

Marian University
Leighton School of Nursing
Doctor of Nursing Practice
Final Project Report for Students Graduating in May 2024

Effects of Mindfulness Meditation on Nurse Anesthesia Students

Bridgette Stroup
Marian University
Leighton School of Nursing

Chair:

Dr. Marie Goez, DNP, CRNA

A handwritten signature in black ink that reads "Dr. Marie Goez, DNP, CRNA". The signature is written in a cursive style with a horizontal line underneath.

(Signature)

Date of Submission:

November 20th, 2023

Table of Contents

Abstract.....	4
Introduction	4
Background	5
Problem Statement	7
Needs Assessment and Gap Analysis.....	7
Review of the Literature	8
Methods	8
Results.....	9
Study Characteristics	9
Perceived Stress.....	9
Meditation and Hypnosis	10
Meditation Intervention	11
Discussion	11
Theoretical Framework	13
SWOT Analysis	13
Project Aims and Objectives.....	14
Project Design	15
Project Site and Population.....	15
Measurement Instrument	16

Data Collection Procedure	16
Ethical Considerations	16
Project Evaluation Plan	17
Data Analysis.....	17
Results	17
Limitations.....	18
Conclusion	19
References.....	20
Appendices.....	24
Appendix A.....	24
Appendix B.....	25
Appendix C	26
Appendix D.....	27
Appendix E	28
Graph 1	29
Tables	30
Table 1	30
Table 2.....	31
Table 3.....	32
Table 4.....	33

Abstract

Introduction

The future and strength of the nurse anesthesia profession starts here, with this generation of doctoral nurse anesthesia students. Setting up a foundation of healthy coping skills is key to the longevity of a healthy nurse anesthesia practice. However, nurse anesthesia students have long been known to undergo high levels of stress and anxiety due to the intense pressure and obligations of school. That goes without saying that life is inevitably filled with stressors; nonetheless, many people are ill-equipped to properly deal with and process high levels of stress.

Nurse anesthesia schooling requires individuals to step away from the workforce and solely focus on academia. That means that many of these adults no longer have a reliable source of income. This creates a huge financial burden on students and their family members. With the added requirement of all nurse anesthesia schools to be doctoral-level programs, students have the additional stressors of more clinical hours, doctorate coursework, a longer duration of education, higher financial debt, scholarly projects, and lengthened practicum hours. Associated with school stressors are personal and emotional strains that students may inevitably face from day-to-day living. This immense amount of stress can have lasting consequences and places students at increased risk of anxiety, depression, extreme fatigue, burnout, substance use, dropping out, and suicidal ideation or attempt (Mainwaring et al., 2021). Without the tools and skills necessary to combat stress, unhealthy habits can lead postgraduate providers to experience adverse outcomes as a consequence of poorly managed high stress.

After graduation, now practicing providers must be able to make decisions in high-stress situations where critical thinking is vital to patient care (Romito et al., 2020). This high-stress environment can lead providers to easily develop burnout (Romito et al., 2020). Burnout is

detrimental to a provider's well-being and negatively impacts patient care; burnt-out employees are associated with less favorable patient satisfaction feedback and compromise the quality of care provided (Cocchiara et al., 2019). Unfortunately, most people do not have the knowledge or skills necessary to deal with such high stress levels (Farrar et al., 2020). Instead, to combat chronic stress, millions of Americans turn to prescription drugs. However, this can lead to providers becoming over-medicated or even addicted (Farrar et al., 2020). Adverse side effects from anti-anxiety medications, such as sedation, dependence, and drowsiness, can occur, which may affect the quality of care given to patients (Farrar et al., 2020). Due to the unfavorable side effects of many anxiolytic drugs, other holistic options, such as mindfulness, should be explored.

Along with stress and burnout, nurse anesthesia providers are at high risk for drug diverging due to the easy access of highly addictive drugs (Valdes, 2014). Importantly, most anesthesia providers do not begin diverging drugs until at least ten years into their practice (Valdes, 2014). Therefore, substance use is something they need to acknowledge that can happen to them at any point in their career. Thus, we should determine if providers who are educated about how to adapt and deal with stressful situations will have increased patient safety and decreased burnout and drug divergence throughout a nurse anesthetist's lifetime.

Background

With little to no emphasis on mental health or stress management within the culture of nurse anesthesia schools, students continue to report high levels of stress, demonstrating a need for intervention (Mainwarning et al., 2021). Stress and anxiety are inevitable emotions of the human experience that evolutionally helped humans navigate their environment and away from danger (Schneiderman et al., 2005). Today, in small doses, these emotions allow for growth, healthy adaption, and create motivation (Schneiderman et al., 2005). However, chronic elevation

of stress causes systemic inflammation throughout the body having physical, mental, and emotional adverse side effects (Yaribeygi et al., 2016). The chronic rise in cortisol levels from stress causes a cascade of changes that affects every major system in the body: the cardiovascular, endocrine, respiratory, nervous, and immune systems (Yaribeygi et al., 2016). This maladaptive response causes pathological responses that are associated with cardiovascular disease: coronary heart disease, high blood pressure, and atherosclerosis; suppressed immunity; increased vulnerability to infections and the common cold; slower wound healing; and poorer response to vaccinations (Yaribeygi et al., 2016). Mental and emotional effects from high levels of stress have been linked to poor school performance, cognitive impairment, sleep problems, malaise, eating disorders, fatigue, anxiety disorders, memory loss, increased consumption of alcohol, decreased levels of compassion and empathy, and mild to severe PTSD (Yaribeygi et al., 2016). To decrease adverse side effects from stress and increase optimal learning, stress management tools should be integrated into graduate nurse anesthesia schools.

