpose of my study is to assess mindfulness as an excellent strategy to combat stress, depression, and anxiety in those who are pursuing teaching as a career.

Participants, if willing to participate, will be asked to use Palouse Mindfulness as their Mindfulness-Based Stress Reduction (MBSR) program and will complete a survey at the beginning and the end of the MBSR program.

You will be asked to agree to the informed consent and create an identifier code. This code will be used to access the posttest at the study's completion.

If you would like to participate, please access the website, MindfulTeacher.net or scan this QR code to get started. This QR code will help you reach the MindfulTeacher.net website.



The researcher, Shelley Crampton, can be contacted at [REDACTED]. A consent document is provided on the first page of the survey.

Shelley Crampton, a doctoral candidate in the Education Department from the School of Community Care with an emphasis on Traumatology at Liberty University, is conducting this study.

Please contact Shelley Crampton at [REDACTED] for more information.

The purpose of my study is to assess mindfulness as an excellent strategy to combat stress, depression, and anxiety in those who are pursuing teaching as a career.

Liberty University IRB – 1971 University Blvd., Green Hall 2845, Lynchburg, VA 24515

Appendix B

Consent Form

Title of the Project: Mindfulness for the reduction of stress, anxiety, and depression in the college pre-service teacher community

Principal Investigator: Shelley Crampton, Liberty University Doctoral Candidate, School of Education, Liberty University

Invitation to be part of a Research Study

You are invited to participate in a research study. To participate, you must be 18 years or older, pursuing a career in teaching and have not used Mindfulness Based Stress Reduction (MBSR) in the last six months.

Please read this entire form and ask questions before deciding whether to participate in this research.

What is the study about, and why is it being done?

This study aims to assess if using Palouse Mindfulness training, an MBSR Program, will decrease the scores reported on the DASS-21.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following: You will use Palouse Mindfulness as your Mindfulness-Based Stress Reduction (MBSR) program.

Step 1- Take the DASS-21 and submit your score.

Step 2- Access the website- <https://palousemindfulness.com>

Step 3- Do the introduction and getting started portion of the website.

Step 4- Begin with week one and do the first four weeks of study weekly for the next four weeks. The video portions and the readings will be necessary to use mindfulness appropriately. The optional tasks are not required.

*You will notice there are eight weeks of study, and you can receive a certificate in mindfulness training if you choose to continue. We are only using the first four weeks for this research.

Step 5-Use the Mindfulness strategies for approximately 30 minutes per day for the duration of the 4-week intervention.

Step 6- After completing the 4-week intervention, please retake the DASS-21.

How could you or others benefit from this study?

The direct benefits participants should expect from participating in this study include a possible decrease in stress, anxiety, and depression.

Benefits to society include a greater understanding of how mindfulness training can decrease symptoms that cause burnout for teachers and assess mindfulness as a valuable tool for classroom teachers and college students.

What risks might you experience from being in this study?

The expected risks from participating in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

How will personal information be protected?

The records of this study will be kept anonymous. Research records will be stored securely, and only the researcher and website coordinator will have access to the documents.

- Participant responses will be kept confidential by replacing names with pseudonyms.
- Data collected from you may be used in future research studies. If data collected from you is reused or shared, any information that could identify you, if applicable, will be removed beforehand.
- Data will be stored on a password-locked computer. After three years, all electronic records will be deleted.

Participants will not be compensated for participating in this study.

Is study participation voluntary?

Participation in this study is voluntary. Your participation will not affect your current or future relations with Liberty University or Midwestern State University. If you decide to participate, you are free not to answer any questions or withdraw at any time.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Shelley Crampton. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at [REDACTED]. You may also contact the researcher's faculty sponsor, Pamela Moore, at [REDACTED].

If you have questions about your rights as a research participant, whom do you contact?

If you have any questions or concerns regarding this study and want to talk to someone other than the researcher[s], **you are encouraged** to contact the IRB. Our physical address is Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA, 24515; our phone number is 434-592-5530, and our email address is irb@liberty.edu.

Disclaimer: The Institutional Review Board (IRB) ensures that human subjects research will be conducted ethically as defined and required by federal regulations. The topics covered and

viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

Before agreeing to be part of the research, please be sure that you understand what the study is about. You can print a copy of the document for your records. If you have questions about the survey later, you can contact the researcher using the information provided above.