Furthermore, being able to make decisions in stressful situations is an important aspect of the nurse anesthesia profession. Therefore, having a strong understanding of how to manage stress and anxiety is vital for students and seasoned providers. One solution to this problem is practicing mindfulness meditation. Mindfulness Based Stress Reduction (MBSR) is an evidence-based intervention that is used to reduce stress among individuals (Burgstahler et al., 2019). Meditation mindfulness is a free tool that can be done anywhere, anytime, and can last any amount of time the participant chooses. The most common way to meditate is to sit in a quiet place in a comfortable seat, actively relaxing each part of the body. Then, with the eyes closed, gentle focus is placed on the inhalation and exhalation of each breath. This allows the mind to

slow down, calms the nervous system, and trains the brain to focus on one thought at a time (Ching et al., 2015).

It was shown that examination performance is highly dependent on preparation, quality and quantity of sleep, diet, exercise, and effective stress management (Fowler et al., 2017). Meditation is one form of effective stress management. Meditation gives one the ability to become more self-aware, label their feelings, and thus better manage negative emotions (Ching et al., 2015). Mindfulness meditation is related to increased levels of compassion and empathy, reduced anxiety, improved well-being, decreased psychological distress, and increased immune function (Burgstahler et al., 2019). In one study, mindfulness meditation was shown to increase both memory and attention among students, leading to improved learning effectiveness (Ching et al., 2015). As little as 5-10 minutes of meditation a day have been shown to have major impacts on decreasing stress and increasing wellness in medical college students (Burgstahler et al., 2019).

Problem Statement

It is essential to understand that student registered nurse anesthetists (SRNAs) are the future of the nurse anesthesia profession. This generation of students needs the necessary skills and tools to succeed both professionally and personally. With so many adverse outcomes, it is essential that nurse anesthesia students adequately manage stress. To improve student wellness and decrease stress and anxiety, programs should explore the use of daily meditation. This led to the development of the following PICOT question: In nurse anesthesia students, what is the effect of meditation on reducing stress levels?

Needs Assessment & Gap Analysis

This project will take place at a small private college in a large Midwest city. Here, anesthesia students continue to be placed in high pressure situations with demanding clinical and academic workloads. As with most universities, mental health is overlooked. Yet, there are simple, free ways to combat stress and anxiety, such as practicing meditation or mindfulness. Currently, at this institution, there is no formal or informal training for stress management related to mindfulness meditation. The discussion on mental health, student well-being, and emotional health needs to be opened and intensely explored.

Review of the Literature

Methods

This literature review (Table 4) was conducted to examine the effects of meditation on college students. The review was conducted in December 2022 using the database PubMed. The review search was conducted using the keywords *meditation*, *anxiety*, *college*, *students*, and *mindful*-. The database searches were performed using the BOOLEAN phrases meditation AND college AND anxiety AND student nurse AND students, and mindfulness AND college AND students AND anxiety. In addition, reference lists of relevant articles and studies were manually searched for articles that met the inclusion and exclusion criteria. From the database search, 507 results were found; after duplicates were removed, 201 remained. Articles were then excluded if they were published over five years ago, not written in English, not a randomized control design, or participants were under 18 years old, which resulted in 31 research articles, as shown in the PRISMA flow chart (Appendix C). The studies were included if they met the following criteria: published over the past five years, written in English, a randomized control design, and participants over 18 years old. From the remaining results, those that were not conducted in the United States, Ireland, Australia, or New Zealand and those that were not solely done on college

students were excluded. In all, a total of 10 randomized control trial research articles that investigated the effects of meditation on college students were included in this literature review.

Results

Initially, 507 articles were retrieved from the electronic database. After applying the inclusion and exclusion criteria, the search was narrowed to 10 articles. The PRISMA flow chart, shown in Appendix C, displays the selection process for this literature review. Summaries of the included studies are illustrated in the literature review matrix shown in Table 4.

Study Characteristics

All ten studies were designed and conducted as randomized controlled trials. The meditation interventions included the use of phone applications such as Headspace and Calm, pre-recorded guided meditations, and in-person guided meditation and hypnosis. The meditation interventions had varying durations, lasting 10 to 60 minutes. Some studies collected information after one session, while others followed college students over one academic year with varying sessions. All ten studies took place in English-speaking countries, which were the United States (n=7), Ireland (n=1), Australia (n=2), and New Zealand(n=1). Of the ten studies, four of them only used participants enrolled in health science programs at the college level. Each study focused on differing primary outcomes, which include but are not limited to anxiety, perceived stress, burnout, general well-being, resilience, mindfulness, critical thinking, executive attention, self-compassion, college adjustment, and social and nature connectedness. Common data collection tools utilized include the Perceived Stress Scale (PSS) -5, the Five-Facet Mindfulness Questionnaire (FFMQ) – 4, and the Positive and Negative Affect Schedule (PANAS)- 2.

Perceived Stress

Five of the ten studies found that meditation decreased perceived stress by mean of the Perceived Stress Scale (PSS) (Barry et al., 2019; Burger et al., 2017; Chu et al., 2022; Huberty et al., 2019; Yang et al., 2018). In one RCT of 88 medical students, the meditation intervention of guided meditation was introduced to participants through the mobile application Headspace (Yang et al., 2018). The purpose of this study was to evaluate the effects of daily meditation on medical students' well-being and perceived stress (Yang et al., 2018). Participants were broken up into an intervention group and a control group (Yang et al., 2018). The intervention group was asked to complete daily meditations through Headspace for 30 days (Yang et al., 2018). The control group, or the wait group, was told they would start the meditation in the months to come (Yang et al., 2018). All participants were asked to complete the Perceived Stress Scale (PSS) at the same time, prior to starting meditation for the intervention group and again after 30 days (Yang et al., 2018). The results indicated that perceived stress significantly decreased in the intervention group compared to the control group after 30 days ($p=.02$) (Yang et al., 2018).

Meditation and Hypnosis

One of the ten studies compared the effects of meditation and hypnosis on college students (Gloede et al., 2021). In this RCT of 104 college students, participants were either placed in the hypnosis or the mindfulness meditation group (Gloede et al., 2021). In the hypnosis group, students were guided through a 15-minute hypnosis session led by the investigator (Gloede et al., 2021). In the meditation group, students were placed in a room and instructed to follow the recording of a guided 15-minute mindfulness meditation (Gloede et al., 2021). Using the Waterloo Stanford Group Scale of Hypnotic Susceptibility (WSGC)- Form C and the Inner Subjective Experiences Rating Scale (INSUB), students were asked to complete each scale before and after their sessions (Gloede et al., 2021). Both the hypnosis and mindfulness

meditation showed a significant reduction in the WSGS results (both $p < .05$) compared to the baseline data, indicating that hypnosis and mindfulness meditation are notably similar in producing momentary mindful states, and both move people into a state of relaxation (Gloede et al., 2021).

Meditation Intervention

Eight of the ten studies utilized pre-recorded guided meditations as their intervention (Aspy et al., 2017; Barry et al., 2019; Burger et al., 2017; Chu et al., 2022; Flett et al., 2020; Huberty et al., 2019; Noone et al., 2018; Yang et al., 2018). Of these eight studies, five used the application Headspace. (Chu et al., 2022; Flett et al., 2020; Huberty et al., 2019; Noone et al., 2018; Yang et al., 2018). In one study of 91 university students, participants were placed in either the intervention group, which utilized meditation through Headspace or the control group, which utilized a sham meditation through Headspace (Noone et al., 2018). Measurements were taken before the implementation of the meditation and sham meditation and again after six weeks (Noone et al., 2018). Significant results failed to be shown in the meditation group compared to the sham meditation group for critical thinking, wellness, and emotional experience ($p > .05$) (Noone et al., 2018). Yet, after six weeks, both the control and the intervention group had significant changes ($p < .05$) from baseline, stating that both were effective in increasing well-being and emotional experiences (Noone et al., 2018).

Discussion

Combating stress, anxiety, and burnout in nurse anesthesia students is essential to the health and wellness of these students. The literature provides many examples supporting the benefit of meditation on college students. Furthermore, the results of this literature review support the use of meditation as an effective, inexpensive treatment to decrease stress and

anxiety and increase general well-being in students. College students should be encouraged to practice mindfulness meditation through the phone applications Headspace or Calm or other forms of evidence-based guided meditation.

One of the ten studies did not support the use of meditation compared to the sham group for decreasing stress (Noone et al., 2018). However, it is worth noting that the sham meditation group participants were asked to close their eyes and guided through breathing exercises using the application Headspace; users could have reasonably believed it was mindfulness training (Noone et al., 2018). Generally speaking, guided breathing exercise is considered a means of mindfulness meditation (Noone et al., 2018). For this reason, further exploration of the effects of meditation on college students without the use of guided breathing exercises as a sham group should be completed (Noone et al., 2018).

From these ten articles, the limitations include smaller than 250 participant sample sizes, data collection from one day to 1 year, and no samples on doctoral nurse anesthesia students. Future studies would benefit from larger sample sizes, multiple colleges, and the inclusion of nurse anesthesia students. Future studies are recommended to evaluate the effects of meditation on nurse anesthesia students and its lasting implications regarding stress, anxiety, burnout, and mindfulness beyond one year.

In conclusion, doctoral nurse anesthesia programs should promote and educate students on guided mindfulness meditation. Guided meditation is an easy approach to combat stress and anxiety and increases attention and alertness. Meditation is affordable and can be done anywhere, which makes it an excellent choice for first-line treatment, keeping pharmacological drugs as the next approach. Students may benefit from a constant mindful meditation practice, setting themselves up for success as healthcare providers.

Theoretical Framework

The Symptom Management Theory is a framework used to help guide symptom assessments, treatments, and desired outcomes for research and practice. It was developed by Melinda S. Bender, Susan L. Janson, Linda S. Franck, and Kathryn Aldrich Lee in 1994 at the University of California School of Nursing, San Francisco, and later revised in 2001 (Smith & Liehr, 2018). Previous models, such as the Model of Symptoms of Self-Care and Self-Care Model, were the foundations from which the Symptom Management Model was derived (Smith & Liehr, 2018). As shown in Appendix A, this theory has three main concepts: symptom experience, symptom management strategies, and symptom status outcomes (Smith & Liehr, 2018). These three main concepts are explored in relationship to the three domains of nursing science: person, environment, and health/illness (Smith & Liehr, 2018). This framework allows for the broad, complex topic of symptom management to be readily organized, studied, and incorporated into practice.