Appendix C

DASS-21

DASS21

Name:

Date:

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you **over the past week**. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0 Did not apply to me at all
 1 Applied to me to some degree, or some of the time
 2 Applied to me to a considerable degree or a good part of time
 3 Applied to me very much or most of the time

1 (s)	I found it hard to wind down	0	1	2	3
2 (a)	I was aware of dryness of my mouth	0	1	2	3
3 (d)	I couldn't seem to experience any positive feeling at all	0	1	2	3
4 (a)	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5 (d)	I found it difficult to work up the initiative to do things	0	1	2	3
6 (s)	I tended to over-react to situations	0	1	2	3
7 (a)	I experienced trembling (e.g. in the hands)	0	1	2	3
8 (s)	I felt that I was using a lot of nervous energy	0	1	2	3
9 (a)	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10 (d)	I felt that I had nothing to look forward to	0	1	2	3
11 (s)	I found myself getting agitated	0	1	2	3
12 (s)	I found it difficult to relax	0	1	2	3
13 (d)	I felt down-hearted and blue	0	1	2	3
14 (s)	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15 (a)	I felt I was close to panic	0	1	2	3
16 (d)	I was unable to become enthusiastic about anything	0	1	2	3
17 (d)	I felt I wasn't worth much as a person	0	1	2	3
18 (s)	I felt that I was rather touchy	0	1	2	3
19 (a)	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20 (a)	I felt scared without any good reason	0	1	2	3
21 (d)	I felt that life was meaningless	0	1	2	3

Appendix D

Site Permission

I have obtained site permission.

On May 23, 2022, at 9:23 PM, Redacted

Redacted,

Hello, I am reaching out again since I am getting close to IRB approval for My dissertation. Sorry it has taken such a long time to get back, but this dissertation has been one in the making for sure! If all goes well, I would like to start research in January, pending IRB approval of course, if it is still ok with you?

I also need to know approximately how many students are enrolled in the teacher education program or where I might get that Information?

Thank you so much!!

Hi,

Yes - please send me your IRB Approval letter once you receive it.

I am not sure about the number currently. Possibly ask redacted (copied in).

May 20, 2023

Hello redacted,

I just wanted to clarify and make sure I do have permission to ask your students to participate in my research study. I have been in communication with also but did not just want to take for granted that I had your formal permission. I have included my stamped permission from my IRB and plan to email some professors and bring some flyers by next week if that is acceptable to you.

Thank you for your patience in this long process!

Doctoral Candidate Liberty University

<Crampton_1186StampedConsent.pdf>

On May 20, 2023, at 10:44 AM, Redacted

Hello.

Yes- all of my classes are online so digital is perfect.

Redacted Associate Professor

Hi!

I'm the chair so if you give me your application from Liberty and your approval letter from them, I can handle it :)

Redacted
Associate Professor

Redacted

Redacted

Redacted

On May 23, 2022, at 9:17 PM, <redacted> wrote:

[EXTERNAL]

Redacted,

Great! I should have the IRB approval here at Liberty by the end of the summer. So just to clarify because I was not sure how this works when using a different school, I will also need to seek approval from your IRB as well? Where might I access this application? And thank you so much for your quick response.

Shelley Sent from my iPhone

On May 23, 2022, at 9:14 PM, Redacted wrote:

Hi,

I will need a copy of your IRB approval and application for the redacted IRB then you can proceed.

Cheers.

Redacted

On May 23, 2022, at 9:10 PM, <redacted> wrote:

[EXTERNAL]

Redacted,

I am earning my EdD. In Community Care with an emphasis in Traumatology from Liberty University. I earned my Master's in Counseling and my Undergraduate degree in Education from Midwestern State University. I will be able to provide you more information as I progress in my dissertation. I am currently in the writing dissertation and am planning to do the research component most likely this fall or possibly spring semester. I am seeking permission to do my research on Mindfulness with those in the education program at Midwestern State. The goal is to assess whether or not when given mindfulness training during their education, if their depression, anxiety, and stress levels decrease and also determine if they will be more likely to use mindfulness-based strategies in the classroom when given these strategies. It would be an 8-week study and I will have IRB approval from here at Liberty before proceeding. I was wondering if it would be possible for me to do this research with your education students. I was not sure who to reach out to, so I asked Stacia Whitworth for your contact information. I do know several of the

professors who work in the counseling department as well if you need to check any personal references. I am the Clinical Director at redacted and have been an L.P.C. there for many years. It would mostly be done online with the students. If you have any questions, please feel free to contact me or send me to the proper people for approval. Thank you. Your time in reading this email is appreciated. Please let me know your thoughts and if it is possible for me to conduct my research with your university.
redacted