Applying the Symptom Management Theory as a framework to the problem of student stress would help assess the effects of meditation on stress. First, stress symptoms experienced are clearly identified. Next, a management strategy is applied; in this case, the management strategy is meditation. Then, stress symptoms are reevaluated after the meditation intervention is complete. If the reported symptoms decrease in severity or disappear altogether, then according to the Symptom Management Theory, meditation is an effective treatment for stress management. This theory provides a valuable framework when applying it to the management of symptoms from stress by means of meditation.

SWOT Analysis

The key stakeholders for this project are doctoral nurse anesthesia students and nurse anesthesia programs. Other stakeholders include hospitals, patients, and insurance companies. The intent of this project is to shine a light on stress and how meditation can be easily taught to decrease stress levels and its associated symptoms among nurse anesthesia students. The SWOT analysis chart, shown in Appendix B, displays the strengths, weaknesses, opportunities, and threats to this project. Anticipated strengths for this project include convenience, cost-effectiveness, the use of technology, and a foundational meditation class that was previously taught to nurse anesthesia students at the university. This project is considered convenient because participants can meditate anywhere, any time of the day. More so, this project is free to all parties involved and only requires downloading an app. Using technology is a significant strength of this project because it will support the meditation app and the pre and post-surveys. Additionally, this class of students is not naive to concepts of meditation because, during a mandatory wellness day held on campus, the nurse anesthesia students of one university were given an intro to meditation class. This class is anticipated to strengthen the meditation skill level of these students. However, weaknesses or potential barriers to this project include students with low commitment who are not willing to participate. Opportunities for this project are important as mental health is gaining more attention, and a need for stress management in students is identified. This project has the potential to highlight the importance of stress management and spread awareness of the effects of meditation. Perhaps nurse anesthesia schools will identify meditation as an essential skill that needs to be implemented and taught to all their students. Lastly, threats to this project include a lack of support from nurse anesthesia programs and a lack of support or willing participation from students.

Project Aims and Objectives

The purpose of this project is to increase the health and wellness of doctoral nurse anesthesia students through meditation. Due to the high demands from school, stress is a common concern among nurse anesthesia students. Research has shown that meditation can be used to combat stress. Therefore, decreasing the levels of stress students experience is expected to increase their quality of well-being. This project aims to assess mindfulness meditation's effects on reducing stress in doctoral nurse anesthesia students. Students will be asked to participate in one 5-minute guided meditation. Afterward, the collected data will be examined, and pre- and post-meditation scores on stress levels will be analyzed. The quantitative objective includes the following: the average post-meditation stress levels reported decreased from pre-meditation stress levels. The qualitative objective consists of the following: the students will list fewer side effects related to their stress by the end of the seven days of meditation compared to the beginning. The expected outcome is that students report decreased stress levels after doing the evidence-based mindfulness meditation.

Project Design

Project Site and Population

For this proposed project, the study will take place at a private Catholic university in central Indiana. The population for this project will include both sexes of any age who are currently in school for nurse anesthesia. The inclusion criteria will be graduate, doctoral nurse anesthesia students. Exclusion criteria will be anyone not currently enrolled as a nurse anesthesia student.

Students will be asked to participate in one 5-minute meditation. Afterward, the collected data will be examined, and pre- and post-meditation scores on stress levels will be analyzed. To allow for easy interaction with all participants, the intervention will be held online. To allow for

flexibility, the participants will be given roughly four weeks to complete the meditation intervention with the pre-and post-questionnaire, which may be done from the location of their choice. A barrier to participation in this project may be access to the internet; however, Marian University offers free Wi-Fi and computer access to all students and faculty.

Measurement Instruments

In order to evaluate the effects of meditation on nurse anesthesia students, a pre-and post-questionnaire was created by the project leader (see Appendix D).

Data Collection Procedures

To collect this data, the online site qualtrics.com through Marian University will be utilized. This site allows for easy data collection and keeps the results of the survey private so that only the owner may see the results. All participants will remain anonymous and will only be identified by entering the last four digits of their student ID before starting each survey. An implied consent will be presented to the participants before beginning the survey and meditation (see Appendix E).

Ethical considerations

Participants' confidentiality will be assured by coding the participants using the last four digits of their student ID. This means all results will be anonymous as the project coordinator does not have access to any database to identify students with their student ID numbers. Any electronic information with identifiable data, such as the surveys, will only be accessible to the project coordinator. This electronic information will include a password to access it to prevent access by unauthorized users. Non-augmented data will be deleted after two years. All electronic raw data collected and stored will be kept for five years and then deleted. There are minimal to

no risks to those participating in this project, as meditation has been shown to be a safe stress reduction.

Project Evaluation Plan

Data Analysis

To evaluate the effectiveness of the project, statistical analysis will be performed on the quantitative questions. To assess the multiple-choice questions, post-intervention questions will be compared to pre-intervention questions. To evaluate the effectiveness of the qualitative questions, a qualitative analysis will be performed utilizing Lincoln and Guba's trustworthiness (Meadows-Oliver, 2019). The project leader will ensure credibility, transferability, dependability, and confirmability throughout (Meadows-Oliver, 2019). The data will be discussed for interpretation and include areas of potential bias. Finally, conclusions will be drawn on whether meditation was an effective tool for stress decreasing stress in nurse anesthesia students.

Results

A total of 104 students were invited to participate in this study, and of those, 38 students completed the pretest and 36 completed the posttest. From these findings, 2 subjects were excluded due to failure to complete the posttest. As shown in Table 1, the demographics of the 36 participants (n=36) were 69% females (n=25) and 31% were males (n=11); 53% were 1st years (n=19), 17% were 2nd years (n=6), and 31% were 3rd years (n=11); 42% were between the ages of 22-28 (n=15), 45% were between the ages of 29-35 (n=16), 8% were between the ages of 36-42 (n=3), and 5% were 43 and over (n=2).

Additionally, two pretest questions asked participants if they had ever meditated before and how many times they had meditated in the past month. Table 2 illustrates that 81% of

participants had meditated before (n=29), and 19% of them reported never having meditated (n=7). However, only 36% of the participants reported meditating 1-4 times in the past month (n=13), and 64% had not done any meditation practice in the past month (n=23). None of the participants reported meditating more than four times in the past month.

The outcomes of this project were assessed based on the changes found in the pre- and post-test. Table 3 highlights the comparison between questions 7 and 9, where participants were asked to rate their current level of stress pre and post-meditation on a scale from 0 -10, zero being completely relaxed, they could fall asleep, to 10 they were having a panic attack. Pre-meditation responses ranged from 1-10, with a mean stress level of 5.11. Post-meditation responses ranged from 0-7, with an average stress level of 2.83. Thus, the average stress level decreased by 2.28 after completing the 5-minute guided meditation.

Lastly, after the meditation, participants were asked to describe how they felt now by selecting all that applied; seven options were given to them, and one option was given as “other, please specify,” where they could write how they were feeling. Graph 1 depicts how the participants were feeling after the meditation: 78% felt calmer (n=28), 67% felt less tense (n=24), 50% felt peaceful (n=18), 36% felt lighter (n=13), 22% felt more focused (n=8), and 33% felt grateful (n=12). Of the 36 participants, 5 people chose “other, please specify” and added phrases like “my heart is more open,” “I feel nice,” and “the same amount of stuff to do.” However, none of the answers were repeated more than once, thus making them insignificant to the study’s findings.

Limitations

The limitations of this study include a small sample size from one university, a relatively short meditation session, and a singular meditation session. Future studies would benefit from a

larger sample size, including multiple nurse anesthesia universities, a longer meditation session, and more than a single meditation session. Future studies are recommended to evaluate the effects of meditation on nurse anesthesia students and its lasting implications beyond a one-time session.

Conclusion

Nurse anesthesia students are reporting high stress levels, with an average stress level of 5.11 on a scale from 0-10. However, after one short 5-minute guided meditation, the average stress score of these very same students decreased to 2.83. That means that a single meditation session can decrease one's current stress level by roughly 2.28 points. Additional benefits found in a one-time 5-minute guided meditation include increased feelings of calmness, peacefulness, lighter, less tense, more relaxed, and gratefulness. In conclusion, the results of this project suggest that a one-time 5-minute guided meditation is an effective free tool that can be utilized for decreasing acute stress in nurse anesthesia students. With so much at stake, as our future anesthesia providers, nurse anesthesia schools should consider integrating mindfulness techniques, offering meditation-based tools to their students, and educating them on the benefits of incorporating meditation into their lives.

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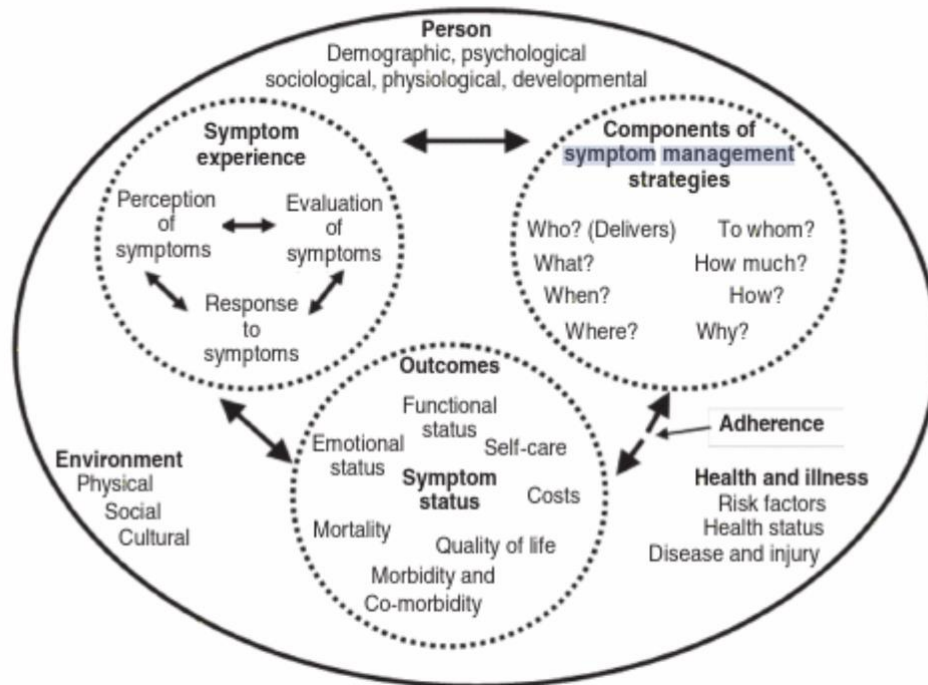
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Appendix A



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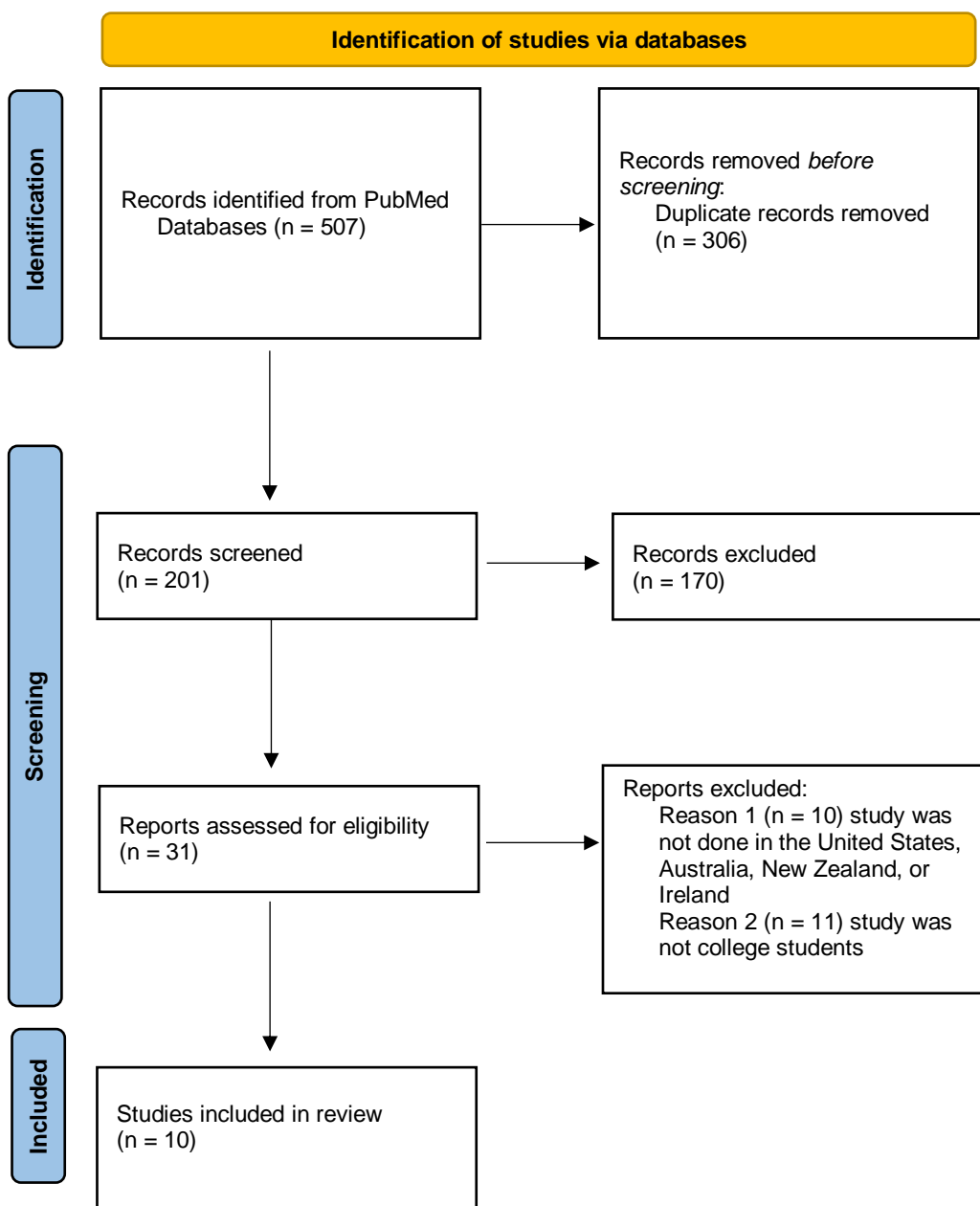
Appendix B

Effects of Mindfulness Meditation SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
Convenient; can be done anywhere	Undesirable length of time	Need for stress management	Lack of support from school/program
Cost-effective; free	Meditation knowledge deficit	Mental health popularity on the rise	Lack of support from students
Technology; apps on everyone's phone	Low commitment from students	Identify new effective tool for combating stress	
Intro to meditation class previously taught to students		Implementing taught meditation in SRNAs	

Appendix C

PRISMA 2022 Flow Diagram



Appendix D

1. What gender do you identify as?
 - a. female
 - b. male
 - c. non-binary
2. What age group do you fall into?
 - a. 22-28
 - b. 29-35
 - c. 36-42
 - d. 43 and over
3. As an SRNA, what year are you?
 - a. 1st year
 - b. 2nd year
 - c. 3rd year
4. Have you ever meditated?
 - a. Yes
 - b. No
5. In the past month, how many times have you meditated?
 - a. 0
 - b. 1-4
 - c. 4-8
 - d. 9+
6. On a scale from 0-10, rate your current stress level; zero being completely relaxed, you could fall asleep, to 10 you are having a panic attack.
 - a. 0-10
7. Now that you have completed the guided meditation, please reassess your stress level. On a scale from 0-10, rate your current stress level; zero being completely relaxed, you could fall asleep, to 10 you are having a panic attack.
 - a. 0-10
8. After completing the meditation, please describe how you feel now. Select all that apply.
 - a. Calmer
 - b. Less tense
 - c. Peaceful
 - d. Lighter
 - e. More focused
 - f. Grateful
 - g. Other: Please specify _____

Appendix E

You are invited to participate in a guided meditation. This study is being conducted by Bridgette Stroup (primary investigator) from Marian University in fulfillment of her DNP graduate project. You were selected to participate in this study because you are a student enrolled in the nurse anesthesia program at Marian University. The purpose of this project is to study the effects of meditation on SRNA's. If you agree to take part in this study, you will be asked to complete the survey on the next page. This survey will ask about your experience with meditation and your current stress level. It will take you approximately 15 minutes to complete. Your answers in this study will remain confidential and results will be reported in the aggregate. Any risks to breach of confidentiality will be minimized by storage of all data in a password-protected computer kept in the home of the primary investigator and the deletion of all data upon completion of the study.

Your participation in this study is completely voluntary and you can withdraw at any time. You are free to skip any question you choose.

If you have questions about this study or if you have a study-related problem, you may contact the primary investigator, **Bridgette Stroup at (412) 913-7128**. If you have any questions concerning your rights as a study subject, you may contact the Marian University Institutional Review Board Chair at irb@marian.edu.

By completing the pre-survey, you are indicating that you are at least 18 years old, have read and understood this consent form, and agree to participate in this study.

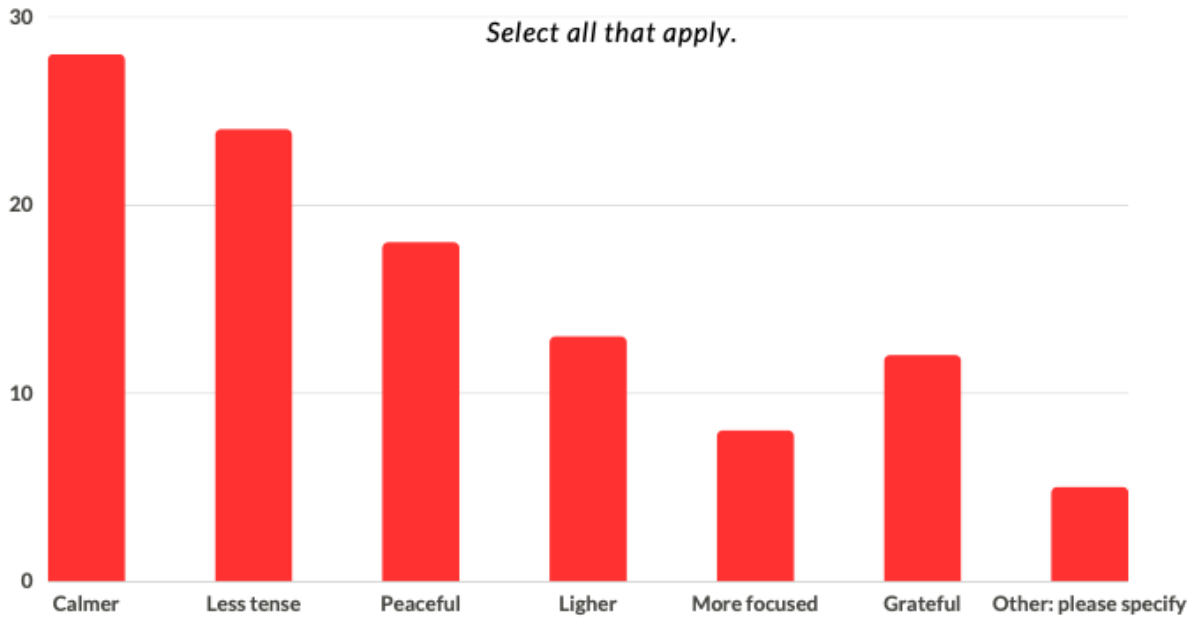
Graph 1*Participant Qualitative Results***Q10 - AFTER COMPLETING THE
MEDITATION, PLEASE DESCRIBE HOW YOU
FEEL NOW.**

Table 1*Participant Demographics*

Survey Question	Characteristics	Frequency	Percentage
What gender do you identify as?	a. Female b. Male c. Non-binary	a. 25 b. 11 c. 0	a. 69% b. 31% c. 0%
What age group do you fall into?	a. 22-28 b. 29-35 c. 36-42 d. 43 and over	a. 15 b. 16 c. 3 d. 2	a. 42% b. 45% c. 8% d. 5%.
As an SRNA, what year are you?	a. 1 st year b. 2 nd year c. 3 rd year	a. 19 b. 6 c. 11	a. 53% b. 17% c. 31%

**Percentages were rounded to the nearest whole number*

Table 2*Participant Quantitative Results*

Survey Question	Characteristics	Frequency	Percentage
Have you ever meditated?	a. Yes b. No	a. 29 b. 7	a. 81% b. 19%
In the past month, how many times have you meditated?	a. 0 b. 1-4 c. 4-8 d. 9+	a. 23 b. 13 c. 0 d. 0	a. 64% b. 36% c. 0% d. 0%

**Percentages were rounded to the nearest whole number*

Table 3*Participant Pre and Post Quantitative Results*

- A. Survey Question 7- On a scale from 0-10, rate your current stress level; zero being completely relaxed, you could fall asleep, to 10 you are having a panic attack.

Minimum	Maximum	Mean	Variance	Mode
1.0	10.00	5.11	3.41	4.0

- B. Survey Question 9- Now that you have completed the guided meditation, please reassess your stress level. On a scale from 0-10, rate your current stress level; zero being completely relaxed, you could fall asleep, to 10 you are having a panic attack.

Minimum	Maximum	Mean	Variance	Mode
0.0	7.0	2.83	3.08	2.0

EFFECTS OF MEDITATION ON COLLEGE STUDENTS

Table 4. Literature Review Matrix

Author/Year	Study Design	Sample (n=x)	Meditation Intervention	Instruments / Data collection	Results
Aspy et al. 2017	Randomized Controlled Trail	N= 115 Undergraduate students	Guided meditation Mp3 recordings Mindfulness meditation (MM), loving-kindness meditation (LKM), progressive muscle relaxation (active control group)	Survey Monkey, Connectedness to Nature Scale (state version), Positive and Negative Affect Schedule (PANAS), Social Connectedness Scale	The mindfulness and loving-kindness meditation groups had significant greater social and nature connectedness than those in the control group (p<.05).
Barry et al. 2019	Randomized Controlled Trail	N=83 Doctoral students	Guided mindfulness practice using an audio CD	Depression, Anxiety and Stress Scale (DASS), Perceived Stress Scale (PSS), Psychological Capital Questionnaire (PCQ)	Compared to the control group, the intervention group reported a statistically significant increase in hope (p=.000), self-efficacy (p=.004), and resilience (p=.011), and a reduction in depression (p=.045).
Burger et al. 2017	Randomized Controlled Trail	N=52 Nursing students	Guided mindfulness meditation using audio file	The Five-Facet Mindfulness Questionnaire (FFMQ), Perceived Stress Scale (PSS-10), The Attention Network Test (ANT)	The meditation group significantly reduced stressed (p=.000), increased mindfulness (p=.013), and enhanced executive attention (p=.044).

Chu et al. 2022	Randomized Controlled Trail	N=56 Pharmacy students	Headspace; a mobile application	Perceived Stress Scale (PSS), Mindfulness Attention Awareness Scale (MAAS), Maslach Burnout Inventory (MBI)	Compared to the control group, the intervention group showed a significant reduction in stress and burnout and an improvement in mindfulness ($p<.05$).
Flett et al. 2020	Randomized Controlled Trail	N= 250 First year college students	Headspace; a mobile application	Kessler Psychological Distress Scale, College Adjustment Test, Brief Resilience Scale, New General Self-Efficacy Scale, Cognitive Affective Mindfulness Scale – Revised, academic scores	Moderate use of Headspace users reported an improvement in psychological distress($p<.001$) and an increase in college adjustment($p<.001$).
Gloede et al. 2021	Randomized Controlled Trail	N=104 College students	Pre-recorded mindfulness meditation or a live guided hypnosis	Waterloo Stanford Group Scale of Hypnotic Susceptibility (WSGC)- Form C, Inner Subjective Experiences Rating Scale (INSUB)	Hypnosis and mindfulness meditation both showed significant reduction in the WSGS results (both $p<.05$) and no significant difference between the two on the WSGC results ($p>.05$).

Huberty et al. 2019	Randomized Controlled Trail	N=88 College students	Calm; a mobile application	Perceived Stress Scale, Five Factor Mindfulness Questionnaire (FFMQ), Self-Compassion Survey Short-Form (SCS-SF), Patient-Reported Outcomes Measurement Information System (PROMIS), Youth Risk Behavior Surveillance (YRBS)	Significant differences were found in all outcomes (mindfulness, stress, and self- compassion) in the intervention group compared to the control group (all $p<.03$).
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Noone et al. 2018	Randomized Controlled Trail	N= 91 University students	Headspace; a mobile application	Halpern Critical Thinking Assessment (HCTA), Heuristics and Biases items, Five Facet Mindfulness Questionnaire (FFMQ), Sternberg working memory task, Positive and Negative Affect Schedule (PANAS), Warwick-Edinburgh mental well-being scale, Real world outcomes inventory, Practice quality - mindfulness questionnaire	Significant results were failed to be shown in the meditation group compared to the sham meditation group for critical thinking, wellness, and emotional experience ($p > .05$).
Stinson et al. 2020	Randomized Controlled Trail	N= 49 Nursing students	In-person Mindfulness meditation	State-Trait Anxiety Inventory	Trait anxiety decreased in the intervention group ($p = .000$).
Yang et al. 2018	Randomized Controlled Trail	N= 88 Medical students	Headspace; a mobile application	Perceived Stress Scale (PSS), Five-Facet Mindfulness Questionnaire (FFMQ), and General Well-Being Schedule (GWBS)	Perceived stressed significantly decreased and generally well-being significantly increased in the intervention group compared to the control group ($p < .05$).